Research Statement

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Overview and Vision

My research can be organized into three strands. The first studies macroeconomic implications of information frictions and belief distortions. The second line, closely related to the first, examines risk considerations shape the organization of firm production and aggregate output. The third strand, parallel to the first two, focuses on labor income inequality and the underlying forces shaping it.

I use a combination of theory and quantitative methods to understand novel channels through which microeconomic frictions affect the macroeconomy. The questions I study very often demand measurement of hard to measure quantities. I do so using novel approaches such as recent developments in LLMs. I then use these data to discipline theoretical general equilibrium models to quantify the importance of novel mechanism/channels impacting the aggregate outcomes.

Information Frictions, Beliefs, and Aggregate Outcomes

My main research agenda examines how information frictions and belief distortions shape firms' and households' decisions, with an emphasis on the implications of these frictions on the broader macroeconomy.

My job market paper, *Who Pays Attention? Firm Size, Information, and Monetary Non-Neutrality*, builds on an enduring insight in macroeconomics that information frictions provide a micro-foundation for monetary non-neutrality. When firms do not fully incorporate new information into their beliefs, prices adjust only partially to monetary shocks, allowing these shocks to affect real activity. The literature thus far mostly studies models with symmetric firms and largely abstracts from heterogeneity. I ask whether there are systematic differences in firms' information frictions and how they matter for aggregate monetary non-neutrality. Using a large language model to construct a measure of firms' attention to aggregate nominal conditions from 10-K filings, I document that larger firms within an industry are more attentive. I develop a heterogeneous-firm model with endogenous information acquisition that rationalizes this relationship. In the model, larger firms face greater profit losses from pricing mistakes and therefore have stronger incentives to acquire information. Crucially, the aggregate consequences depend on how information frictions/attention aligns with firms' pricing incentives. When larger, better-informed/attentive firms also have lower cost pass-through, the firms best informed about a nominal shock are those whose desired prices respond less to it. This negative covariance between attention and pass-through is the paper's central contribution. Using a sufficient-statistics approach, I show that accounting for it substantially increases aggregate price rigidity and monetary non-neutrality. Moreover, the model endogenizes price rigidity as a function of the underlying firm productivity distribution. I therefore use a structural version of the model to study how changes in this distribution affect monetary non-neutrality, allowing both firms' pricing incentives and their information acquisition to respond.

In another paper with Krishna Kamepalli, *Income Expectations with Information Frictions and Aggregate Consumption*, we examine the aggregate consequences of households' incomplete information about the sources of income shocks. Using PSID data, we find that households adjust consumption similarly in response to aggregate and idiosyncratic income shocks, even though the aggregate component is substantially more persistent. A full-information model predicts a much larger consumption response to aggregate shocks than we observe. We show that incomplete information provides a natural explanation for this. In particular, households observe their income but must infer how much of its movement reflects aggregate conditions. Embedding this inference problem in a heterogeneous-agent model with aggregate shocks brings predicted consumption responses closer to the evidence and implies weaker consumption adjustment to aggregate shocks.

A newer agenda within this broad family of information frictions studies how belief distortions shape firm decisions and policy effectiveness. In a paper titled *Ambiguity Trap and Investment Stimulus in General Equilibrium* [1] joint with Krishna Kamepalli, we develop a general equilibrium model of firm investment in which firms are ambiguity-averse and evaluate investment opportunities pessimistically. The model is disciplined using the moments of firms' investment distribution and the excess asymmetries determine the magnitude of belief distortions. We use the model to answer why fiscal policy become less effective at stimulating private investment precisely when intervention is most valuable. The model also teaches us that ambiguity changes the relative effectiveness of fiscal instruments: incentives tied to uncertain future profits become less effective, while front-loaded incentives and policies that insure downside risk become more effective.

In another work that is currently in progress, *Price Setting with Dynamic Sentiments and Monetary Non-Neutrality*. In this work, I develop a sticky-price general equilibrium model in which firms' sentiments evolve dynamically in response to cost shocks, and use it to study how monetary shocks propagate through the economy. I argue that accounting for dynamic sentiments is essential to reproduce the empirical responses of prices and output to monetary policy shocks.

In the future, I am keen on pursuing this line of inquiry in various contexts.

Macroeconomics of Risk and Uncertainty

A related strand of my research studies how risk considerations shape the organization of production within a firm and its implications for aggregate output. In *Firm Specialization vs. Diversification* joint with Anmol Bhandari, Laura Veldkamp, and Venky Venkateswaran, we examine a fundamental trade-off: specialization allows firms to concentrate production in sectors where they are most productive, while diversification mitigates revenue volatility (which risk-averse firms take into account). The key risk here are correlated sectoral demand shocks. We develop a heterogeneous-firm general equilibrium model with risk-averse firms to quantify the trade-off. We use the theory to guide us in the measurement of a distance-adjusted measure of firm scope. Using an LLM, we extract granular revenue shares from 10-K filings and use the co-movement between sectoral aggregates as (an inverse) measure of the economic distance between them. The observed relationship between scope and markups at the firm level pins down the

[1] A partial equilibrium version of the model was a part of Krishna's dissertation

price of risk. We also invert the model to recover productivity at the firm-sector level. The results reveal that risk considerations significantly reduce aggregate output. We also provide guidance on the possible sources of firm risk-aversion. We find that bankruptcy concerns are an important factor. Our research opens up a plethora of new areas of inquiry. In the future, we have plans to explore if and how these same risk considerations affect output growth in a growth model. In addition, I am conducting a preliminary investigation into how risk interacts with aggregate wealth distribution in the economy to determine investment in experimental technologies capable of bringing about tectonic changes in aggregate productivity.

Firms and Labor Income Inequality

A parallel emerging research agenda examines how firm heterogeneity and technological change shape the distribution of labor income. In a project titled *Are Changes in Productivity Distribution Skill Biased?*, I study how changes in the productivity distribution affect the division of labor share between skilled and unskilled workers along with the skill premium. The well-known phenomenon, often headlined as the 'Rise of Superstar Firms', argues that the emergence of highly productive firms leads to a decline in the labor share. I show that the same phenomenon also widens the gap between skilled and unskilled labor using a Burdett-Mortensen search model with heterogeneous labor types and capital-skill complementarity in production. I calibrate this model to data on job flows. The calibrated model shows that a thickening of the right tail of the firm productivity distribution disproportionately reduces unskilled labor's share and increases the skill premium.

In *The Vanishing First Rung*, my joint work with Grace Chuan and Korok Dasgupta, we investigate how AI shapes career ladders across various occupations. Combining task-level AI usage measures from Anthropic with career histories and job postings from Revelio Labs, we examine whether AI weakens entry-level jobs that serve as pathways to skill accumulation and higher earnings while also lowering barriers to more senior-level work. The goal of the project is to understand how career progression and social mobility are fundamentally impacted by the advent of AI.

Together, these projects study how changes in production shape both the distribution of income today and workers' future earnings opportunities.