Research Statement

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What struck me the most during my undergraduate years was the 2007-2009 Financial Crisis. It presented me with many puzzles when I started my Ph.D. at the University of Minnesota: Why did the crisis occur so abruptly that almost no one foresaw it? What is the nature of the frictions in the financial market that contributed to the crisis? Why was it followed by such a slow recovery? Yet after two years spent immersed in modern macroeconomics and finance, I found that my puzzles were not fully resolved. It was at that time that I made up my mind to devote the rest of my Ph.D. study to the field of Macro-finance. I consider myself an **applied economist with broad theoretical and empirical interests in Macroeconomics and Finance.**

In the first section below, I discuss my work on Macroeconomics, and in particular my job market paper; in the second section, I describe my work on Financial Economics, focusing on dynamic incentives to acquire information in financial markets. I present my work on Labor-Macroeconomics in the third section, which I jointly conducted with my advisor, Dr. Jonathan Heathcote.

Collateral Constraints and Secular Stagnation

Why was there a slow recovery following the Financial Crisis? My job market paper, "Secular Stagnation, Land Prices, and Collateral Constraints," demonstrates that collateral constraints not only amplify shocks, but also lead to multiple locally stable steady states that, in turn, imply permanent declines in economic activities upon large adverse shocks. I then apply the theory to shed light on the recent slow recovery of output and employment following the 2007–2009 Financial Crisis.

The theory's crucial ingredient is the dual role of land: Land serves not only as consumption for households, but also as collateral for the firm to finance its working capital. In such an environment, I show that under appropriate assumptions—and in particular, with a sufficiently low intratemporal elasticity of substitution between housing and nonhousing consumption—the model exhibits multiple locally stable steady states. This implies that large adverse shocks have permanent impacts on the economy, as they trigger transitions across steady states. A calibrated version of the model displays significantly delayed recovery upon large adverse shocks, and is consistent with various features of the Great Recession and its aftermath.

There are interesting work remains to be done. For instance, the mechanism is presented in a deliberately simple representative-agent framework. It would be interesting to embed the mechanism into a fully quantitative heterogeneous-agent

framework and examine its quantitative relevance. What would happen if only small-to-medium firms were financially constrained? Would the mechanism still generate substantial persistence upon large adverse shocks? My conjecture is that for the mechanism to be quantitatively relevant in such an environment, I would need to embed some network structure, following Bigio and La'o (2016), so that even if only a small proportion of firms are financially constrained, the aggregate firm sector is still severely impacted when hit by financial shocks, due to cross-firm linkages.

Dynamic Information Acquisition in Financial Markets

People acquire information every day. Financial market traders are especially avid about information acquisition, as it directly affects their profits. Information acquisition, however, can be costly. What determines people's incentive to acquire information, particularly in a dynamic financial market? My paper, "Dynamic Complementarity in Information Acquisition," takes on the task of answering this question. It extends Grossman and Stiglitz's (1980) classic static environment to a dynamic infinite horizon environment, in which traders can acquire information every period. It also overturns Grossman and Stiglitz's well-known result, that information acquisition is a strategic substitute, and thus there exists a unique equilibrium. In my framework, in contrast, there may exist multiple equilibria due to a dynamic complementarity in information acquisition—namely, people's incentive to acquire information is increasing in how many people acquire information in the future. With multiple equilibria, self-fulfilling fluctuations are present in market prices and trading volume. This provides a rationale for the abrupt stock market crashes observed during the Great Recession. In a companion paper, "Dynamic Information Acquisition in an Infinite Horizon Framework," I further develop the theory and identify a continuum of nonstationary equilibria. I then apply the theory to study the recent rapid growth of passive funds.

A number of compelling questions warrant future research. On the theoretical side, it would be interesting to consider a setting of infinitely lived agents with repeated information acquisition. Avids (2016) considers infinitely lived agents with information acquisition allowed only in the first period, whereas my paper considers overlapping generations of agents with repeated information acquisition. It would be valuable to determine whether multiplicity in information acquisition survives in an environment with infinitely lived agents and repeated information acquisition. On the empirical side, since my model delivers testable implications on the growth of passive funds, it would be interesting to directly test my model with the data on passive funds.

Income Inequality and College Tuitions

I conducted my work in this area with my advisor, Dr. Jonathan Heathcote, at the Federal Reserve Bank of Minneapolis. In our paper, "Income Inequality and College Tuitions," we develop a quantitative model to study the impact of income inequality on college tuition. The framework is one in which households value college quality,

and in which quality reflects both resources devoted to tuition and the average ability of the student body. Thus colleges are "club goods," where students are both inputs to production and consumers of output. Assuming a competitive, profit-maximizing environment, we show that observed changes in household income inequality can account for (i) the observed rise in average tuition, (ii) the rise in tuition dispersion across colleges, (iii) the rise in tuition dispersion within colleges, and (iv) the observed stagnation in aggregate college attendance.

We plan to pursue several avenues in the future—for instance, extending the model to an overlapping generational framework in which an increase in the college premium feeds back into *future* income inequality. Through our mechanism, therefore, transitory shocks that temporarily raise the college premium can be propagated over time.