Research Statement

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I am an applied macroeconomist whose research interests are at the intersection of monetary and financial economics. I have been pursuing several interrelated lines of research which broadly focus on 1) the identification and the transmission mechanism of monetary policy shocks; 2) the relationship between housing prices and monetary policy; and 3) regional heterogeneity in real house price dynamics. In what follows, I summarize these various lines of research.

1. Identification and the transmission mechanism of monetary policy shocks

The standard macroeconomic theory would suggest that an unexpected increase in interest rates should generate a contraction in economic activity and reduce inflation, acting as typical demand shocks. This is the basis of the central bank's monetary policy. However, this evidence has been challenged recently as in the post-1984 period, known as the Great Moderation period; it is difficult to empirically uncover theoretically consistent responses for economic variables to unexpected changes in interest rates.

In "**Does the Federal Reserve respond to house prices? Implications for monetary policy**" (Job Market Paper), I revisit Romer and Romer's (2004) narrative identification approach to monetary policy shocks by allowing the monetary authority to respond systematically to corporate credit spreads and real house price dynamics. The paper documents the systematic response of interest rates to these variables and shows that accounting for this systematic response solves the observed empirical puzzle in the literature where unanticipated increases in the interest rate, instead of contracting the economy, act as expansionary shocks during the Great Moderation period. The paper further investigates the Federal Open Market Committee (FOMC) transcripts using natural language processing tools to document the increased importance of house prices in the discussions of the FOMC members for the implementation of monetary policy.

2. The relationship between housing prices and monetary policy

Since the great financial crisis from mid-2007 to early 2009 and the short but steep COVID-19 recession, the housing sector has gained attention in the macroeconomic literature, as house prices have risen at record levels, hitting the peak increase of 19.3 percent in April 2022. For the growing concerns, much debate has been about the relationship between monetary policy and housing prices and the ability of the policy to affect the prices. Still, the literature has primarily focused on its aggregate linear impact on house prices.

In the ongoing work, "**Non-linear effects of monetary policy on the housing market**," I examine the non-linearities of monetary policy on house prices. The paper documents that monetary tightening has a more significant contractionary effect on aggregate house prices than monetary accommodation. The empirical findings can be explained from a supply-demand framework with durable housing. Where the intersection of demand and supply determines house prices in a given area, the supply curve is piecewise linear and kinked: only if the price exceeds the fixed cost of construction will supply increase. The model suggests that contractionary monetary policy shocks should have a greater impact on house prices than expansionary shocks in either area with an inelastic or elastic housing supply. My future work aims to investigate the empirical relevance of this model with a reduced-form version of the supply-demand model by using the MSA-specific supply elasticities.

3. Regional heterogeneity in real house price dynamics

Housing constitutes the largest and most widely held asset of U.S. households, with 78 million homeowners owning roughly $30 trillion of real estate. This real asset serves as collateral for mortgage loans, making mortgages the largest consumer credit market, with an aggregate value of approximately $11 trillion. Because of the size and wide participation in mortgage markets, understanding real house price dynamics is important since a change in the real asset value has the potential to generate sizable income and wealth effects that can be converted into household consumption.

The movement in house prices has been driven by two different components, which can be characterized by national and regional- or local-specific factors. Associated with recent studies about the regional heterogeneity in the housing market, the importance of the common component in house price movements varies relative to state- or regional-specific components across times. In an ongoing project, "**Regional heterogeneity in house price dynamics and the role of monetary policy**", I examine (I) whether the heterogeneous variation in house prices dynamics across the states in the U.S. reflects a national phenomenon or rather a regional-specific component in the local housing market, aiming to revisit the work of Del Negro and Otrok (2007), based on expanded data covering for the Covid-19 period from 1975 to 2021; (II) the extent to which monetary policy shocks can explain the variation in national factor of house prices over the sample period; and (III) assess the role of fundamentals such as population growth, land prices, and regulatory strictness to examine the heterogeneous variation across the region in the U.S. housing market. This paper provides empirical evidence that the estimated national factor accounts for a sizeable portion of the variation over 2001-2012 in terms of the 35% variance of house price movement. Further, monetary tightening has a contractionary effect on the national factor of house prices, though the innovation explains less than 3% variation in the factor. In addition, in the wake of the Covid-19 era, the national component explains most of the variation in the housing cycle; it accounts for 57% of variation in the housing market. The future direction of this paper is to first examine the magnitude of the impact of monetary policy shocks on changes in the national factor of house prices during the COVID-19 period. I then evaluate how fundamental elements such as population growth, land prices, and regulatory strictness play a role in explaining regionally heterogeneous changes in the U.S. housing market.