Housing Markets, Financial Intermediation, and Monetary Policy

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**Summary of Proposed Research:**
The broad objective of our proposed research program is to develop a theoretical and computational framework that can help us understand: [1] how does uncertainty in lending channel effect economies (including both financial and housing markets) at different stages of business cycle; [2] what are the effects associated with credit constrained heterogeneous agents on the housing prices and the business cycle; and [3] what types monetary policies might help (or hinder) the process of housing and financial development. The more narrow objective of this research proposal is to analyze the appropriate policy response in housing, financial and monetary markets. We view our analysis as a critical first step in providing the computational tools for the analysis and second, in demonstrating that uncertainty with heterogeneity in households with different credit reserves are indeed harmful to economic welfare.

Recent economic events have dramatically underscored the important roles that housing and finance play in the business cycle. And while there has no doubt been a concomitant increase in economic research which examines housing markets and financial intermediation, only a few analyses have been conducted in a calibrated, general equilibrium setting; i.e. an economic environment in which the quantitative properties of the model are broadly consistent with observed business cycle characteristics. Our proposal is to remedy this deficiency by building on our previous research as described below.

In particular, our plan is to merge the housing supply/banking sector model as developed in Dorofeenko, Lee, and Salyer (2012) with the model of housing demand presented in Iacoviello and Neri (2010) in order to examine how the factors of production uncertainty, financial intermediation, and credit constrained households can affect housing prices and aggregate economic activity. Moreover, this analysis is cast within a monetary framework which permits a study of how monetary policy can be used to mitigate the deleterious effects of cyclical phenomenon that originates in the housing sector.

The Dorofeenko, Lee, and Salyer (2012) model focused on the effects that housing production uncertainty and bank lending have on housing prices. To do this, the analysis combined the multi-sector housing model of Davis and Heathcote (2005) with the Carlstrom and Fuerst (1997) model of lending under asymmetric information and agency costs since both models had been shown to replicate several key features of the business cycle. In particular, the Davis and Heathcote (2005) model produced the high volatility of residential investment relative to fixed business investment seen in the data. However, the model failed to produce the observed volatility in housing prices. To this basic framework, Dorofeenko, Lee, and Salyer (2012) introduced an additional impulse mechanism, risk shocks (shocks to the standard deviation of the technology shock affecting housing production), and required that housing producers finance the purchase of their inputs via bank loans. These factors led to greater house price volatility as housing prices reflect potential losses due to bankruptcy for some housing producers. In fact, the model was shown to be roughly consistent with the cyclical behavior of residential investment and housing prices as seen in U.S. data over the sample period 1975-2010.
However, this model was not consistent with the behavior of housing prices and firm bankruptcy rates as seen in the recent decade. This failure is not surprising since the role of shocks to housing demand combined with changes in household mortgage finance were not present.

For the proposed research, we intend to embed key features of the recent model by Iacoviello and Neri (2010) to rectify this omission. The main features of the Iacoviello and Neri (2010) model that we employ are the introduction of heterogeneous agents (patient and impatient), a borrowing constraint (which affects impatient households) and a monetary authority which controls the money supply. We will then introduce housing demand shocks (via preferences) and examine how these get transmitted to the economy. Next we will examine optimal monetary policy in this setting.