[Housing Bubbles with Phase Transitions](#)

CFM-DP2024-27

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Over the last three decades, many countries have experienced appreciation in housing prices, with upward trends in the price-rent ratio. The situation is often referred to in the popular press as a housing bubble. Because fluctuations in housing prices are often associated with macroeconomic problems, many academics and policymakers want to understand why and how housing bubbles emerge in the first place. However, the mechanism of the emergence of housing bubbles is poorly understood. In addition, theoretically, it is well known that there is a fundamental difficulty in generating asset price bubbles in dividend-paying assets such as housing, land, and stocks. The theory of rational bubbles attached to assets with positive dividends remains largely underdeveloped: at present, there is no theoretical framework for considering whether housing prices reflect fundamentals or contain bubbles.

The primary purpose of this paper is to fill this gap and to present a theory of rational housing bubbles. In particular, we are interested in the following questions. (i) How can equilibrium housing prices be disconnected from fundamentals in the long term, exhibiting a bubble in a dynamic general equilibrium setting in which housing rents and prices are both endogenously determined? (ii) How is the disconnection related to economic conditions such as the income or access to credit of home buyers and to the formation of expectations about future economic conditions? (iii) What are the efficiency properties of equilibria with housing?

We obtain three main results, First, the economy exhibits a two-stage phase transition: as the income of home buyers rises, the equilibrium regime changes from fundamental to bubble possibility, where fundamental and bubbly equilibria can coexist. With even higher incomes, fundamental equilibria disappear and housing bubbles become a necessity. Second, even with low current incomes, housing bubbles may emerge if home buyers have access to credit or have high future income expectations. Third, contrary to widely-held beliefs, fundamental equilibria in the possibility regime are inefficient despite housing being a productive non-reproducible asset.