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Emergence of Housing Bubbles with Phase Transitions: The Role of Demand-Side Factors

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Over the past three decades, many countries have experienced sustained housing-price appreciation together with rising price-rent ratios.1 Such episodes are often described as housing bubbles. Yet a rising price-rent ratio does not by itself establish that housing is overvalued, and existing theory offers limited guidance on when prices can deviate from fundamentals. Housing is a dividend-paying real asset: a unit of housing yields rental services, and the price of those services responds endogenously to income and housing demand. Theory faces a basic obstacle: bubbles are difficult to sustain on dividend-paying assets such as housing, land, and equity. What remains missing is a tractable framework that jointly determines prices and rents, characterizes rent growth across equilibria, and establishes when a housing bubble is possible or necessary.

This paper develops such a framework. We focus on demand-side forces—home buyers' income and the elasticity of substitution between consumption and housing—rather than the supply-side forces emphasized in Hirano and Toda (2025a,c), such as productivity and the elasticity of substitution in production. We ask three questions. First, when can or must equilibrium housing prices exceed their fundamental value when prices and rents are both endogenous? Second, how do home buyers' income, access to credit, and expectations about future economic development determine whether housing prices reflect fundamentals or contain a bubble? Third, what are the welfare properties of these equilibria?

We show that, when this elasticity exceeds one (the empirically relevant case), rents grow more slowly than income. The economy then exhibits a two-stage phase transition in the income ratio of home buyers relative to home sellers. When this ratio is low, only fundamental equilibria exist. Above a first threshold, fundamental and bubbly equilibria co-exist, and the outcome is selected by self-fulfilling expectations. Above a second threshold, fundamental equilibria cease to exist, and housing bubbles are necessary for equilibrium. We further prove that the fundamental equilibrium is always unique and the bubbly equilibrium is unique whenever the elasticity of intertemporal substitution is not far below 1/2. Uniqueness lets us study expectation-driven booms: if agents anticipate future income growth, housing prices rise and contain a bubble today even when current incomes lie in the fundamental region, with the price-income and price-rent ratios rising together. Finally, contrary to the common understanding that land eliminates dynamic inefficiency in overlapping generations models, we show that inefficient equilibria arise robustly, and only for intermediate income ratios.