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ORIGINAL ARTICLE

A Novel Proxy of Latent Rental Housing Demand: Evidence from US Markets

Matt Larriva, CFA

[1]Department of Real Estate Investments, Brookfield Asset Management, New York, United States

Correspondence
Email: matt.larriva@brookfield.com

Present address
250 Vesey Street, New York NY 10281

Abstract

We introduce the Rental Density Index (RDI)—a metric that captures the number of people per rental unit—as a scalable and behaviorally grounded proxy for latent rental housing demand. Traditional demand indicators like occupancy or absorption are bounded by supply and often fail to reflect underlying crowding pressure. In contrast, changes in RDI (ΔRDI) reveal when renters are consolidating space, signaling excess demand, or spreading out, signaling slack. Using panel data for the 100 largest U.S. metropolitan areas from 2000 to 2024, we show that ΔRDI robustly predicts future rent growth. A two-stage least squares model, instrumenting for RDI growth with plausibly exogenous foreign in-migration shocks, reveals a positive and statistically significant causal effect on next-year relative rent growth. Out-of-sample tests further show that RDI-based forecasts outperform ARIMA and naïve models across one-, five-, and ten-year horizons. Event studies and regime classifications confirm that crowding transitions are consistently followed by directional rent changes. The Rental Density Index provides a simple yet powerful tool for identifying housing market tightness, classifying supply-demand regimes, and forecasting rent performance. It is especially useful in contexts where traditional demand indicators are constrained or unavailable.

KEYWORDS
density, supply and demand, multifamily rent-growth, apartment markets

1 | INTRODUCTION

Housing shortages and affordability concerns have risen to the forefront of policy debates in major urban markets. In the United States, housing production has consistently lagged population growth for decades, contributing to an estimated national shortfall of 4.4 million housing units (Betancourt, 2022). Nearly half of U.S. renter households now spend over 30% of their income on housing (Bureau, 2022), and from 2000 to 2024, the consumer price index (CPI) for shelter exceeded the CPI for all other items by 30% (of St. Louis, 2024). At the same time, select high-growth regions have recently experienced rent declines due to a glut of new supply (Mott, 2024). This juxtaposition of chronic national undersupply with localized oversupply underscores a deeper issue: the lack of a reliable metric to measure consumer housing demand.

Traditional indicators of demand in multifamily real estate, such as occupancy rates and net absorption, are informative but fundamentally supply-constrained. Occupancy rates are naturally bounded at 100%, and absorption cannot exceed the rate of new deliveries (Mueller & Laposa, 1999). These constraints obscure excess demand: when all available and affordable units are occupied, latent demand becomes invisible to market participants and researchers alike (Gabriel & Nothaft, 2001; Sirmans, Sirmans, & Benjamin, 1991; Pyhrr, Cooper, & Wofford, 1999). This problem inhibits clear attribution of rent increases to supply versus demand dynamics (Pennington, 2021; Molloy, 2022). Moreover, ongoing academic debate persists around whether rising rents in constrained markets result more from supply-side limitations (Saiz, 2010) or from heightened demand for desirable locations (Davidoff, 2015). Without a transparent, consistent demand-side metric, attempts to assess equilibrium conditions remain incomplete.

Abbreviations: MSA, Metropolitan Statistical Area; RDI, relative density index;

