

A demand-signal model that sharpens rent-growth forecasts across the 108 largest US metros.

+17.2%

3-MO FORECAST-ERROR
REDUCTION

108

LARGEST US METROS ·
OUT-OF-SAMPLE

+9.5%

ADDED BY HOUSING-
FLOW AT 3 MONTHS

dual

OOS AXES — HELD-
OUT-METRO + WALK-
FORWARD

01 — THE PROBLEM

Rent growth drives NOI, and it's hard to forecast.

Underwriting and development models live or die on the forward rent-growth assumption, yet a metro's own recent trend (a fitted AR model) is a stubborn baseline to beat. The question is whether public and licensed demand data — labor, job postings, housing-flow — measurably improves that forecast, out-of-sample, at horizons that matter.

02 — THE RESULT

Sharper rent-growth forecasts — clearest at 3 months.

HomeStar cuts rent-growth forecast error by **+17.2% at 3 months**, +15.5% at 6 months, and +22.2% at 12 months — consistent across market sizes. All figures are out-of-sample, measured against a baseline built from each metro's own recent rent history.

HORIZON	FORECAST-ERROR REDUCTION
3 mo	+17.2%
6 mo	+15.5%
12 mo	+22.2%

03 — THE MODEL

Three signal families over an AR core.

Labor

Metro employment and state JOLTS quits/hires. On its own it does not beat AR — it's the floor the other signals build on.

Job postings

The Indeed Hiring Lab postings index. Adds the largest share of skill over AR, significantly.

Housing flow

Zillow for-sale inventory, new listings, days-to-pending. Adds most of the remaining short-horizon edge (+9.5% at 3 months).

04 — HOW IT WAS VALIDATED

Pre-registered, out-of-sample on two axes.

The design — regime dates, market-size bins, feature sets, decision rules — was fixed before any skill number was computed. The forecast is scored out-of-sample two ways at once: an expanding-window walk-forward through time, and a held-out-metro split (the model is scored on metros it never trained on). The two axes agree.

- **Baseline:** each forecast is scored against a baseline built from the metro's own recent rent history — the hard bar to beat.
- **Significance:** each accuracy gain is tested to confirm it's statistically real (not chance), adjusted for testing several horizons at once, and reported with confidence intervals.
- **Reproducible:** the harness and its output are committed to the repository.

05 — SCOPE & LIMITS

Broad across major metros — not everywhere.

- **Coverage:** the 108 largest US metros with full labor + postings + housing-flow data. Smaller metros lack the inputs and are out of scope.
- **Window:** ~5 years (2021–2026), spanning one major regime shift — cross-regime durability is untested.
- **Pooled:** skill is reported across metros, not per metro.

06 — SOURCES & LIVE LAYER

Public & licensed data, plus a live read.

Rent (Zillow ZORI), labor (BLS employment, state JOLTS), job postings (Indeed Hiring Lab), and housing flow (Zillow Research). A separate live layer adds a de-biased concession read, collected via Bright Data's web-data platform — current-state demand texture that corroborates the picture, not a model input.

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