



UCLA AFFORDABLE HOUSING POLICY BRIEF

JULY 2018

The UCLA Ziman Center for Real Estate presents the next in a series of Affordable Housing Policy Briefs. This July 2018 Brief synthesizes a paper recently published in [Regional Science and Urban Economics](#).

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This paper explores the housing “affordability distance” to a superstar city. Affordability distance is defined in terms of the increment to household income required to consume a quality- and consumption-adjusted housing unit in a proximate global city – in this case, Tel Aviv, Israel. [Here is a link](#) to the full paper.

Can't Get There From Here: Measuring the Affordability Distance of Household Income in a Superstar City

By [Danny Ben-Shahar](#), [Stuart A. Gabriel](#) and [Roni Golan](#)

This paper explores the housing affordability distance to a superstar (21st century global) city. Affordability distance is defined in terms of the increment to household income required to consume a quality- and consumption-adjusted housing unit in the proximate superstar city. The analysis focuses on Tel Aviv, Israel's singular superstar city. Affordability distance to Tel Aviv rose by roughly 60 percent over the 2000-2015 period. Further, affordability distance was elevated among unmarried, non-college educated, and immigrant households. The upward movement in affordability distance was associated with increased out-migration from the city. Analysis of panel data suggests that policy interventions including investment in regional transportation infrastructure and new local housing supply were effective in mediating affordability distance.

“Under certain conditions, elevated rates of house price growth may sow the seeds of superstar city demise.”

A defining characteristic of superstar cities is their elevated rates of house price growth. In order for growth in prices to persist, a sufficient share of population must hold preferences for superstar locations so as to generate excess demand for those locations in the context of constrained housing supply. Ongoing gains to local productivity or amenities similarly may generate elevated house price growth.

Under certain conditions, however, elevated rates of house price growth may sow the seeds of superstar city demise. House price run-ups, if not accompanied by productivity gains and related wage increases, may reduce nominal affordability so as to put those locations out-of-reach of ordinary households. The decline in nominal affordability may spur net migration of households and jobs in the context of ongoing equilibration across cities. Lack of affordable housing may adversely affect superstar output to the extent low- and high-wage households are complements in production. Regardless, superstar cities may require adequate affordable housing and access for necessary public (e.g., police, fire, teachers, and nurses) and other service workers. Over time, competitor locations may succeed in replicating superstar amenities and economic base so as to further arbitrage house price returns. In the wake of those developments, elected leaders in superstar cities may come under pressure to expand housing supply and access. Those efforts would seek to mediate erosion in housing affordability and local economic base.

In this paper, we studied the housing affordability gap between superstar cities and surrounding localities. We put forward a new measure of Affordability Distance to the Superstar City (ADS), defined as the incremental income required for a household to consume a *standardized* housing unit in a proximate superstar city. Affordability distance is computed based on a new quality-and consumption-standardized measure of housing affordability that adjusts for normative variability in housing consumption across households and locations (see Ben-Shahar, Gabriel, and Golan [2017]). We documented spatial variation and temporal dynamics in housing affordability distance, identified population characteristics associated with elevated affordability distance, and computed Gini coefficients associated with that measure. We then examined the consequences of affordability distance for superstar city migration flows. Finally, we evaluated the role of numerous policy interventions—including transportation infrastructure investment and superstar city new housing supply—in mediating affordability distance.

The analysis employed individual-level household data from Israel to compute the affordability distance to Tel Aviv. Over the course of recent decades, Tel Aviv has witnessed persistently high rates of house price growth and emerged as Israel's singular superstar city. The Tel Aviv metro area is characterized by unique cultural and natural amenities and is home to Israel's burgeoning tech and innovation sector.

We estimated an ever-widening gap in quality-adjusted house price index levels between Tel Aviv and other areas of Israel over the 2000-2015 period. Further, results show that the affordability distance to Tel Aviv increased by roughly 60 percent over that same timeframe and was especially high among those living in the Israel's peripheral Negev and Galilee regions.

As suggested above, leaders in superstar cities may seek to mediate affordability distance because of adverse distributional and job access concerns and to prevent erosion in local economic base. We evaluated policy interventions including both regional transportation infrastructure investment and increments to superstar city housing supply. Findings confirmed the efficacy of these drivers in reducing the affordability distance to Tel Aviv. Construction of 100 new housing units in Tel Aviv is associated with a 0.7 percent decrease in the ADS whereas a 1 percentage point of GDP increment in government spending on transportation infrastructure is associated with a 35 percent decrease in ADS.

The analysis was undertaken using a sample of microdata for more than 235,000 Israeli households. The data include household socio-economic, demographic, locational, and dwelling unit characteristics as provided by the 1998-2011 Combined Household Income and Expenditure Surveys and the 2012-2015 Household Expenditure Surveys conducted by the Israel Central Bureau of Statistics.

Among our many evaluations was the association between physical and affordable distance to Tel Aviv. Figure 1 displays the 2015 median house price per square-meter as a function of the geographic distance to Tel Aviv (a zero-kilometer distance represents the City of Tel Aviv itself). As expected, prices generally decline with physical distance from Tel Aviv. The median price per square-meter does turn up some in Jerusalem at a distance of about 50 kms from Tel Aviv. That notwithstanding, the median price per square meter in Jerusalem remains far

below that of Tel Aviv. The figure further indicates a Tel Aviv-to-other city price ratio in the range of 2-4 at distances of 20km and beyond. We also regress the ADS measure on the geographic distance to Tel Aviv as measured in kilometers.

**Figure 1:
Affordability Distance to Tel Aviv (ADS) and Housing Affordability (Price-to-Income Ratio) 1998-2015**



Results of the aggregate city-level cross-sectional model suggest that each kilometer increment in geographical distance to Tel Aviv translates into an average 1.2 - 2.2 months of additional income required by the household to purchase a consumption-adjusted home in Tel Aviv. Most strikingly, while an incremental kilometer of physical distance was associated with 0.6 additional months of net income in 2000, roughly 1.4 additional months of net income are required per kilometer by 2015.

CONCLUSIONS

Concerns regarding affordability declines and related access to superstar cities have become both widespread and acute over the course of recent years. Under certain circumstances, elevated affordability distance may damp net migration to superstar locations as well as spur government interventions seeking to address related distributional and efficiency concerns.

The analysis focuses on Tel Aviv, a city known for its unique amenities, constrained land supply, tech agglomeration, and elevated house price growth. Affordability distance to Tel Aviv rose by roughly 60 percent over the 2000 - 2015 period. The run-up in affordability distance to Tel Aviv was most pronounced among cities in Israel's Negev and Galilee periphery as the average household in those areas required an additional 9-14 years of after-tax income to afford a demographically-standardized unit in Tel Aviv. Affordability distance was particularly elevated among non-married, lower educational attainment, and immigrant households.

Estimation findings provide new insight as to the consequences of elevated affordability distance to Tel Aviv. As anticipated, the upward movement in affordability distance was associated with increased migration from the city. Analysis of panel data suggests that interventions including regional transportation infrastructure investment and increments to local housing supply may be effective in mediating affordability distance.