



The Little Train That Did: Commercial Real Estate Rents and Proximity to Tucson's Sun Link Modern Streetcar with Lessons for Future Extensions

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With great fanfare, Tucson's Sun Link Modern Streetcar was launched on July 21, 2014, a typically hot and humid day. Its 3.9 mile-route includes 21 stations connecting the University of Arizona Medical Center, the main campus, the heavily commercialized University and Fourth avenues, downtown, and the west side redevelopment area.

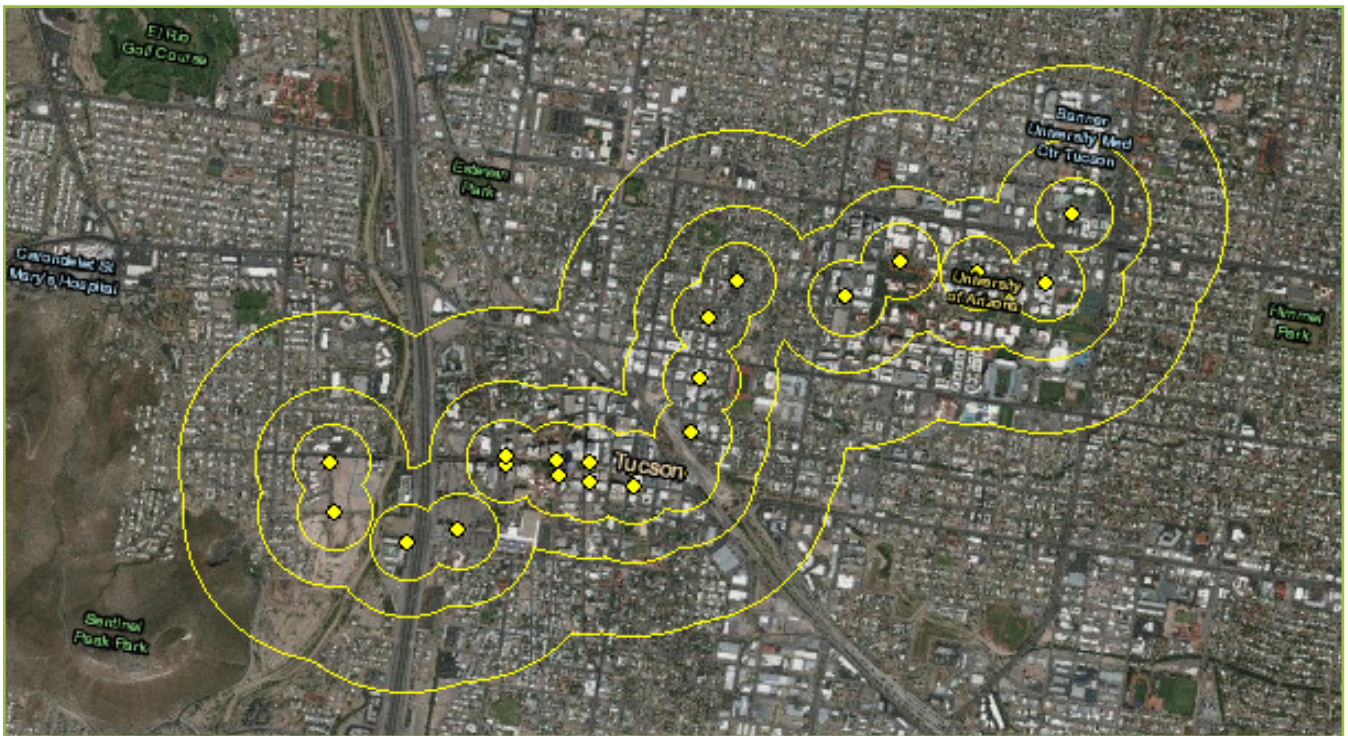


Figure 1. Illustration of distance bands around Sun Link Modern Streetcar stations (Source: Robert Hibberd)

Much has been written about the hundreds of millions of dollars in new investment that have occurred along the route. However, nothing has been written about how market rents have responded, until now.

With special assistance by Robert Hibberd, a doctoral student, my research team at the University of Arizona's program in urban planning and real estate development applied innovative statistical techniques to office, retail and apartment rent data along the streetcar corridor to:

- Determine whether there is a rent premium with respect to Sun Link station proximity;
- Examine whether that rent premium differs between office, retail and apartment real estate;
- Estimate how far the rent premium extends away from transit stations; and
- Identify lessons for streetcar extensions.

We present the theory, analytic approach, data and findings. We conclude with implications for streetcar extensions.

Theory

In theory, the closer commercial real estate is to such things as transit stations, the higher the value and rent per square foot because the more accessible it becomes to the market. Yet, sometimes proximity can be detrimental. For instance, residential property can be adversely impacted by the hustle and bustle around stations or even by poor station design. Also, in theory, at some point beyond transit stations the rent premium will evaporate. Estimating differences in real estate rent based on transit station distance helps us identify both positive and negative station effects and the distance over which those effects are reflected in the market.

Analytic Approach

We use regression analysis to tease out the associations between real estate rents for specific properties and such factors as structure size, age, and use; location; surrounding land uses; demographics of the neighborhood including jobs-housing balance; and of course transit station distance. Real estate parcel distance was measured in 0.125-mile (1/8th mile) distance bands to 1.00 mile from transit stations (see Figure 1 for illustration) and include all commercial parcels within the Tucson metropolitan area.

We used CoStar rent and structure data for the first quarter of 2019. Those data were supplemented with: spatial measures of distance to downtown (we used the intersection of Congress and Stone as the downtown center), nearest freeway intersection and nearest transit station; and the census for jobs, housing, demographic data, and land use mix.

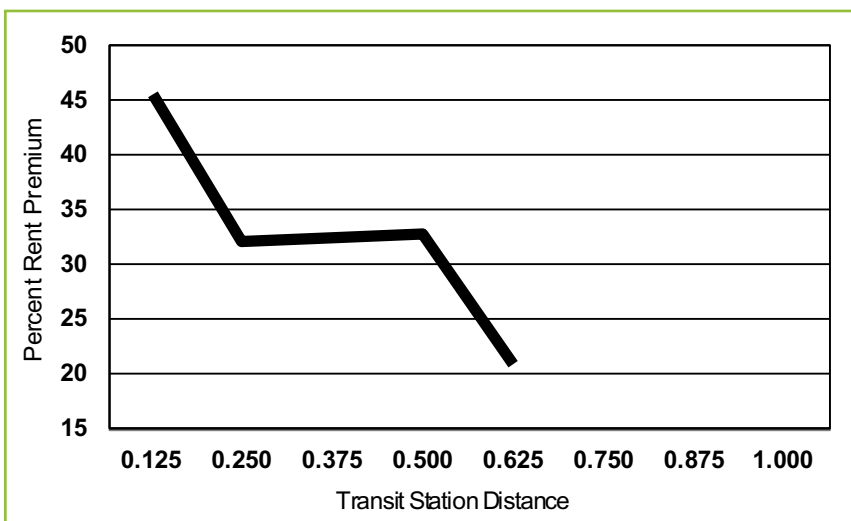


Figure 2. Apartment rent premium with respect to transit station distance. The shape is based on statistically significant coefficients and is smoothed between the 0.375- and 0.625-mile distance bands.

Apartment Findings

We begin with apartments since they are the most visible development outcome of the streetcar. Figure 2 illustrates apartment rent premiums per square foot with respect to transit station distance.

Our analysis shows that the mean apartment rent premium per square foot at the first or closest distance band to transit stations is about 45 percent higher than the mean apartment rents in Tucson as a whole, all factors considered. As distance increases, the rent premium falls to about the 0.625-mile distance band, where it is about 20 percent. There is no statistically significant rent premium beyond this distance.

The magnitude of the premium and its spatial extent is reasonable intuitively. The closer a renter is to a transit station, the more they are willing to pay after adjusting for all other rent factors. After a bit more than 0.50 mile (or about a kilometer), the premium dissipates reflecting perhaps the maximum extent to which renters are willing to walk to transit, which is consistent with other research including some of our own.

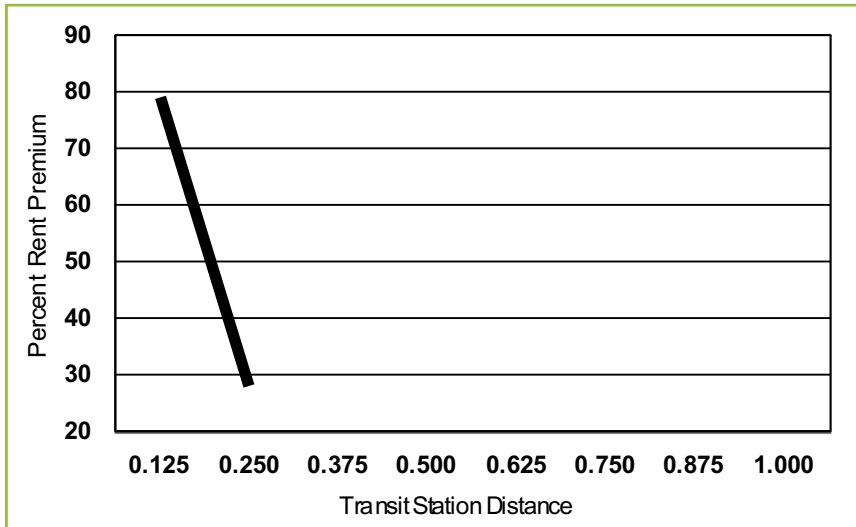


Figure 3. Retail rent premium with respect to transit station distance.

Retail Findings

As the streetcar travels mostly along retail corridors, we report retail rent premiums next. As seen in Figure 3, while the rent premium for retail real estate is the highest in the first, closest distance band, being about 80 percent more per square foot than the Tucson mean, it also has the smallest spatial effect, being about one-quarter mile where the premium is about 28 percent higher than the Tucson mean.

These results are reasonable intuitively as people acquiring goods often do not want to lug them long distances from transit stations.

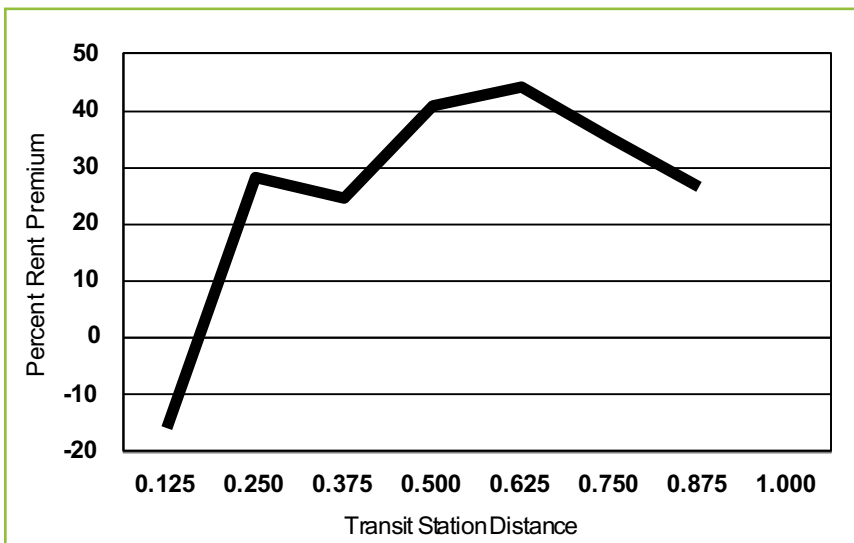


Figure 4. Office rent premium with respect to transit station distance. The shape is based on statistically significant coefficients with interpolation as needed to complete the slopes.

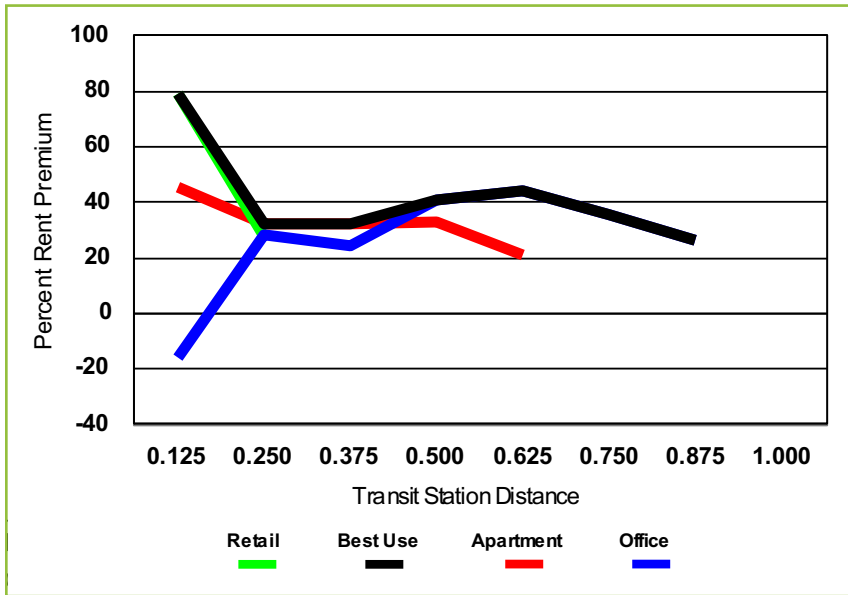
Office Findings

We conclude with results for offices which are also the most interesting, as shown in Figure 4.

Office rent premiums are actually negative in the first distance band at -16 percent relative to the Tucson mean, rising steeply to the second (0.25-mile) distance band then gradually to the 0.620-mile distance band, leveling at 44 percent higher than the Tucson mean, before dissipating at the 0.875-mile distance band at about 27 percent.

Normally, when we see a negative spatial effect like this, we can assume there is something that repels the market thereby reducing value and

rent. In this case, because apartment and retail rent premiums are positive and quite high (46 percent and 80 percent respectively), we surmise they are out-bidding office uses for transit station proximity, and pushing offices into other distance bands. But we also see offices commanding higher rent premiums than apartments from the 0.375-mile distance band outward, perhaps outbidding apartments and retail uses at those distances.



Combined with Highest and Best Use Findings

We combine our analysis and show a stylized highest and best use distribution of real estate (black line) with respect to transit station distance in Figure 5. Overall, we find that people-serving land uses such as retail (green line) and apartments (red line) push offices (blue line) to locations beyond 0.375-mile (about one-half kilometer). Retail clearly dominates the rent premium in the closest distance band. From a highest and best use perspective though simplifying the concept considerably, our analysis shows:

Figure 5. Combined rent premiums with highest and best use curves with respect to transit station distance.

- Retail commands the highest rent premiums in the first 0.125-mile distance band;
- Apartments command the highest rent premiums in the 0.25-mile and 0.375-mile distance bands; while
- Offices command the highest rent premiums from the 0.50-mile to 0.875-mile distance bands.

This does not mean that apartments or offices should not locate in the closest distance band or that retail should not locate several distance bands away. These are rather overall guides subject to refined land use and real estate investment analysis.

Lessons for Streetcar Extension

I may have studied development outcomes to US transit systems more than anyone. The Tucson streetcar is a real estate and economic development success, indeed in some respects being a national leader which is saying something given leadership by Portland, Seattle and others. Its success is not accidental—it was designed to be successful.

By that I mean consider that the streetcar connects a major medical center with one of the nation’s largest universities (the UA ranked 13th in 2019), two commercial corridors, downtown, and a redevelopment area with one of the nation’s largest supplies of vacant land accessible to transit.

Does Success Breed Extension?

I cannot recommend where the streetcar should be extended but I will recommend that any extension should be:

- Limited in distance from downtown and the UA and
- Assured of success from the outset.

We do not want the next extension to fail because that may chill future extensions.

How do we “assure success”? Our results suggest that planning is needed with investment partnerships to identify the best places for moderately high to high density housing. Local serving retail also needs to be in the mix. Residents of this higher density housing must be connected to concentrations of jobs such as the medical center, the main campus, vibrant commercial corridors, downtown, and emerging or planned centers.

Arthur C. Nelson is Professor of Urban Planning and Real Estate Development at CAPLA. He is the author of nearly 30 books and more than 300 other works focusing on the intersection of planning, real estate, growth patterns and development policy. He can be reached at acnelson@arizona.edu.

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