

VESTIGES OF TRANSIT: HOW STREETCARS SHAPED LOS ANGELES COUNTY

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When streetcars burst onto the North American scene in the late 1800s, cities large and small quickly filled with tracks. Streetcars were substantially faster and cheaper than the prior alternatives of walking or horsecar – a car drawn on rails by a horse. But streetcars' dominance was brief. As the price of autos plummeted, people turned quickly to this faster and more flexible form of transit. Riders abandoned streetcars in droves less than twenty years after their invention.

Is the imprint of streetcars visible today? In collaboration with the economist Byron Lutz, I hunt for evidence of the extinct streetcar network in the County of Los Angeles. Los Angeles is a particularly interesting case because it had the world's longest network of streetcars, and the streetcar's heyday coincided with enormous expansion of the Los Angeles population.¹ As in the rest of North America, the streetcar was in decline by the late 1910s, and the last rails were ripped out of Los Angeles streets in 1963.

When the streetcar was first built, areas near streetcar stops became valuable due to their transit advantage. This greater value yielded larger buildings and therefore denser population, near the stops.² However, as riders became drivers, the unique advantage of areas near the streetcar declined. Thus, unless some other factor continued to hold people in these locations, we expect that, in the long run, areas near streetcar stops should be no denser than other locations.

Our research shows, however, that areas near streetcar stops remain substantially denser. Even today we find that a neighbourhood one-quarter of a kilometer from an old streetcar stop has roughly 25% more people per square kilometer than a neighbourhood one

kilometer from the streetcar (see Figure 1). Our analysis suggests that this effect is due entirely to greater density of housing units around old streetcars, rather than more people in each housing unit. Further, while Los Angeles County continues to become denser in general, the areas closest to the streetcar that were densest in 1940 remain the densest today (see Figure 2).

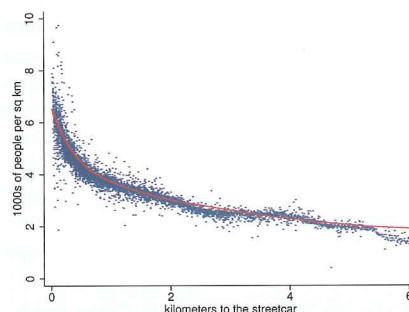


Figure 1: Average density of approximately 400 properties; 6,000 dots for the roughly 2 million properties in Los Angeles County.

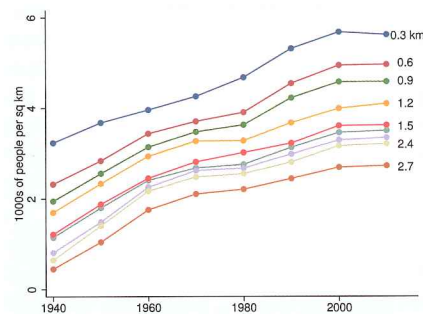


Figure 2: Population density by distance to streetcar by census year. 1940 was the earliest year that data was available.

Despite these strong relationships, one could argue that this evidence is driven not by the streetcars, but by some other feature, such as pre-existing settlements, that caused streetcar location. However, when we use statistical techniques to control for these factors, we find that,

at a maximum, pre-existing local features account for one-third of the additional density near streetcars. A further 8% of the additional density near streetcars is due to factors that post-date the streetcar and might also cause density, such as later transit or other follow-on public investment. Taking these elements into account, we find that the area within a half a kilometer of the streetcar is still 12% denser than the surrounding area.

So, why do century-old streetcars continue to drive modern density? Perhaps modern density is driven solely by older structures, so that over the long run, as new structures replace old ones, density will decline – it just hasn't happened yet. Our results suggest that this is unlikely. Structures from 1964 or afterward near streetcar stops – those built after the end of the streetcar era – are just as tall and large as older structures.

Given that density can't be explained by follow-on public investments or the persistence of old structures, we examine whether density persistence can be accounted for by streetcars' ability to coordinate investments. This coordination could occur in the private market, as businesses choose to locate near one another to receive benefits from co-location, or in the public sphere if zoning requires dense construction.

A complementary explanation for why density persists near the streetcars is because businesses gain benefits from co-location. Once some mechanism chooses a center for businesses – in our case, a streetcar stop – they are unlikely to move, since any move would require coordination to maintain the benefits of co-location. Consistent with this hypothesis, we find that businesses are more concentrated near streetcar stops than farther away.



Thus, more than fifty years after the last streetcar track was torn out of the ground in Los Angeles, the streetcar's imprint remains readily visible. We suspect that Los Angeles is not an anomaly, and that the streetcars' echo should be visible across North America, illustrating the long-lasting consequences of land use decisions.

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Further Reading

¹ Crump, S. (1962). *Ride the Big Red Cars: How Trolleys Helped Build Southern California*. Los Angeles, CA: Crest Publications.

² Fischel, W. A. (2004). An Economic History of Zoning and a Cure for Its Exclusionary Effects. *Urban Studies*, 41(2): 317-340.

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