

Parking Prices and Availability, Mode Choice and Urban Form



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Why is parking important?



Banksy Wall Art

It's on a wall in a parking lot directly across from the new Ace Hotel, downtown LA.

Why is parking important?

- **Parking affects almost everything and almost everything affects parking.**



- Aside from congestion pricing, **parking management** is also another useful tool to **reduce traffic congestion**.
- Parking also affects:
 - climate change, air pollution,
 - energy consumption,
 - housing affordability,
 - urban design,
 - economic development.

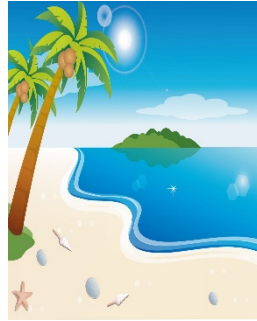
People **Expect Free Parking**



Home



Worksites



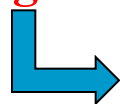
Various Locations

Why?

Parking is **not supplied** as a **response to the market**, but rather is **required by mandate & parking subsidies**



Parking bundled with most land uses



Entail Free Parking or Parking Low Rates
Collectivize Cost Parking at expense of non-drivers

BUT...



↑ **Development costs**
(rental and property values)



↑ product and service prices
↓ wages

Relocation of development



Because everything else is just **MORE EXPENSIVE**



Free and Subsidized Parking & Parking Availability affects.....



Urban.go.com



Evidence for this story....

TRAFFIC ISLAND (LOS ANGELES, CALIFORNIA)



Los Angeles County & City of LA



● Downtown Los Angeles: **Primary CBD** of the city of Los Angeles

Los Angeles: Traffic Congestion & Auto dependence

2019 Urban Mobility Report: Los Angeles-Long Beach-Anaheim Urban Area took home the honor of **worst overall congestion** in the US.

Annual traffic delay per driver: 119 hours

Excess fuel per commuter, due to congestion: 35 gallons

Congestion cost per driver: \$2,400



Photo: Kevork Djansezian/Getty Images News/Getty Images

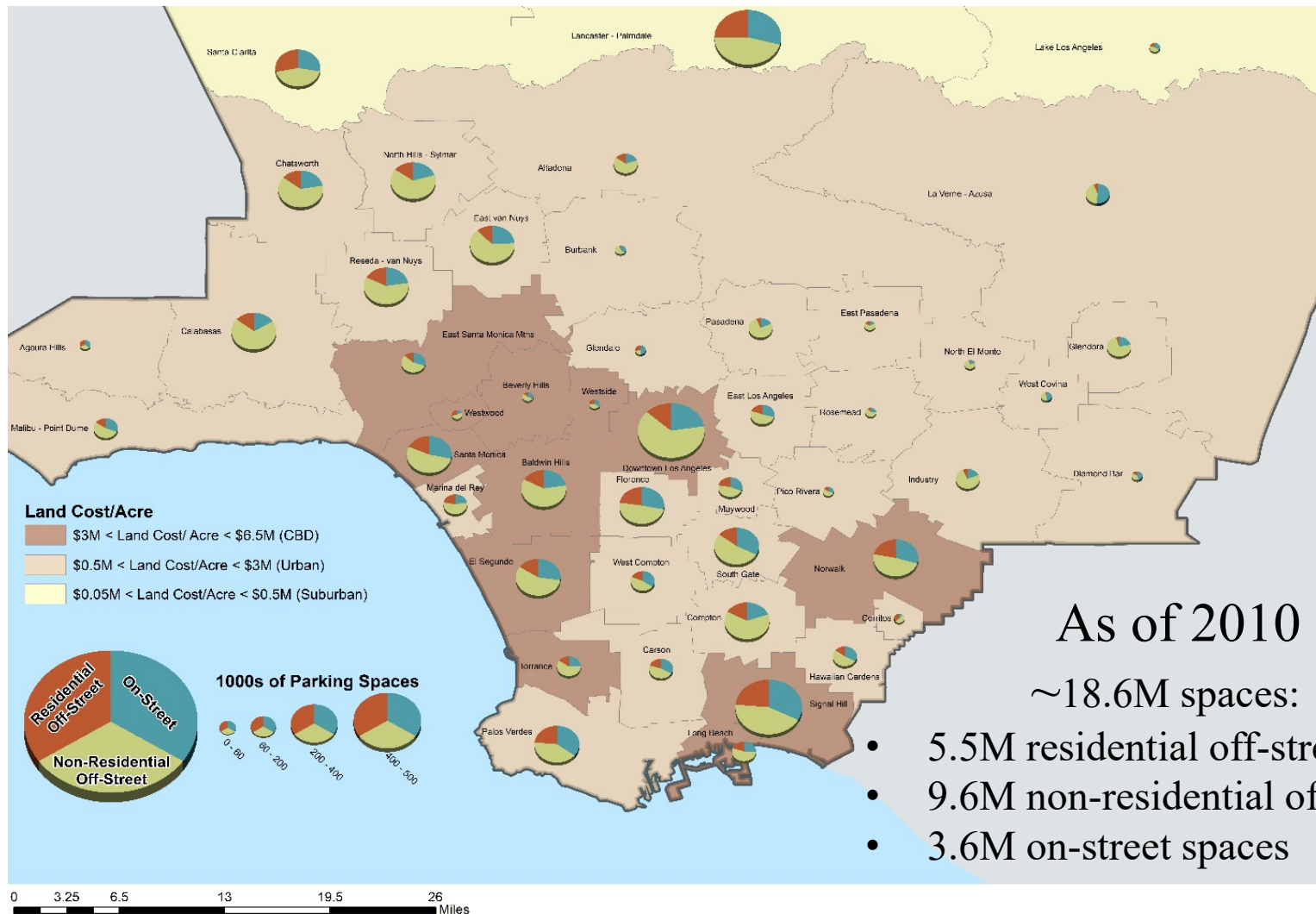
Los Angeles and its Freeway Mazes

The County has **more lane-miles of arterials, highways, and interstates** per square mile than any other US metro area (FHWA 2013). 140 mi² (362.5 km²) dedicated to road system.



Photo by Denys Nevozhai, Los Angeles Magazine

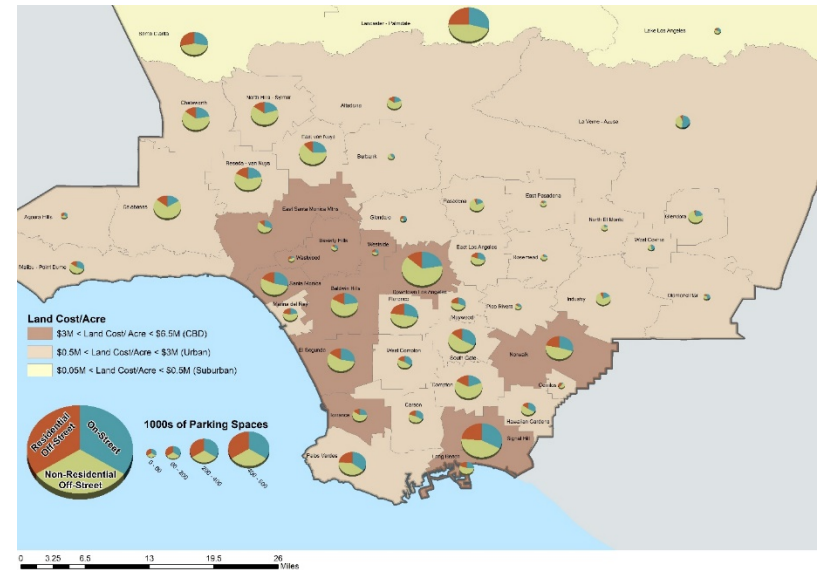
LA County: Abundant and Free Parking



Note: The source of the data illustrated on the Map is Chester et al. (2015).

Chester et al. (2015) Parking Inventory for LA County

- Too much Parking!
- Majority of the buildings were built following the adoption of MPRs in early 50s
- **Abundant Parking because of Parking Mandates**



Parking inventories

- allow to identify parking shortages
- expose parking surpluses

Parking in Los Angeles County

Santa Monica Pier



By Tttuna, Photos.com Getty Images

Parking in Los Angeles County

Grand Avenue, Downtown Los Angeles



Credit: Hufton & Crow/View Pictures/Rex Features, 2003

The Grand: The \$1 billion project

20-story hotel, retail and entertainment and 39-story residential tower (128 condos, 214 market-rate apartments, and 86 affordable housing units).

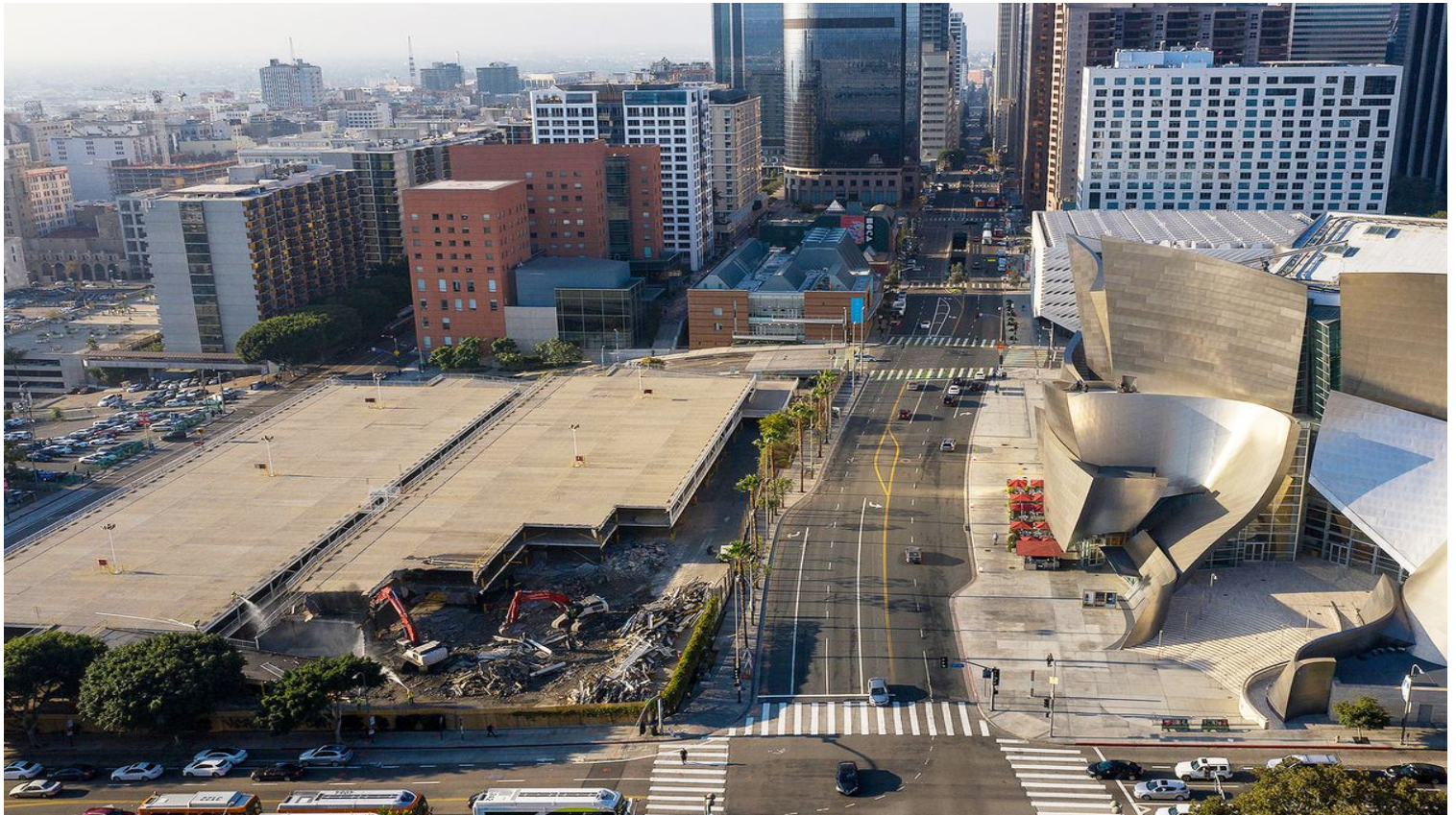
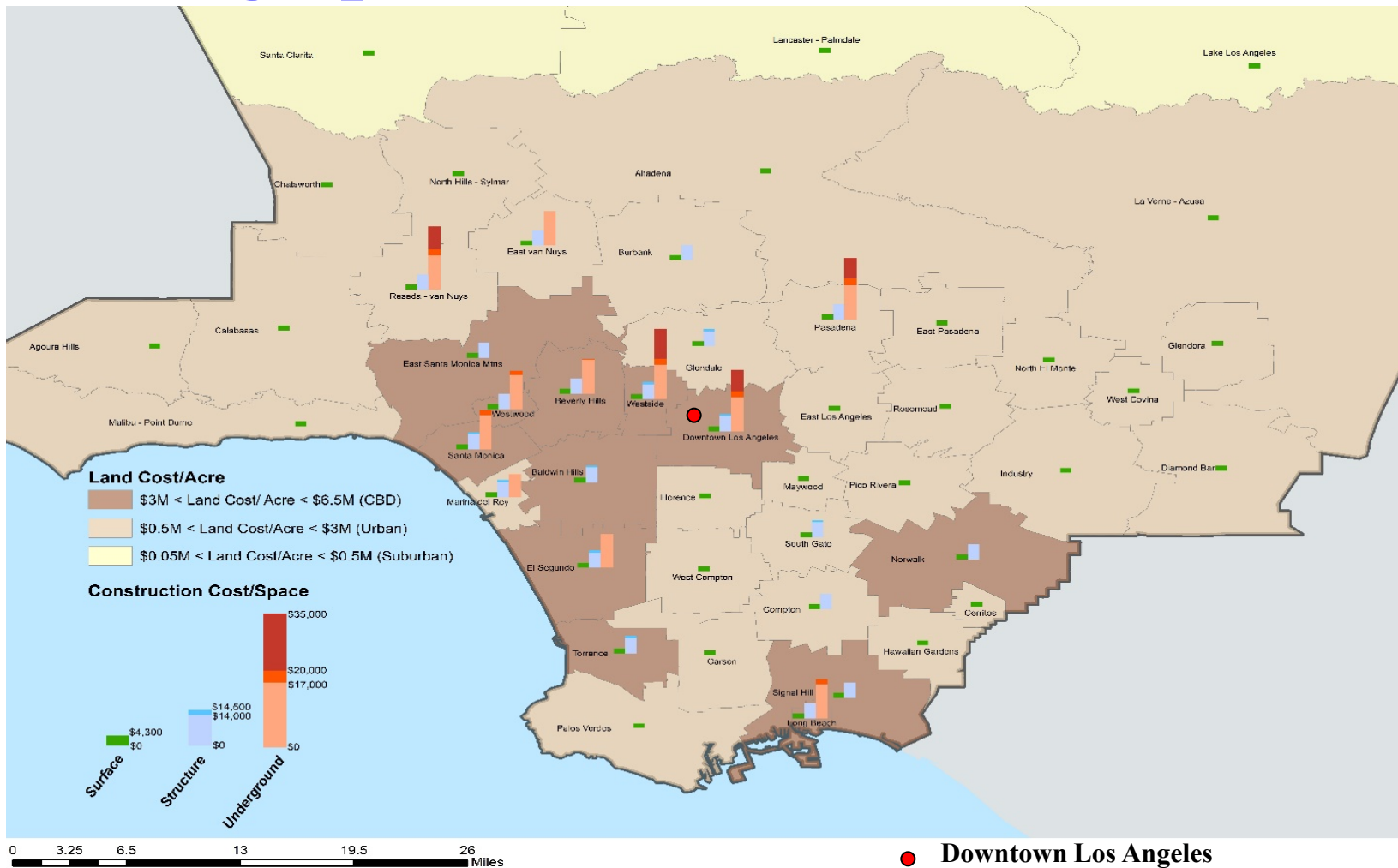


Photo by Sterling Davis, Nov 20 2018

How Much Does it Cost to Supply a Parking Space? A LOT!



Based on Franco's (2016) estimates of the average construction cost per space and Zhang and Arnott (2011) estimates of the land costs per acre.

Mandated Parking

- Most cities in US require parking for every land use in proportion to the **size of a building** or **based on its use**.

Use of Building (or portions of)	MPR
Residential Use	
Single-Family Dwelling	2 spaces/unit
Two-Family Dwelling or Apartment (units < 3 habitable rooms)	1 space/unit
Two-Family Dwelling or Apartment (units > 3 habitable rooms)	2 spaces/unit
Commercial Use	
Commercial or Business Office	1 space/ 500 sqft
Small Restaurant, Café, or Coffee Shop (1000sq. Ft. or less)	1 space/ 200 sqft

Source: LAMC Section 12.21.

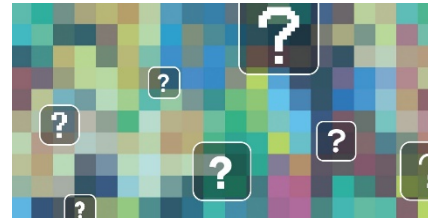


Rational of Mandated Parking?

- Avoid **parking spillovers** from new development into surrounding areas;
- reducing **illegal parking**;
- prevent **congestion from cruising** for vacant on-street parking spaces.

So what is the problem?

- “guessing game”



- Set with **no connection** to the market or to the locational features of a project site
 - Based on ITE parking generation rates
 - Rely on what nearby cities require
- MPRs likely **overestimate** the amount of parking required in an urban context or in areas with good public transit.

Cost of MPRs for Office Buildings in the City of LA with Underground Parking

Complying with the default parking minimum increases the cost of an **office building** on average by **48%**.

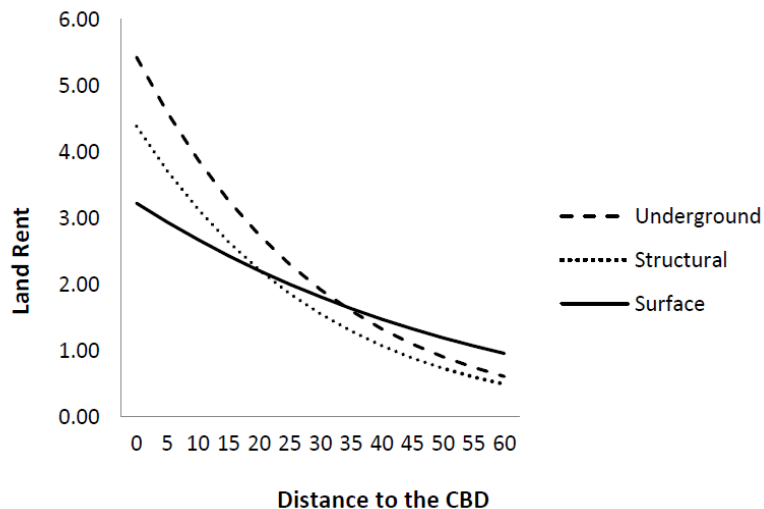
City of Los Angeles Area	Default Mandated Parking	Building Area (sqft)	Parking Area (sqft)	Construction Cost (\$/sqft) Parking	Construction Cost (\$/sqft) Building	Cost Increase
Downtown Los Angeles CBD Area	1	500	350	145	158	64%
Westside CBD Area	1	500	350	166	158	74%
Beverly Hills* CBD Area	1	500	350	83	158	37%
El Segundo* CBD Area	1	500	350	79	158	35%
Santa Monica* CBD Area	1	500	350	92	158	41%
Marina del Rey* Urban Area	1	500	350	55	158	25%
Westwood CBD Area	1	500	350	90	158	40%
Reseda-van Nuys Urban Area	1	500	350	149	158	66%
East van Nuys Urban Area	1	500	350	81	158	36%
Pasadena* Urban Area	1	500	350	145	158	64%

Sources: Building construction costs for a Grade A office building measured in 2012 U.S. dollars (Shoup, 2018).
Parking construction costs are in 2013 U.S. dollars (Franco, 2016).

Parking Mandates and Urban Form

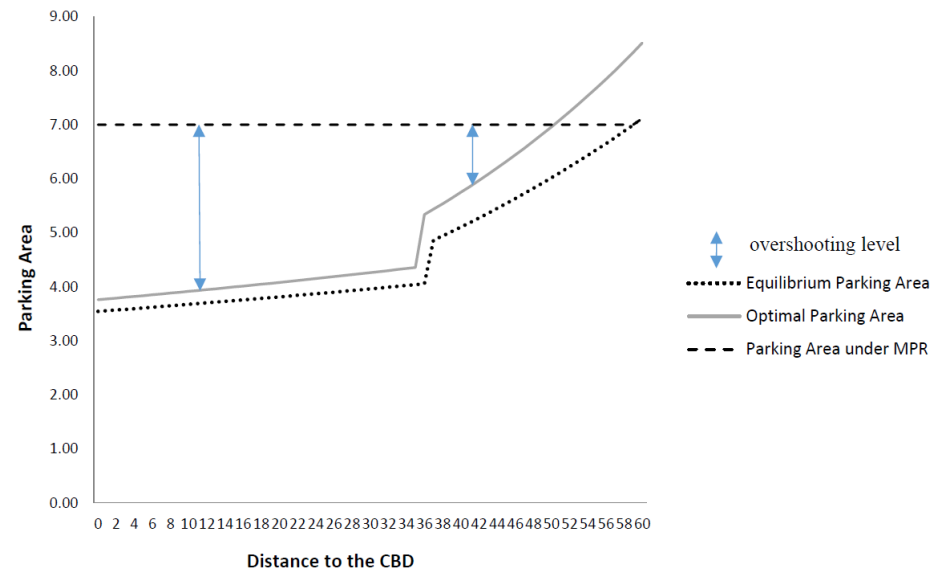
Land rents under different parking regimes

Land allocated to best and most valuable use



Parking area with and without MPRs

Parking area is too large under MPRs compared to optimal sol.

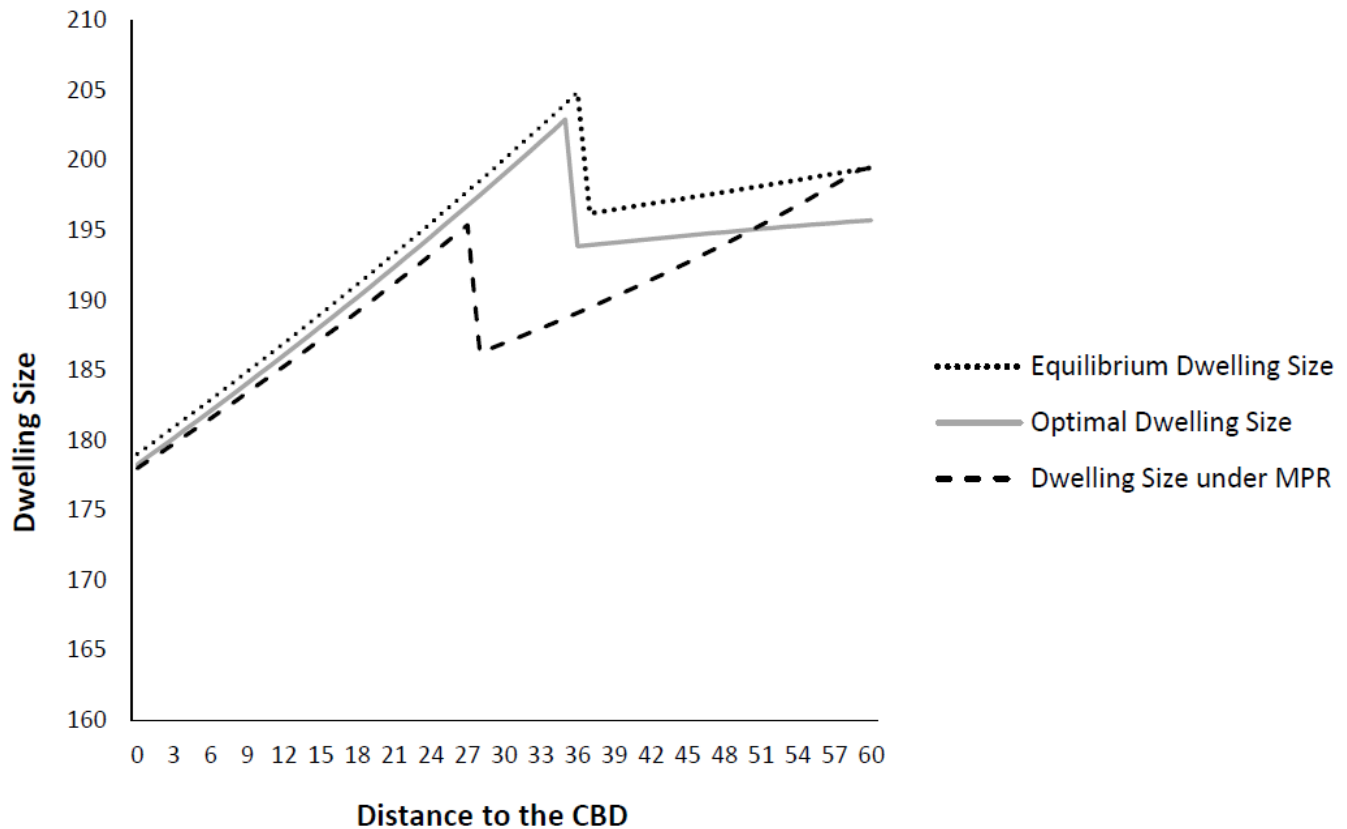


Based on the numerical simulations by Brueckner and Franco (2017)

Parking Mandates and Urban Form

Dwelling size with and without MPRs

Dwelling sizes are too small under MPRs when compared to the optimal solution



Based on the numerical simulations by Brueckner and Franco (2017)

Average Parking Supply, Parking Mandate for Office Properties in Different Cities in LA County

MPRs are well enforced and binding!

Cities in Los Angeles County	Building Area (sqft)	Parking Supplied	Required Parking	Difference
Alhambra	1000	2.98	3.88	-0.90
Baldwin Park	1000	4.90	3.75	1.14
Burbank	1000	2.61	2.93	-0.32
Downey	1000	2.79	2.77	0.02
El Monte	1000	3.92	3.64	0.28
Glendale	1000	2.18	2.60	-0.42
Long Beach	1000	3.69	3.74	-0.04
Los Angeles	1000	2.10	1.92	0.18
Pomona	1000	3.63	3.98	-0.35
Inglewood	1000	8.63	3.92	4.71
Santa Monica	1000	1.81	3.26	-1.45
Torrance	1000	3.20	3.29	-0.09
West Covina	1000	3.13	3.29	-0.17
Whittier	1000	4.21	3.26	0.95

Source: Cutter and Franco (2012) direct test for 249 office properties built in LA County between 1973 and 2006



And all this parking supply....

- **Guaranteed off-street parking** at home and workplace results in a **larger share of car owners choosing to drive to work**, even in areas that are well served by public transit.
- **On-street parking in residential areas** (hardly regulated by price and/or time limits) also incentives people to **drive more often**.

(Christiansen et al., 2017; Guo, 2013a,b; Marsden, 2006; Weinberger, 2012; Franco and Khordagui, 2019)



Cities questioning MPRs (examples)

- **Eliminating Minimums: Downtown**

Commercial & Residential Uses: Residential: San Francisco, Philadelphia, Portland, San Diego, Seattle, **Los Angeles**, Milwaukee

- **Reduced/Tailored Minimums**

Seattle for affordable housing & Pasadena in Transit-Oriented-Developments (TODs)

- **Setting Maximums:** Portland, San Francisco, Seattle, Cambridge, Pittsburgh, San Antonio

Parking subsidies also incentivize car usage!



TDM Icon

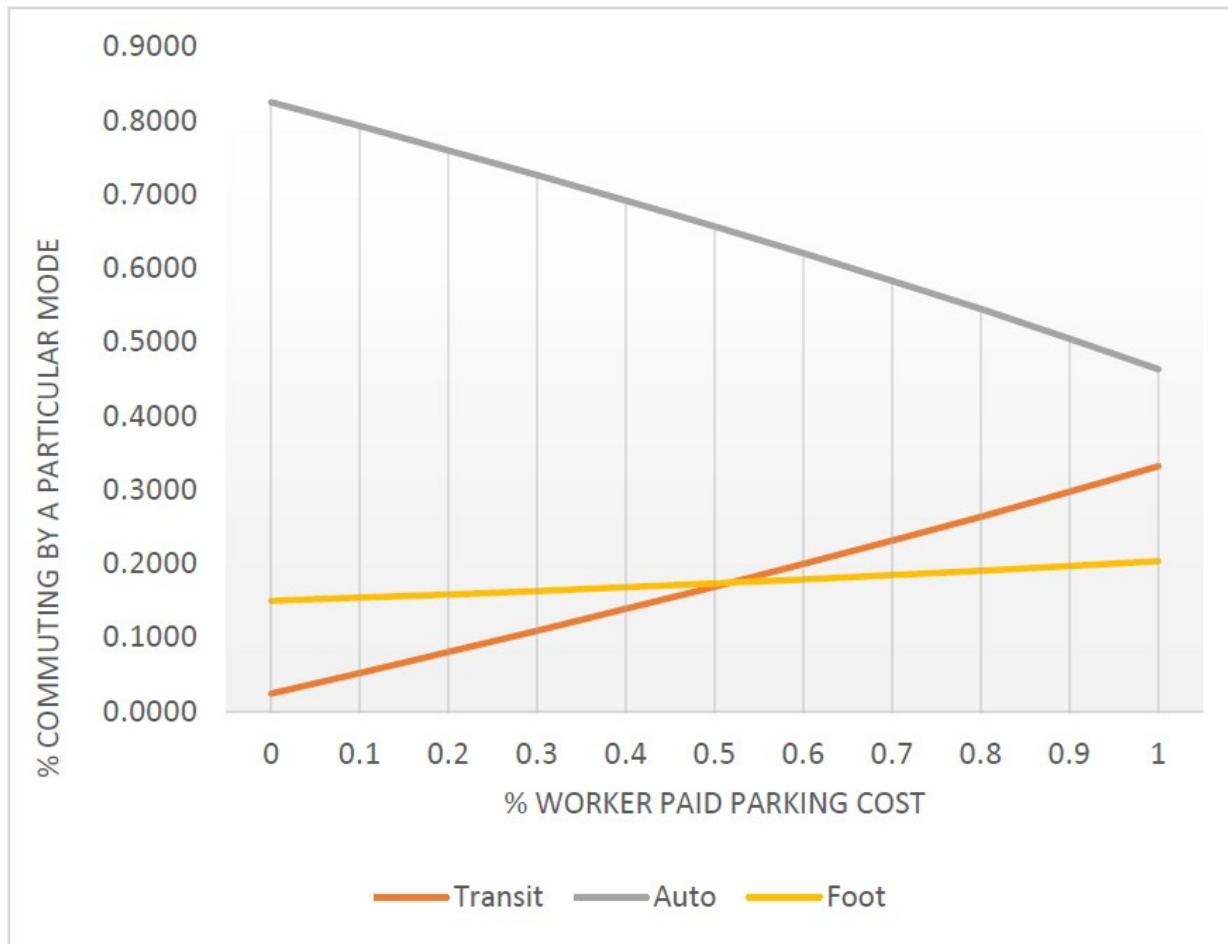
- **Inexpensive or free parking** is an incentive for **solo driving** (Willson and Shoup, 1990; Willson, 1992; Hess, 2001; Shoup, 2005; Franco and Khardagui, 2019)
- In CA, ~ 95% of auto commuters receive free parking (Shoup, 2005).
- **Employer Paid Parking (EPP) is common practice**: tax-exempt fringe benefit that employees qualify for only by driving to work. This parking subsidy entails either free parking or parking at very low rates.



Incentives of Employers to provide EPP?

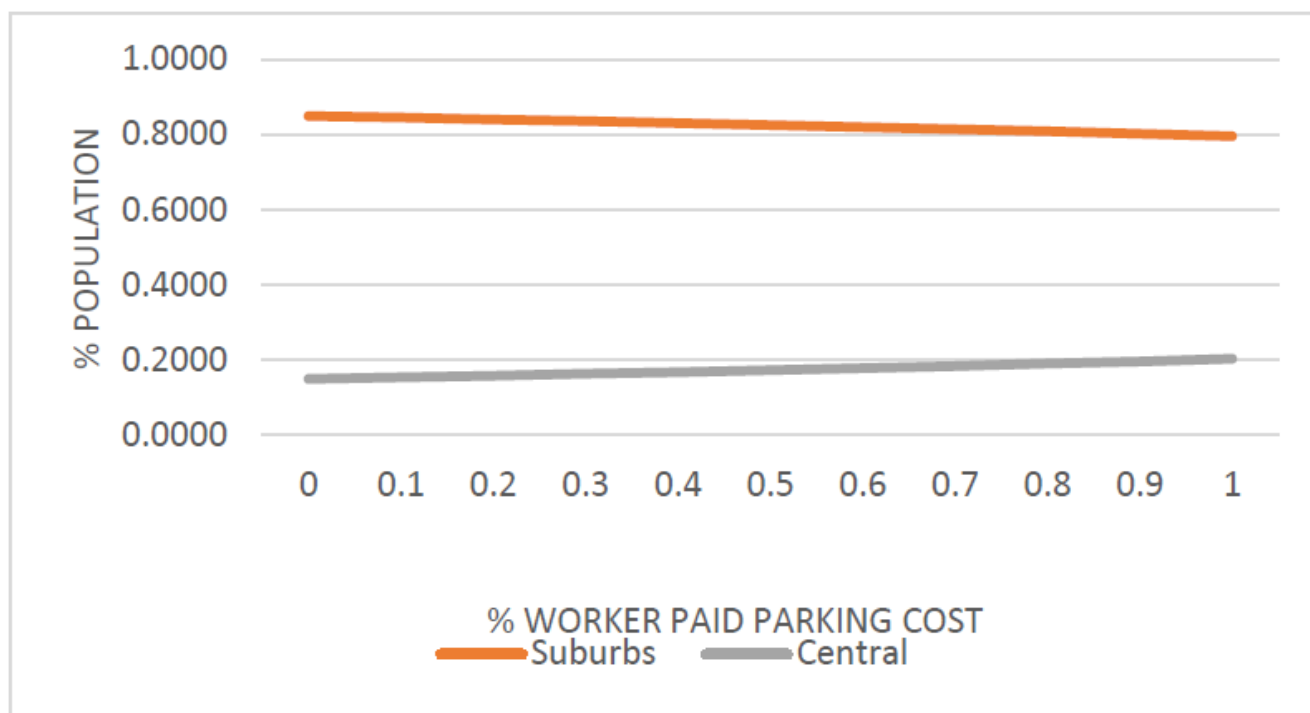
- Qualified fringe benefit that is not taxed.
- This allows firms to pay **lower wages** and **save** on **payroll taxes** without making employees worse off.
- Retain Employees.
- Excess supply of parking due to MPRs reduces workers WTP for it!

Travel Mode Choice with Different Workplace Parking Subsidies



Based on the numerical simulations by Brueckner and Franco (2018)

Impact of Workplace Parking Subsidy on Suburbanization



Based on the numerical simulations by Brueckner and Franco (2018)

How to solve this?

- Have parking charges at the workplace
 - workers pay for their parking at market rates, which are usually high in large cities and in CBDs, with employers raising their wages accordingly.



- May raise huge political objections !!!

Daily Market Price Workers would Pay if EPP removed in 2003 U.S. dollars

Los Angeles County Areas	Exclusion Amount (\$/Month)	Market Parking Price (\$/Day)	Value of Parking Subsidy (\$/Month)
Downtown Los Angeles (223)	245	10	205
Westside (55)	245	10	205
Beverly Hills (63)	245	12	247
El Segundo (23)	245	12.5	250
Santa Monica (53)	245	13	263
Marina del Rey (23)	245	8	153
Westwood (33)	245	14	284
Reseda-van Nuys (18)	245	10	196
Pasadena (56)	245	7	143
Burbank (20)	245	3	67
Long Beach (47)	245	10	205
Glendale (29)	245	8	153

Sources: Parking prices are in 2013 U.S. dollars (Franco, 2016). The monthly value of the parking subsidy is calculated as a FMV and assumes that employees work 5 days a week. In parenthesis is the number of off-street commercial parking garages used to calculate the average daily market price in each area of the County.

How about pay employees to ditch their car commute?

Cash-Out Program: Employers who lease (or partially subsidize) parking on behalf of their employees must offer their employees the choice:

to keep their allotted parking spot

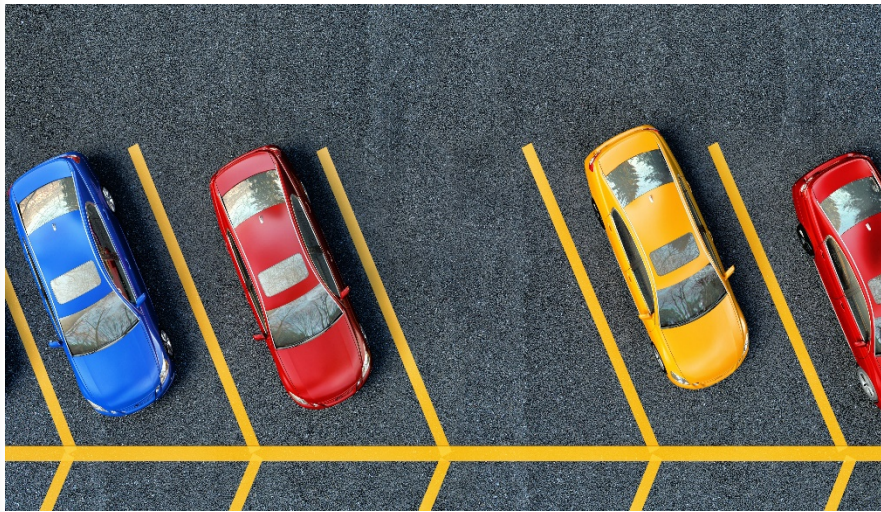


Photo: Fiware.org

equivalent cash payment



Cash Payment = Parking Subsidy

Cash-out Program



- Forces workers to understand that **Parking has an opportunity cost!!!!**
- Commuters who **forgo the cash** are therefore spending it on parking and **paying a “price” to park at work.**



Franco and Khordagui (2019)

- The “price” for taking the “free” parking space at work (the forgone cash equivalent) is a factor highly correlated with employee automobile use in the short-run in LA County.
- A 10% increase in such a “price” is associated with a decrease on the probability of driving to work by 1.1%.



Conclusion & Recommendations

- Policies determining parking supply and pricing influence
 - **developers' decisions** on how much land to provide for parking;
 - **individual choices** of how many cars to own and which travel mode to take to cover daily travel needs.



Conclusion & Recommendations

■ Evidence points to:

- Need to have **parking inventories**: cities should collect data on their parking supply
- **Reform Parking Minimums**
- **Cash-Out Programs**
- Charging **market prices for curbside parking** also makes economic sense.



Market Prices for Curbside Parking

- If prices for curb parking leave 1 or 2 open spaces on each block, then there will be no parking shortages and spillover parking problems can be controlled.
- MPRs will be redundant.
- Can be a very challenging task!
- Use parking revenues to improve public services on metered streets.