Congestion Pricing Efficiency and Equity

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Congestion Pricing
Efficiency and Equity

Michael Manville
Department of Urban Planning
Institute of Transportation Studies
UCLA
The Importance of Prices: How We Drive

Median home price: $1.4 million
Average commercial rent: $72/sq ft
Price to drive across: zero
Price to park on residential street: zero

Median home price: $197,000
Average commercial rent: $12/sq ft
Price to drive across: zero
Price to park on residential street: zero
Price Controls Have Four Consequences

- **Shortages** – You run out of the good
- **High Search Costs** – People expend extra energy to find the good
- **Misallocation** – The good is consumed both by people who value it a lot and people who don’t
- **Shadow Markets** – the cost of the good ends up in the cost of other goods
14.112.060 Mitigation of Traffic Impacts Required.
Any new development activity shall mitigate the development’s impacts on the City’s street system either by payment of an amount or as otherwise provided in Section 14.112.070. (Ord. 876, Sec. 6 (Exh. 4), 2012)

City of Los Angeles
Summary of Parking Regulations

<table>
<thead>
<tr>
<th>Use of Building (or portions of)</th>
<th>Commercial uses</th>
<th>Ratio (spaces/sq. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Health or Athletic Club, Bath House, Dance Hall/Studio, Gymnasium, or similar (e.g. amusement)</td>
<td></td>
<td>1 per 100</td>
</tr>
<tr>
<td>2. Restaurant, Café, Coffee Shop, Bar, Night Club, or similar</td>
<td></td>
<td>1 per 100</td>
</tr>
<tr>
<td>3. Small Restaurant, Café, or Coffee Shop (1000sq. Ft. or less)</td>
<td></td>
<td>1 per 200</td>
</tr>
<tr>
<td>4. Take-out Restaurant (no eating on the premises)</td>
<td></td>
<td>1 per 250</td>
</tr>
<tr>
<td>5. Retail or Discount Wholesalers</td>
<td></td>
<td>1 per 250</td>
</tr>
<tr>
<td>6. Retail Furniture, Major Appliances, or similar</td>
<td></td>
<td>1 per 500</td>
</tr>
<tr>
<td>7. Auditoriums: Church, High School, College, Stadium, Theater, and similar assembly</td>
<td></td>
<td>1 per 35 or 1 per 5 fixed seats</td>
</tr>
</tbody>
</table>
Shadow Markets can Become Black Markets

SF Sends Cease-And-Desist To Apps Selling Public Parking Spots

Turns out you're not allowed to rent away public property like parking spots as if you owned.

Haystack suspends service in Boston as city bans parking apps

Apps that let users find and then pay for public parking spots have drawn the ire of at least two U.S. cities in recent months.

The Boston City Council passed an ordinance Aug. 20 that bans the selling or leasing of public ways by private companies. The measure was designed to ban services like Haystack that let users find and then pay for public parking spots.
SACRAMENTO — In 1920, the city of Sacramento amended its charter to declare that "no water meters shall ever be attached to residential water service pipes," and ever since, water meters have been fighting words here in River City.

But the days of Sacramento's wide-open spigots may be twisting shut. The city finds itself practically alone in its fight to perpetuate the flat rates that charge people the same no matter how much water they use.
Sacramento officials say they're not philosophically opposed to water meters. And they acknowledge that residents use more water than most Californians. In nearby Davis, Stockton and Vacaville, homes are metered, and the average household uses 12,700 gallons per month, compared with at least 17,000 gallons per month in Sacramento.
McIntyre is passionate about water meters. He tried for 15 years, through conservation programs, to bring down Fresno's residential water use. But without meters, McIntyre says, there's no measuring the waste and no cost incentive to conserve. And this is probably why Fresno is among the highest urban water users in the country.
Prices Trigger More Judicious Use

• 2018:
  – *Sacramento*: 70 percent of households have meters
  – Household water use at 12,900 gallons per month

• *Fresno*: residential meters installed
  – Household water use at 200 gallons per person per day
Congestion is Non-Linear

Small share of vehicles can tip a road into gridlock. So slowing or preventing their entry removes bottlenecks, and moves more people.
Context: Pricing and Equity

• Pricing is not a strategy to affirmatively advance equity
• Pricing is an efficiency strategy
• It can be done in ways that don’t exacerbate equity
• It *may* advance equity along some dimensions
• It doesn’t directly address the most fundamental inequities in the system
• But - it can pair well with policies that do
Two Fairness Objections

• Double-taxation: We already pay to use these roads (gas taxes, etc)
• Regressivity – burden on low-income drivers, benefit for the affluent
Do We Already Pay to Use Roads?
What About Regressivity?

• Tolls *are* regressive
• Regressive doesn’t automatically mean “unfair”
• We can mitigate the unfairness that does exist
Two Conceptions of Equity

- Ability to pay: those who have more pay more
- User Pays: People account for the full costs of their actions
- Pricing conforms to the second and violates the first
- Free roads violate both
Free Roads: A Subsidy Mostly for the Affluent

Figure 1. Poverty and affluence in morning peak period travel

- Population
- Peak Hour AM Commuters
- Peak Hour Freeway Trips

Census ACS, 10 Most Congested MSAs
NHTS, All Urban Travel
L.A. keeps building near freeways, even though living there makes people sick

Are you one of the 2.5 million Southern Californians already living in the pollution zone?

By TONY BAREIZA AND JON SCHLEUSS
MARCH 2, 2021, 3 A.M.

Hollywood & East Hollywood
33,000 people

Boyle Heights
42,000 people

1 dcp = 1 person living within 1,000 feet of a freeway in 2010
Pollution from Congestion has Serious Consequences

![Graph showing premature birth by day before and after EZPass. The graph compares two categories: More than 1.5km from Toll Plaza (blue line) and Less than 1.5km from Toll Plaza (red line). The blue line shows a slight increase in premature birth as the days before EZPass increase, while the red line shows a decrease in premature birth as the days before EZPass increase.]
Table 3. Share of People in Poverty by Freeway Proximity.

<table>
<thead>
<tr>
<th>Urbanized Area</th>
<th>Freeway Dominated</th>
<th>Freeway Intersected</th>
<th>No Freeway</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>0.15</td>
<td>0.32</td>
<td>0.19</td>
<td>0.13</td>
</tr>
<tr>
<td>Boston</td>
<td>0.10</td>
<td>0.22</td>
<td>0.08</td>
<td>0.11</td>
</tr>
<tr>
<td>Chicago</td>
<td>0.14</td>
<td>0.21</td>
<td>0.14</td>
<td>0.13</td>
</tr>
<tr>
<td>Houston</td>
<td>0.16</td>
<td>0.17</td>
<td>0.20</td>
<td>0.16</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>0.16</td>
<td>0.23</td>
<td>0.18</td>
<td>0.16</td>
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<tr>
<td>New York</td>
<td>0.14</td>
<td>0.25</td>
<td>0.16</td>
<td>0.13</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>0.13</td>
<td>0.18</td>
<td>0.12</td>
<td>0.13</td>
</tr>
<tr>
<td>San Francisco</td>
<td>0.12</td>
<td>0.14</td>
<td>0.12</td>
<td>0.11</td>
</tr>
<tr>
<td>Seattle</td>
<td>0.11</td>
<td>0.22</td>
<td>0.14</td>
<td>0.11</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>0.08</td>
<td>0.11</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Average</td>
<td>0.13</td>
<td>0.20</td>
<td>0.14</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Note: “Freeway dominated” denotes population in Census block groups whose land area is at least 75% occupied by a freeway or by a 1,000-foot buffer on either side. “Freeway intersected” denotes population in block groups that touch a freeway or its buffer in any way. “Difference” is percentage difference between the freeway-dominated group and the no freeway group. Some percentage differences appear incorrect because of rounding.
Free Roads: A Penalty for the Urban Poor

Figure 2. Poverty status and vehicle ownership by freeway adjacency, 10 most congested U.S. urban areas

- Near Freeway
- Not Near Freeway

<table>
<thead>
<tr>
<th></th>
<th>Poverty</th>
<th>No Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Freeway</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>Not Near Freeway</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Percent Nonwhite</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td>Urbanized Area</td>
<td>Freeway Dominated</td>
</tr>
<tr>
<td>Atlanta</td>
<td>0.54</td>
<td>0.79</td>
</tr>
<tr>
<td>Boston</td>
<td>0.27</td>
<td>0.36</td>
</tr>
<tr>
<td>Chicago</td>
<td>0.48</td>
<td>0.67</td>
</tr>
<tr>
<td>Houston</td>
<td>0.65</td>
<td>0.76</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>0.71</td>
<td>0.86</td>
</tr>
<tr>
<td>New York</td>
<td>0.52</td>
<td>0.74</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>0.37</td>
<td>0.36</td>
</tr>
<tr>
<td>San Francisco</td>
<td>0.62</td>
<td>0.74</td>
</tr>
<tr>
<td>Seattle</td>
<td>0.34</td>
<td>0.41</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>0.56</td>
<td>0.49</td>
</tr>
<tr>
<td>Average</td>
<td>0.51</td>
<td>0.62</td>
</tr>
</tbody>
</table>

Note: “Freeway dominated” denotes population in Census block groups whose land area is at least 75% occupied by a freeway or a by 1,000-foot buffer on either side. “Freeway intersected” denotes population in block groups that touch a freeway or its buffer in any way. “Difference” is percentage difference between the freeway-dominated group and the no freeway group. Some percentage differences appear incorrect because of rounding.
Low-income people near freeways

• ...are less likely to use freeways

Table 6. Vehicle Ownership and Commute Behavior by Freeway Proximity.

<table>
<thead>
<tr>
<th>Share of households without vehicles</th>
<th>Atlanta</th>
<th>Boston</th>
<th>Chicago</th>
<th>Houston</th>
<th>Los Angeles</th>
<th>New York</th>
<th>Philadelphia</th>
<th>San Francisco</th>
<th>Seattle</th>
<th>Washington, DC</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanized area average</td>
<td>0.07</td>
<td>0.14</td>
<td>0.13</td>
<td>0.06</td>
<td>0.09</td>
<td>0.32</td>
<td>0.15</td>
<td>0.15</td>
<td>0.08</td>
<td>0.11</td>
<td>0.13</td>
</tr>
<tr>
<td>Freeway dominated</td>
<td>0.20</td>
<td>0.40</td>
<td>0.21</td>
<td>0.10</td>
<td>0.11</td>
<td>0.54</td>
<td>0.27</td>
<td>0.15</td>
<td>0.26</td>
<td>0.21</td>
<td>0.25</td>
</tr>
<tr>
<td>Freeway intersected</td>
<td>0.09</td>
<td>0.14</td>
<td>0.12</td>
<td>0.09</td>
<td>0.08</td>
<td>0.33</td>
<td>0.13</td>
<td>0.12</td>
<td>0.12</td>
<td>0.10</td>
<td>0.13</td>
</tr>
<tr>
<td>No freeway</td>
<td>0.05</td>
<td>0.14</td>
<td>0.13</td>
<td>0.06</td>
<td>0.09</td>
<td>0.31</td>
<td>0.15</td>
<td>0.16</td>
<td>0.07</td>
<td>0.12</td>
<td>0.13</td>
</tr>
<tr>
<td>Difference (%)</td>
<td>264</td>
<td>191</td>
<td>62</td>
<td>68</td>
<td>25</td>
<td>73</td>
<td>86</td>
<td>-3</td>
<td>266</td>
<td>84</td>
<td>112</td>
</tr>
</tbody>
</table>
It is wrong to levy regressive charges to access essential goods
Some Regressive Charges for Essential Goods

- Transit fares
- Sales taxes for transit
- Gasoline
- (And gas taxes)
- Cars
- Water and electric meters
- Things at grocery stores
Early critics of the congestion pricing proposal have said additional fees could be a burden for low-income households that spend a significant share of their monthly income on transportation.

“What’s prohibitively expensive for someone of limited means is a drop in the bucket for the affluent,” Eric Preven, who serves on the Studio City Neighborhood Council, said during Thursday’s meeting.
Metro CEO supports congestion pricing, free fares on public transit

Could tolls on drivers cut down on traffic?

By Elijah Chiland | Dec 6, 2018, 12:54pm PST

“We think that with congestion pricing done right, we can be the only city in the world to offer free transit service in time for the 2028 Olympics,” Metro CEO Phil Washington said.
The Nature of the Unfairness

- **Low-income drivers** with few obvious alternatives to using busy roads and busy times
- Giving money to transit *doesn’t solve this problem*
- Might be a *good idea*
- Might be *progressive*
- Not the same as remedying *specific harm*
We Have Ways to Solve This

SNAP: Supplemental Nutrition Assistance Program

Putting Healthy Food Within Reach
Market Design and Redistribution with Priced Roads

• Right now no market exists, so opportunity to design one from scratch means agencies can be proactive about fairness considerations

• Approaches:
  – Exemptions
  – Gradualism
  – Redistribution
Exemptions come back to haunt you
FIGURE 4
Occupancy Rates on Flower Street
Gradualism
Redistribution

• The economic ideal: lump sum payments to all people below a certain income level
• More feasible: transponders pre-loaded with money for income-qualifying people
• Other options: EITC-style rebates, discounted rates
A counterfactual

• Suppose all freeways today were congestion-priced
  – Much less congestion and pollution
  – More transit ridership
  – Revenue used to help low-income people, and pay for public projects

• Someone proposes making the roads free

• Would this be fair?
Status Quo Bias

• More congestion
• More pollution
• No revenue to compensate for the harm
• Would we support a proposal to abolish electric and water meters?
Thank you

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