Congestion Pricing

$P = $ per mile plus inconvenience
(assumes inconvenience is class neutral
(theoretical and political reasons)

Equilibrium without toll

Equilibrium with economist’s toll

Without congestion

MAX

Unstable

Q3 Without congestion

Q1 Equilibrium without toll

Q2 Equilibrium with economist’s toll

Q4 Unstable

Q5 MAX

P with toll, no congestion

P with economist toll
P = $ per mile plus inconvenience (assumes inconvenience is class neutral (theoretical and political reasons)
Toll too high (no congestion)

\[ \text{Tolled} = Q_3 \]
\[ \text{Tolled off} = Q_1 - Q_3 \]
\[ \text{Increment tolled off} = Q_2 - Q_3 \]

Lost Consumer Surplus

\[ P \text{ with toll, no congestion} \]
\[ P \text{ with economist toll} \]

\[ P = \$ \text{ per mile plus inconvenience} \]
(assumes inconvenience is class neutral (theoretical and political reasons))
Note: Toll revenue KIGH is larger than Toll revenue ABCD but less than Toll revenue ABCD plus consumer surplus ILDC

Problem: Surplus FCE and LHC are not real because congestion destroys it

Note: Toll authority has temptation to “overtoll”

But assume “technology”, such as
- Transit or
- Larger aircraft or
- Off-peak discounted tolls and or

- Assume toll recovery helps to buy the “technology” transit expansion