Achieving a Flexible, Customer-Oriented Transportation System

National Surface Transportation
Policy and Revenue Study Commission

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Vision is Based on Three Observations

 # 1: Incentives and prices matter

Incentives: People will react to the advantages and disadvantages of different choices they face

Prices: Prices *guide incentives* (price goes up, we buy less, firms supply more); but they also *convey information* to both consumers and sellers

Observation #2

We can learn from reform experience in other similar industries

Surface transportation is a *network industry* that provides transportation services

- "Industry requiring on a set of lines, pipes or routes with strong physical interconnections between component parts."

Observation #2 (con't)

- Network industries include: Electricity, telecommunications, water, natural gas, cable, postal services, airlines
- Some (most?) have large amounts of fixed investment

Observation #3

Future is hard (impossible?) to predict, and becoming harder

- Wildcards affecting future demand for transportation:
  - Demography/Immigration
  - Climate
  - Trade flows
  - Technology

Observation #3 (con't)

- What does observation #3 imply?
- We *cannot know* what the best system for the nation will look like in 15, 20, or 25 years
- We should strive for is a *flexible, customer-oriented system* that is responsive to the nation's needs

Goals

- Goal is *not a particular future end-state* with some perfect structure we can forecast now
- Goal is to adopt the *best set of policies* or *institutional arrangements* that will give us the best system in the future
- Correct arrangements will result in a flexible, responsive customer-oriented system
- Will do demand side first, then supply side

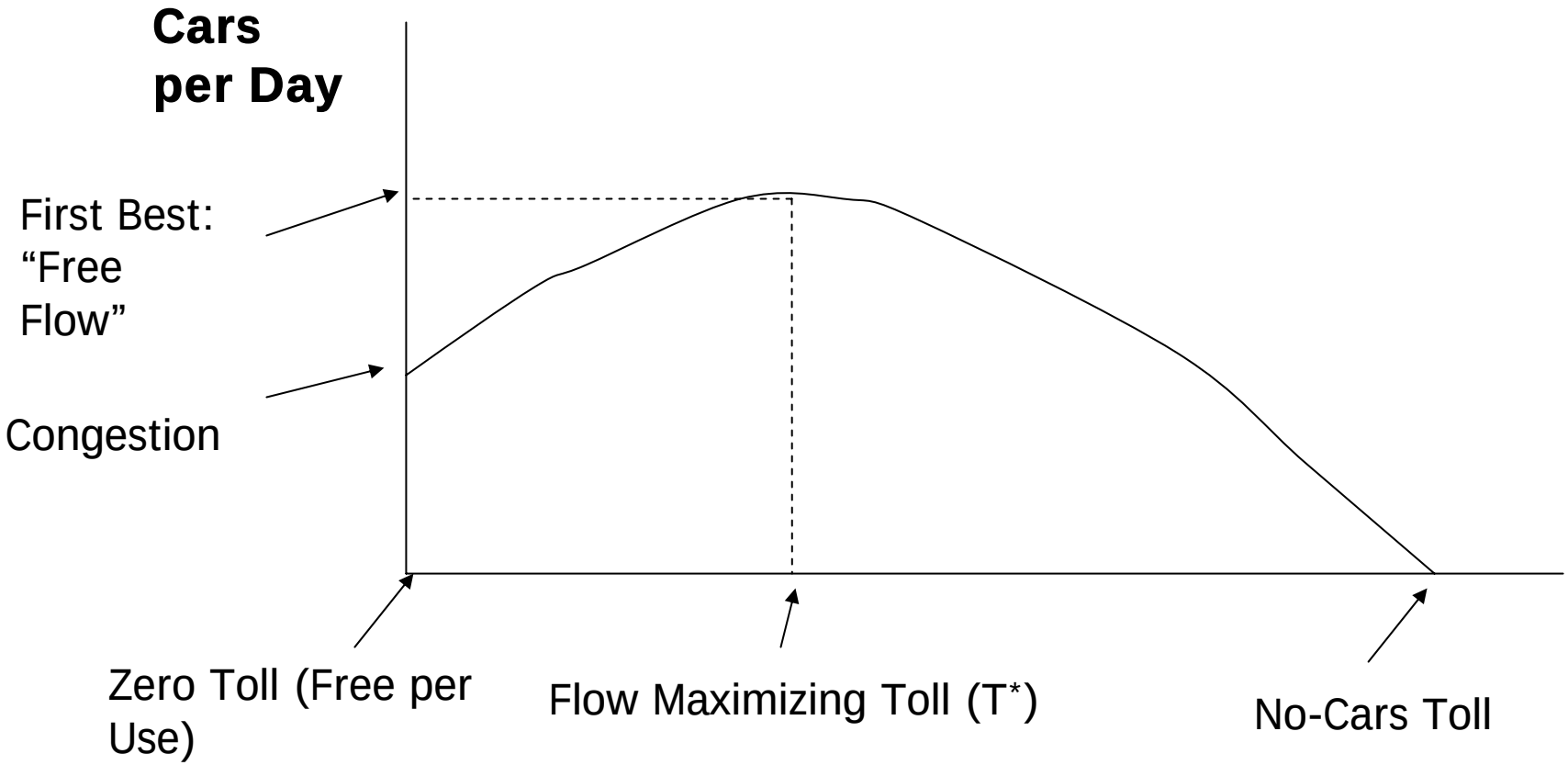
Demand Side: A Note on Terms

- Alternative terms:
  - “Toll”
  - “Road price”
  - “User fee”
  - “Charge” or “rate”
- All have the same meaning in policy
- All mean that *customer is paying something* to use the road

Role of Tolling in a Flexible, Customer-Oriented System

- Tolling provides a way of pricing a very scarce resource that was previously *free per use*
- Tolling influences incentives (Observation 1), so we can *manage demand* for a road via the toll
- Tolling allows us to do the *best we can* with *given road capacity*

The Effect of Congestion Tolls on a Busy Road: One Point in Time (i.e. no expansion)



Amount of the Congestion Toll (Road price per use adjusted for volume)

Benefits of Congestion Tolling at One Point in Time

- We can get to the “sweet spot” (T^*) with proper tolling: Free-flow; public interest toll
- This is the *best we can do* with given road capacity at any one time
- Without proper tolling we are wasting the scarce road capacity (and time and gas!) we have
- Benefits of tolling are even greater *across time*

Effect of Tolling Over Time: A Guide for Investment

- Suppose there are two roads; A and B
  - Toll to achieve free flow is higher on A than on B ($T^*_A > T^*_B$)
  - Toll is a signal that *value to consumers* (willingness to pay) is higher on road A
  - Investment should be allocated to road A

Consider Effect of Tolling Over Time (con't)

- The free-flow toll tells us *where investment is most highly valued*
- This reduces (eliminates?) speculation and debate about where scarce road investment should be allocated

Third Benefit of Tolling: Customer Orientation

- Roads are *providing a service* to customers
- Focus shifts from “users” to customers/consumers
- For any industry, focus is on meeting the desires of those who *directly pay the bill*
- Providers (suppliers) will become more focused on customer’s needs

Conclusions Regarding Tolling

1. Tolling allows us to use the roads we have *most efficiently* (i.e. avoid “wasted road,” wasted gas/environmental harm)
2. Tolling allows for investment in roads to be directed to where it is *most highly valued*: Can compare value across regions, same road across time etc.
3. Tolling places focus where it should be: on the customer

Supply: Role of Ownership Form in a Flexible, Customer-Oriented System

- *Ownership form* is a policy decision
- Should be considered analytically
- What does it mean to talk about public versus private ownership of any asset?
- Some terminology: Private ownership means there are *residual claimants*

Role of Ownership Form (con't)

- Residual claimants are those who can assert a *legal claim* to the *net cash flows* produced by an organization
- Examples:
  - *Stockholders* are the residual claimants of a corporation
  - *Partners* are the residual claimants of a partnership

Role of Ownership Form (con't)

- Ownership form is important because it affects *incentives*
- Residual claimants want the size of the residual to be as large as possible
- That is, they want profits to be as large as possible (that is, to *profit maximize)*
- Are profit-maximizing incentives desirable? In most industries, clearly yes

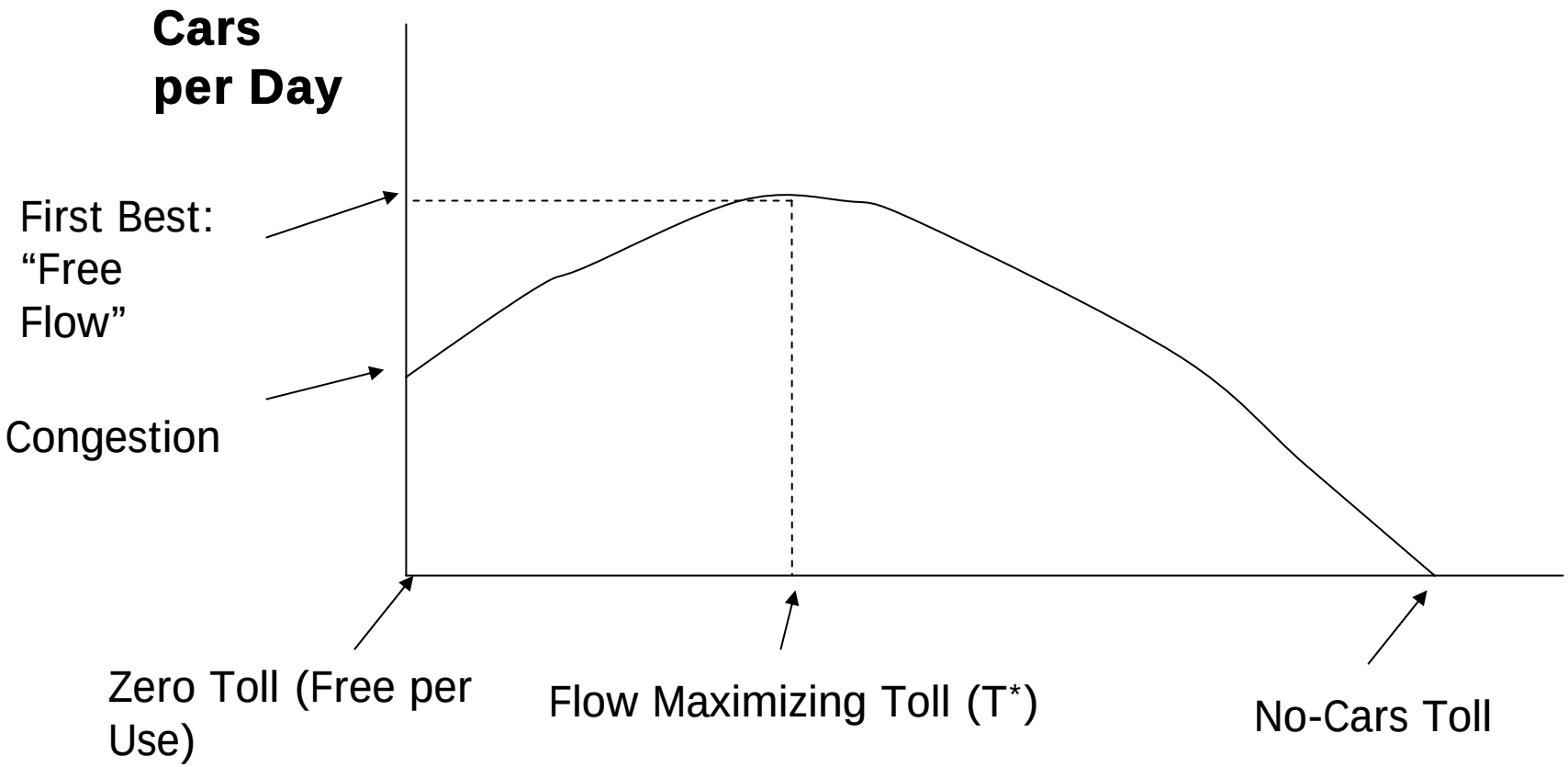
What Does Profit Maximization Imply?

- Profits = Revenue – Costs
- So *profit maximization* means two things:
  - Firm strives for revenue as high as possible
  - Firm strives for costs as low as possible

Are These Incentives Desirable for Roads?

- Cost minimization? Seems socially desirable and consistent with public interest
- Road/service quality?
- Revenue side: *Is revenue maximization socially desirable*?
- Recall graph: What toll will a revenue-maximizing firm charge (Rev. = P*Q)?

The Effect of Tolls on a Busy Road: One Point in Time



Revenue-Maximization and the Public Interest

- Clearly a revenue-maximizer will charge tolls *no less than* T^*
- So public interest concerns enter when the toll exceeds T^*
- We can regulate T to ensure it is consistent with the public interest
- Can borrow from experience in other regulated industries

Profit-Maximizing Incentives *Over Time*

- Consider revenue maximization over time:
  - Incentives will give the firm strong incentives to respond to higher free-flow tolls (T^*)
  - If T^* for road A greater than T^* for road B, firm will *quickly put more resources* into road B expansion
  - Consistent with *socially desirable* allocation of investment

Experience in Other Industries

- Electricity: User pays via electricity charge; moving to peak-time pricing
- Mixture of ownership forms
- Majority of power generated by investor-owned utilities
- Moving to price cap form of regulation

Conclusions from Ownership Form Discussion

- Private ownership creates incentives to profit maximize; cost min is good
- Striving for highest revenue may be socially desirable at point in time
- Can borrow from regulatory experience elsewhere to protect public interest
- Striving for highest revenue desirable in responding to price signals

Vision: A Flexible, Customer Oriented System

- The best structure for the future is a *regulated utility structure*
- This will ensure that:
  - Scarce road space will be used efficiently
  - Resources for expansion will go to where they are needed most
  - Firms will be responsive to customer's desires