What *Really* Happens When We Expand Transportation Capacity?

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Latent Demand, Induced Demand, and Capacity Expansion

- Responses to added capacity
- How they affect investment benefits
- Can congestion get worse?
- What are the *real* issues?
- Fighting induced demand vs. fixing the underlying problems

Short-Term Responses

- **Speed on expanded facility rises**
- **Travel diverted to expanded facility**
  - From parallel facilities or routes
  - From other hours (trips rescheduled)
  - From other modes (carpools, transit)
- **Usage of expanded facility increases over time, speed slows from "opening day"**
- **Speeds may increase on other facilities, or at other hours**

Longer-Term Responses

- **Households**
  - Linked trips may be “unchained”
  - More outside-the-home activities
  - Changes in auto ownership possible
  - Some relocate farther from work, other activities
- **Businesses**
  - More frequent orders, shipments
  - More logistics-intensive organization
  - Some relocate to more accessible sites
- **Facility use gradually increases, speed slows further**

How Induced Demand Affects Benefits from New Capacity

- **Erodes immediate benefits to original users**
- **Adds new benefits as it does**
- **Total benefits with induced demand can be higher or lower than without it**
  - Extent of capacity expansion
  - Sensitivity of demand to faster travel
  - Relationship of speed to use on improved facility
- **Induced demand *cannot* eliminate benefits**

Can Induced Demand Make Congestion Worse?

- **Not by itself**
- **Together with other factors, maybe**
  - Rapidly growing demand
  - Irreversible cuts in transit service
- **Why do people believe it can?**
  - Investments often made where demand is growing rapidly
  - Compare congestion with expansion vs. without it, not before vs. after

The *Real* Issues with Induced Demand

- Environmental impacts of added travel: air pollution, greenhouse gases, noise
- Safety consequences of more driving (including for pedestrians)
- Continued dispersion of land uses (sprawl)
- Fuels public demands for continued expansion

Underlying Sources of Problems

- Environmental impacts stem from vehicle technology, carbon fuels
- Safety impacts have complex causes
- Land use impacts are responses to underpricing of transportation and utilities, housing subsidies
- Demands for more capacity persist because fuel tax disconnects payments from use
- Fighting investment doesn't fix these

Why Not Solve the Real Problems?

- Tailpipe and fuel standards "second best," but hugely successful
- Fixing CAFE or raising fuel taxes could reduce greenhouse gases
- Re-focusing traffic engineering, insurance reform would help safety
- Changing pricing and investment policies, reforming zoning would improve land use decisions

Is Induced Demand a Serious Problem?

- **Infrastructure planning and finance have problems, but induced demand doesn't cause them**
  - Congestion is the wrong signal to build
  - Pressure to expand comes from underpricing and buildup of fuel tax revenues
  - Program structure turns costs into benefits
- **Expanding capacity won't eliminate congestion, but the real problem is pricing, not induced demand**

Points to Remember

- **Induced demand affects expansion benefits, but can't eliminate them**
- **It won't make congestion worse**
- **Real issues are externalities from added travel, land use impacts**
- **Need to address their causes, not fight expansion**
- **More capacity won't fix congestion, but not because of induced demand**

Economics of Capacity Expansion