



Improving Public Highway Infrastructure

**Clifford Winston
Brookings Institution**

Importance of Highways in the Context of US Transport Spending

- Total pecuniary annual spending by firms and consumers on transport is \$2.1 trillion
- Annual expenditures in time (freight and travelers) \$3 trillion
- Government annual spending on infrastructure \$0.26 trillion

Importance of the Highway Capital Stock

- **Highways carry roughly 90 percent of work trips and a similar share of non-work trips**
- **Highways (auto and bus) carry nearly 75 percent of intercity trips**
- **Highways carry roughly one-third of freight traffic (truck and intermodal)**
- **The value of the highway capital stock is nearly \$3 trillion**

Highway Performance Affects Other Sectors of the Economy

- **Labor Markets—job matching, employment, and wages**
- **International Trade—trade costs, product variety**
- **Industry Competition and Efficiency—scale and scope economies**
- **Agglomeration Economies in Metropolitan areas**

My Perspective

- **Highways are marked by vast inefficiencies that generate huge costs**
- **Those inefficiencies are attributable to inefficient microeconomic public policies**
- **Government has a status quo bias and does not reform its highway policies—can the private sector help?**
 - **Privatization**
 - **Innovating technology that public sector can use**
 - **Innovation in modes that use the infrastructure**

Highway Inefficiencies

- **Growing delays and congestion that increase operating costs and travel time**
- **Budget deficits now occur**
- **Those are symptoms of:**
 - **Mispricing—prices don't reflect costs**
 - **Suboptimal investment—cost-benefit not used**
 - **Inflated production costs—regulations raise labor and capital costs**
 - **Slow implementation of technological innovations**

Inefficiencies (continued)

- **The potential gains from efficient policies are large and well documented in the empirical literature—for example, congestion pricing for all vehicles and axle-weight pricing for trucks**
- **Policymakers ignore calls for efficient reforms and seek to raise revenue and spend their way out of the problems**
- **Periodic proposals of multiyear highway spending programs do not address critical inefficiencies and are not a sustainable strategy**

Privatization of Infrastructure

- **Theory indicates success depends on market power of private firms, their incentives, and whether consumers can exert competitive pressure.**
- **Evidence on the effects of privatization in different parts of the world is mixed**
- **Evidence in the US is basically non-existent; simulations indicate possible positive scenarios**
- **Experiments are crucial for any resolution**

Private Sector Innovations to Improve Infrastructure

- **General purpose technologies such as GPS navigation services and specific technologies such as Weigh in Motion could be used to improve road pricing, investment, and safety.**
- **Motorists use such services to improve route choice**
- **Highway capacity could be expanded by increasing the number of lanes during peak periods**
- **Authorities are impeding technical change by not implementing recent innovations**

Innovations in Highway Transportation

- **Highway transportation modes have improved their performance and safety regardless of the state of their infrastructure.**
- **Consider the vast improvements in automobiles since their introduction. Buses have also become a much more attractive mode.**
- **But highways have basically remained the same.**

A New Innovation: Autonomous Vehicles

- **Autonomous Vehicles: operated by computers have the potential to prevent collisions and reduce delays by creating a smoother traffic flow. Estimates of the benefits depend on market penetration—50% penetration yields annual benefits of \$200 billion**
- **Virtually all automakers and Google are developing and testing an autonomous vehicle**
- **Issues are liability and safety regulations, which should be addressed promptly**

Final Comments

- **Modes have led infrastructure—cars were introduced and entrepreneurs built private roads**
- **Public takeover of infrastructure will continue to be debated but the inefficiencies from public policies cannot be denied nor will they be addressed in the foreseeable future.**
- **Private sector's best opportunity to help is through modal innovations—highway infrastructure performance may then improve**