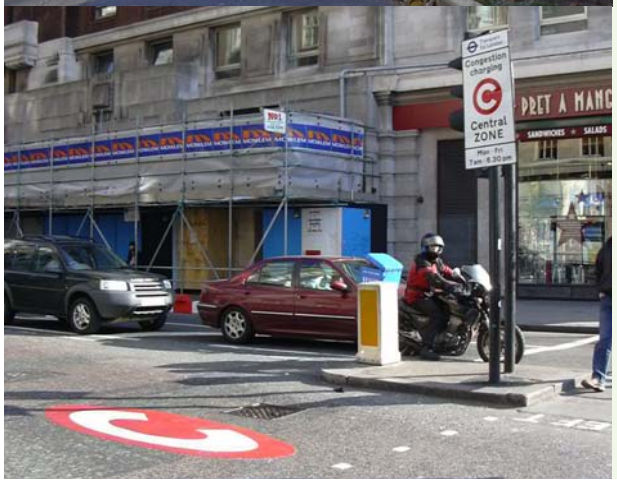

Win-Win Emission Reductions

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Innovative Management Strategies for More Sustainable Mobility

Todd Litman
Victoria Transport Policy Institute

Presented
Cutting Carbs in the Transportation Sector
TRB Annual Meeting
Washington DC
13 January 2008
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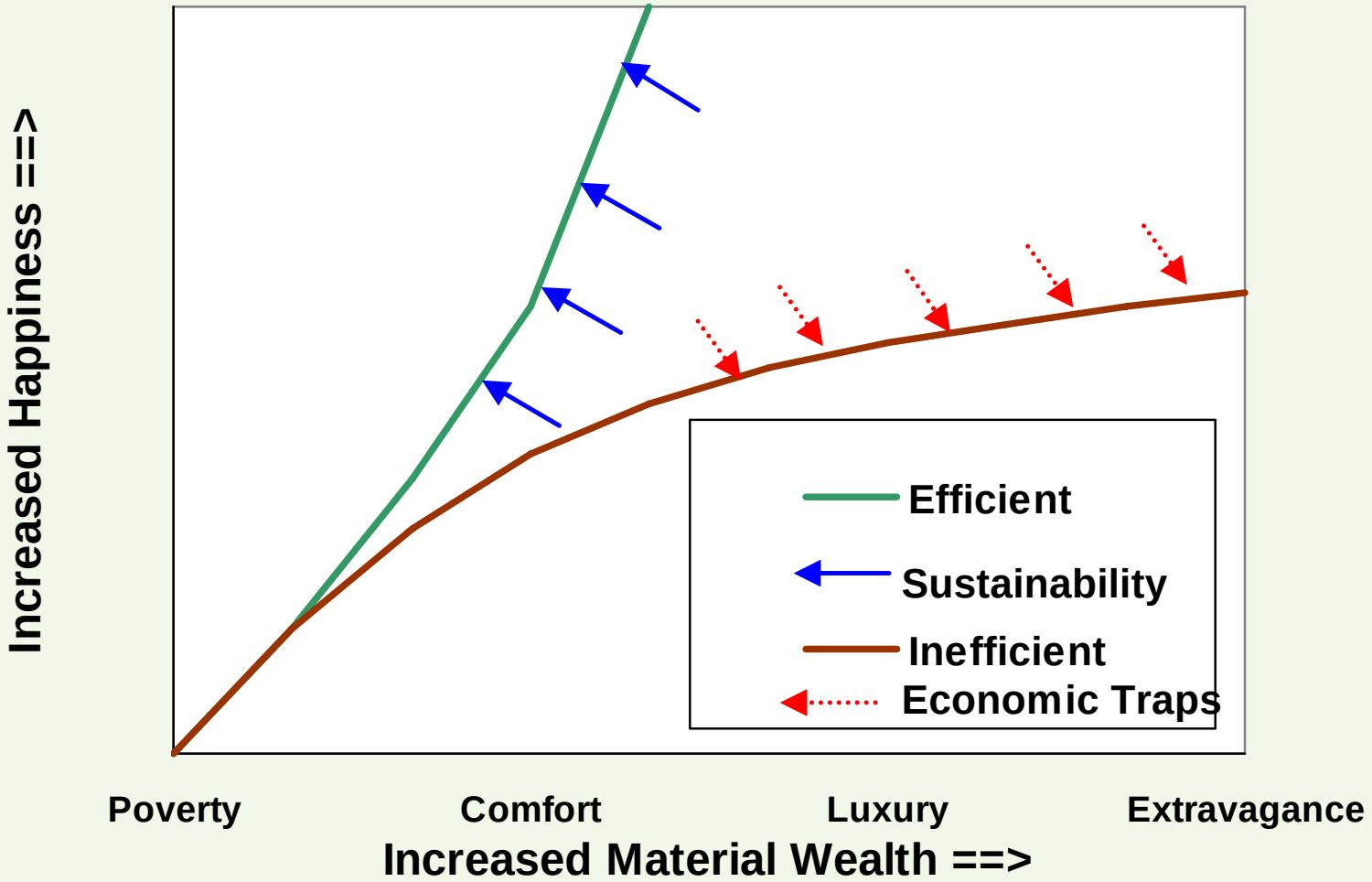
Sustainability

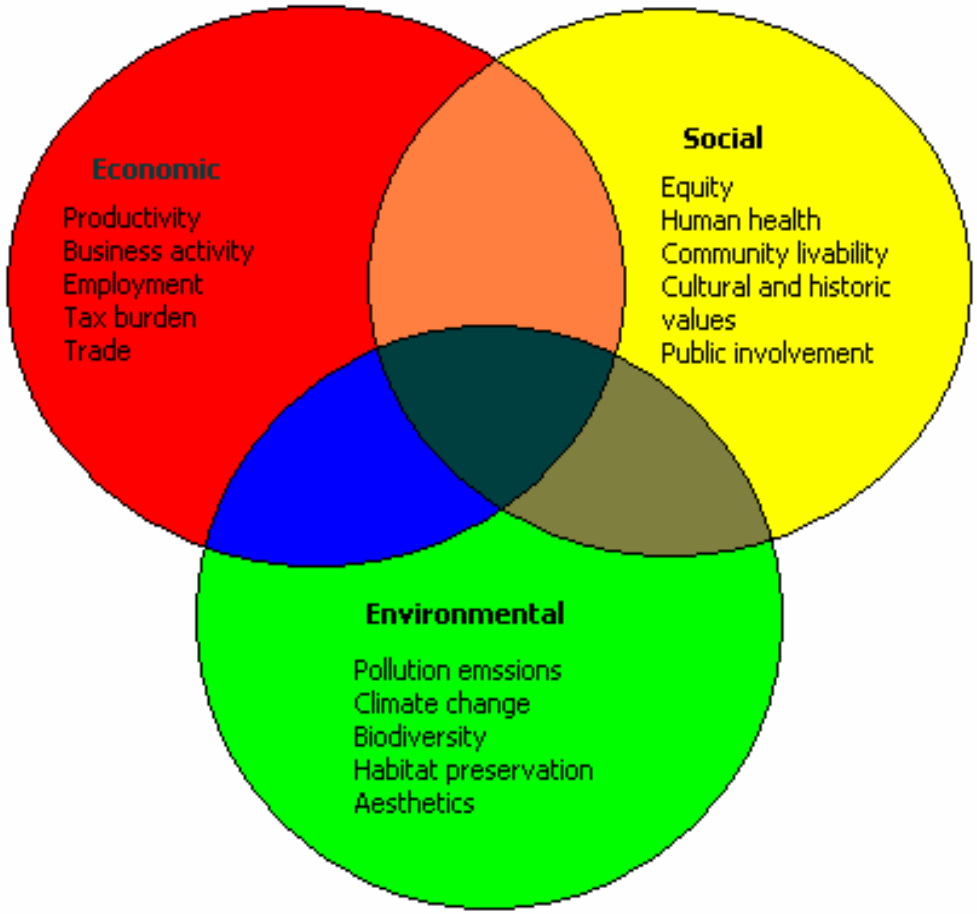


Earth In Balance

Sustainability emphasizes the integrated nature of human activities and therefore the need for coordinated planning among different sectors, jurisdictions and groups.

Sustainable Planning

Sustainability emphasizes the integrated nature of human activities and therefore the need to coordinate planning among different sectors, jurisdictions and groups.



Current Transport Planning

Current planning tends to be reductionist: each problem is assigned to a single agency with narrowly defined responsibilities. For example:

- Transport agencies deal with congestion.
- Environmental agencies deal with pollution.
- Welfare agencies deal with the needs of disadvantaged people.
- Public health agencies are concerned with community fitness.
- Etc.

Reductionist Decision-Making

Reductionist planning can result in public agencies implementing solutions to one problem that exacerbate other problems facing society, and tends to undervalue strategies that provide multiple but modest benefits.

Win-Win Solutions

Put another way, more comprehensive planning helps identify "Win-Win" strategies: solutions to one problem that also help solve other problems facing society.

Ask:

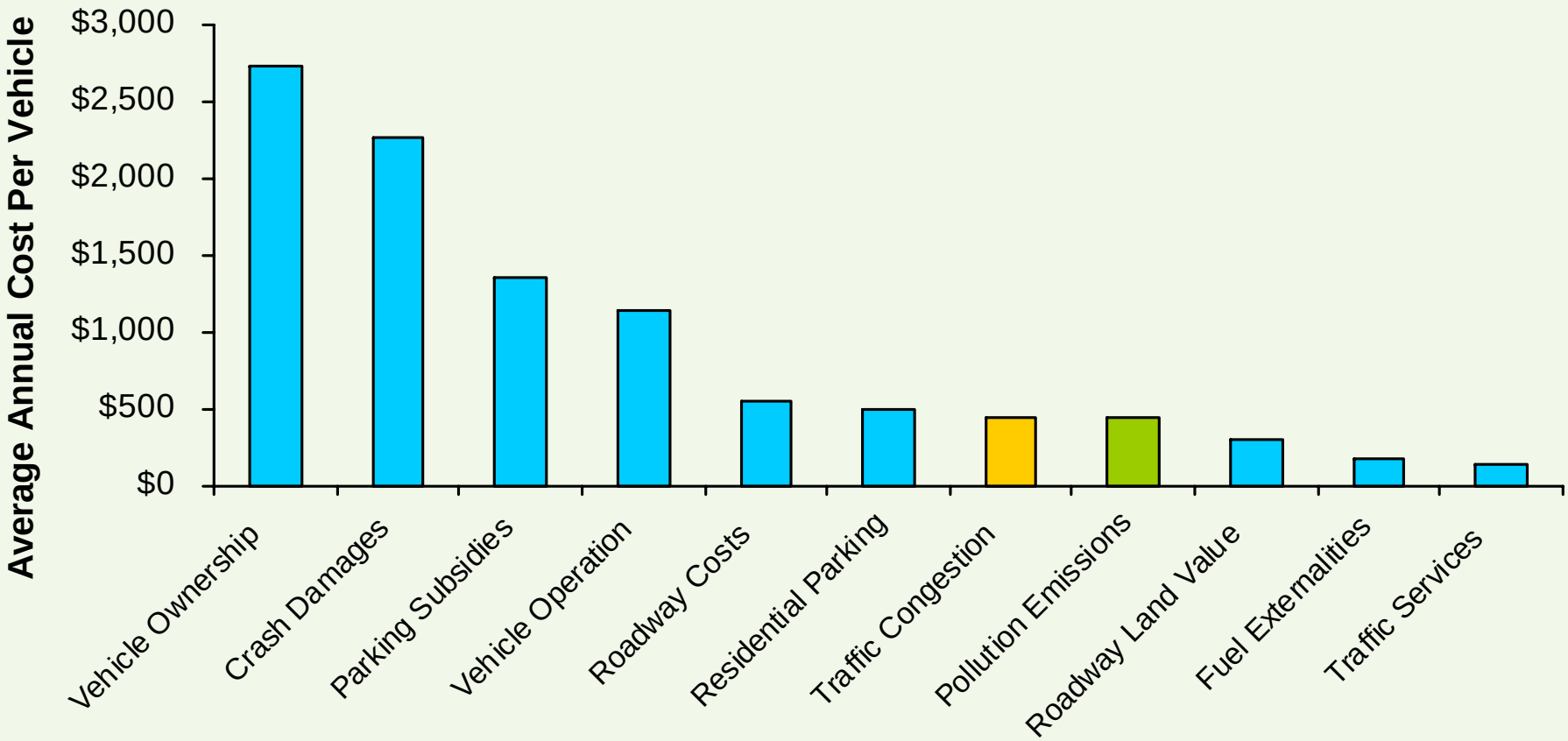
"Which emission-reduction strategies also reduces congestion costs, save consumers money, and improve mobility options for non-drivers."

Comparing Benefits

Planning Objectives	Mobility Management	Efficient & Alternative Fuel Vehicles	Widen Roads
Congestion reduction	✓	×	✓
Roadway cost savings	✓	×	×
Parking cost savings	✓	×	×
Consumer cost savings	✓	✓/×	
Better mobility options	✓		×
Improved traffic safety	✓	×	✓/×
Reduced pollution	✓	✓	×
Energy conservation	✓	✓	×
Land use objectives	✓	×	×
Public fitness & health	✓		×

✓ = Supports Objective × = Contradicts Objective

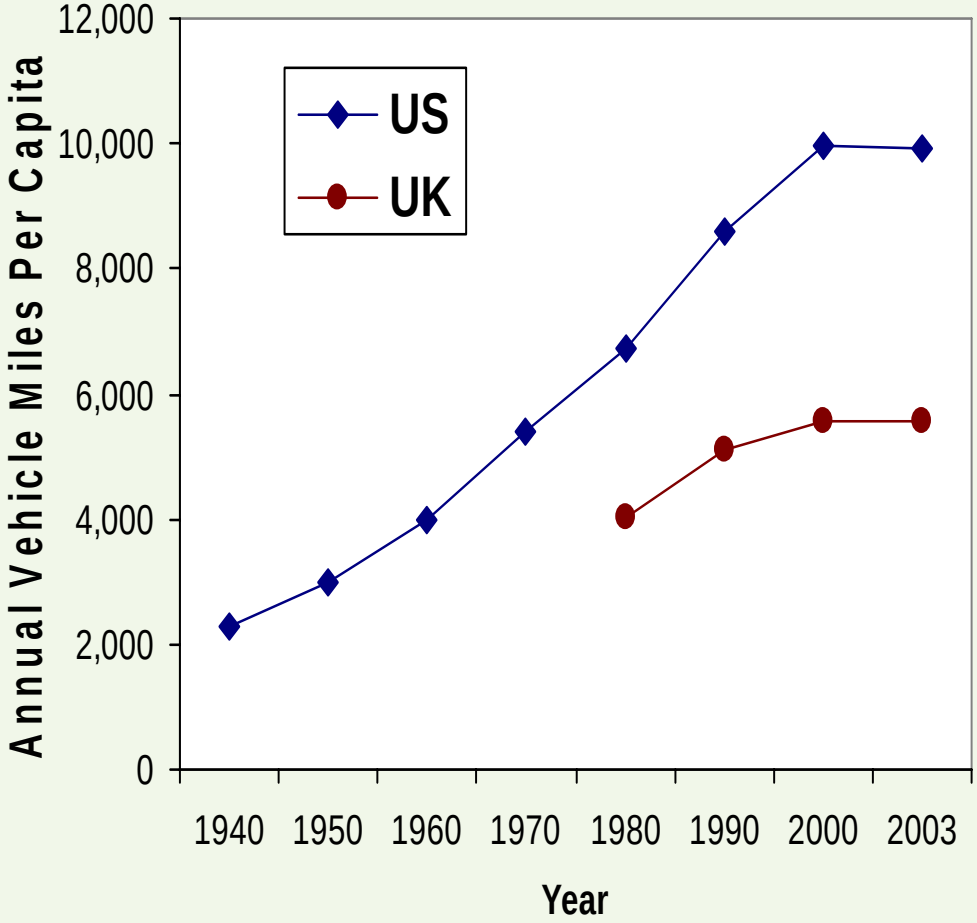
Comparing Costs



Maximizing Benefits

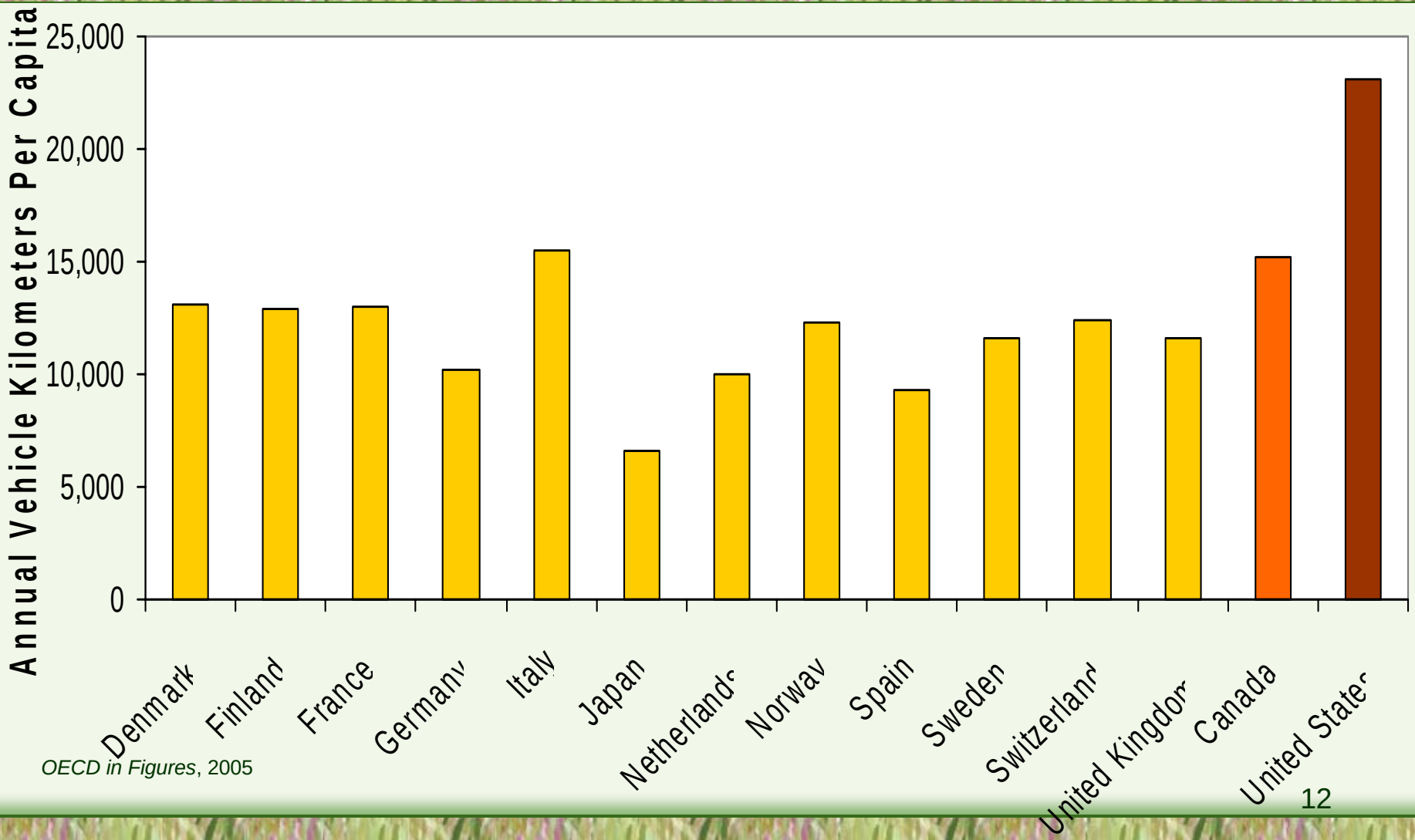
A gallon of fuel saved by reduced driving provides an order of magnitude greater benefits than a gallon saved by increasing vehicle fuel efficiency or shifting to alternative fuels.

Vehicle Travel Trends



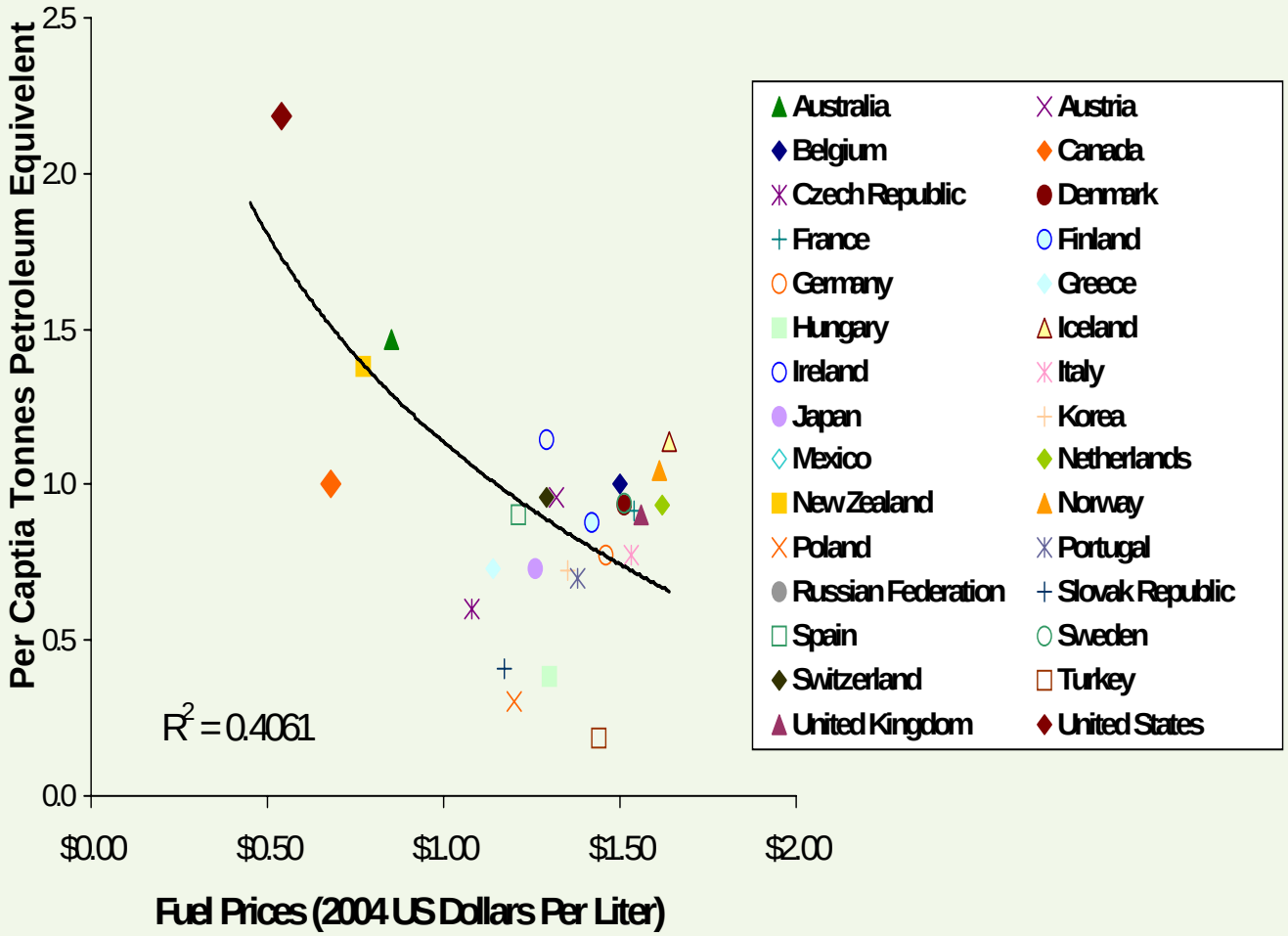
Per capita annual motor vehicle mileage also grew substantially during the last century but has since leveled off in wealthy countries.

Per Capita Vehicle Travel

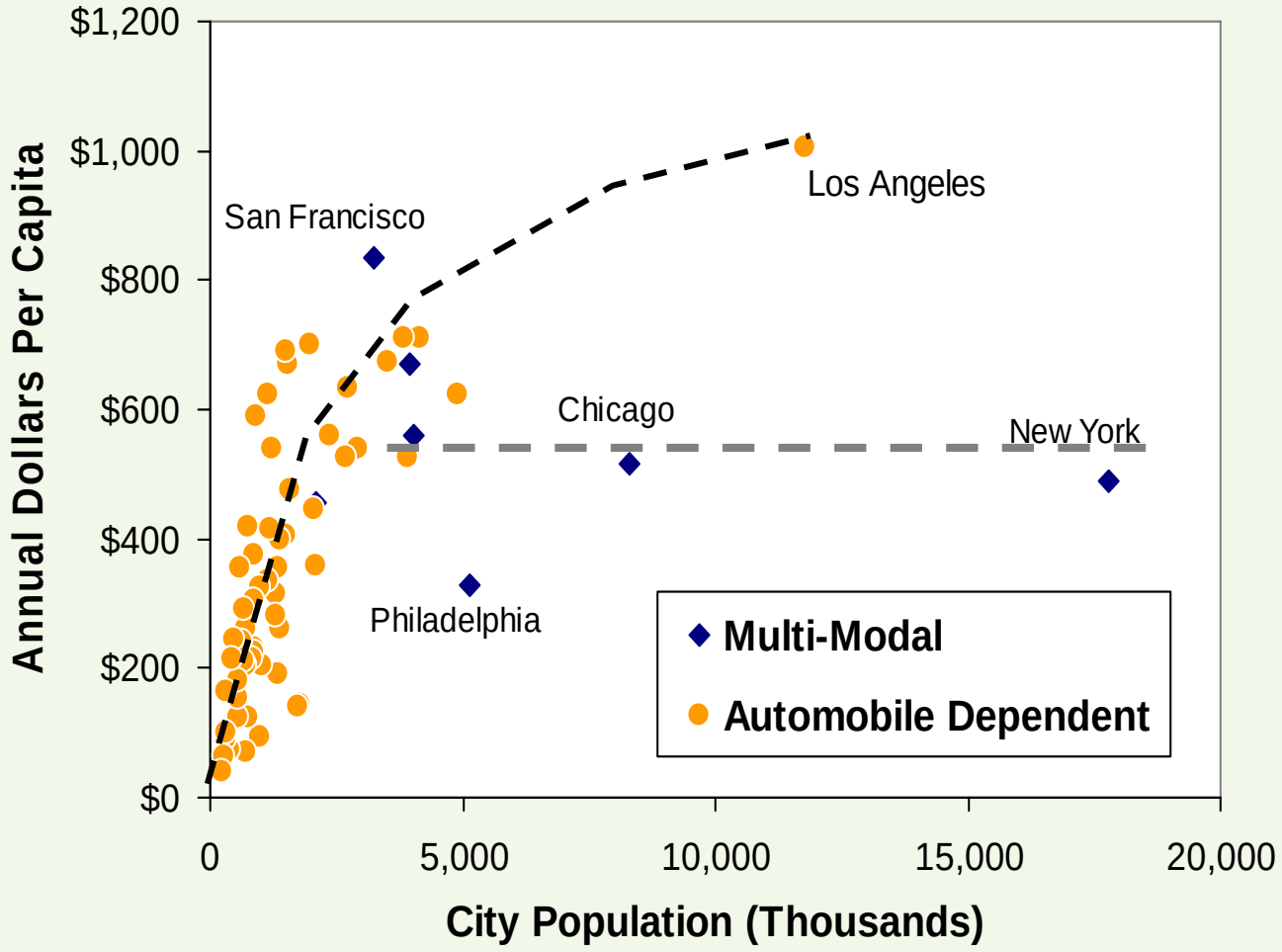


OECD in Figures, 2005

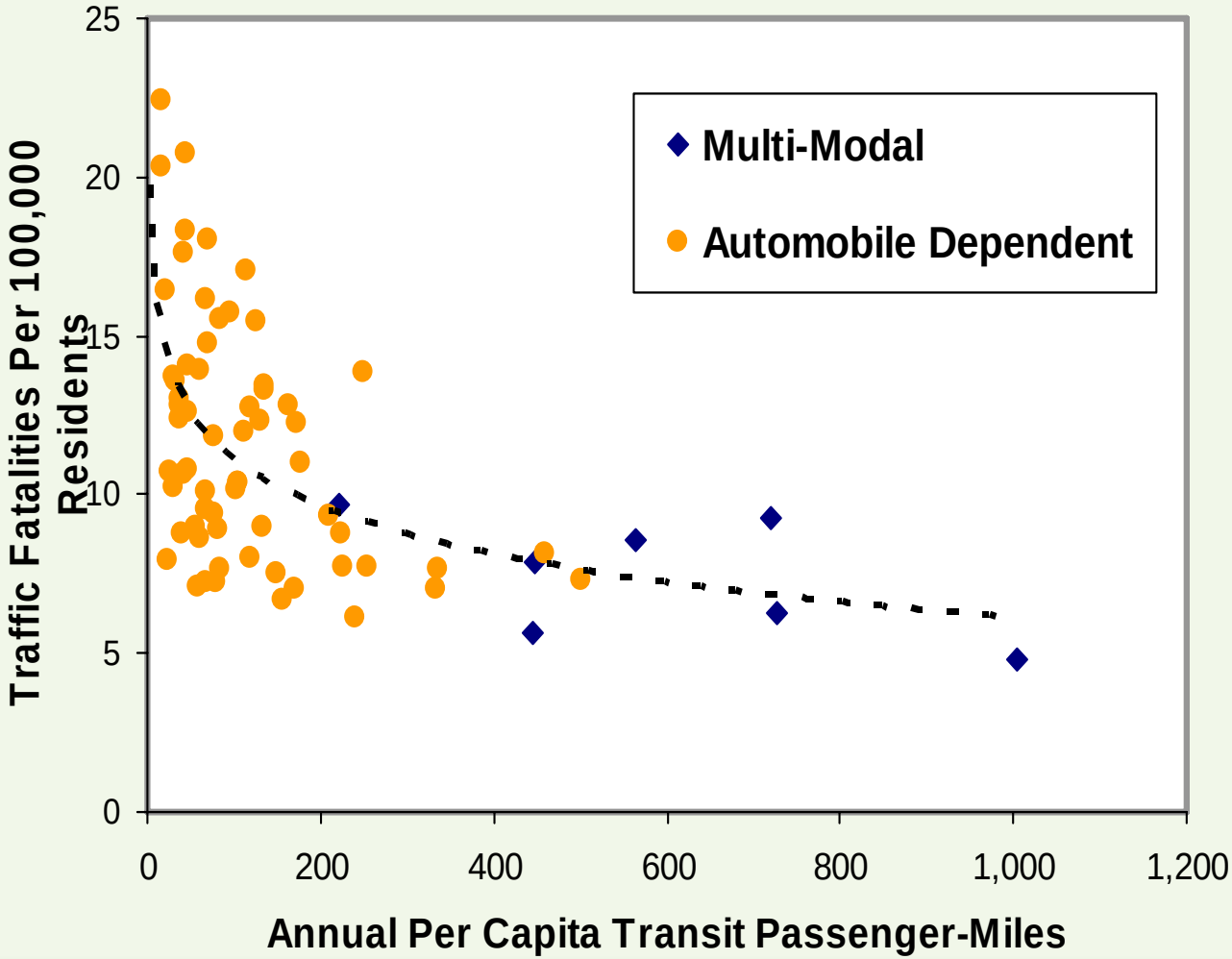
Fuel Taxes


Per Captia Tonnes Petroleum Equivelent
2.5
2.0
1.5
1.0
0.5
0.0
$0.00
$0.50
$1.00
$1.50
$2.00
Fuel Prices (2004 US Dollars Per Liter)
R2 = 0.4061
Australia
Austria
Belgium
Canada
Czech Republic
Denmark
France
Finland
Germany
Greece
Hungary
Iceland
Ireland
Italy
Japan
Korea
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Russian Federation
Slovak Republic
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States

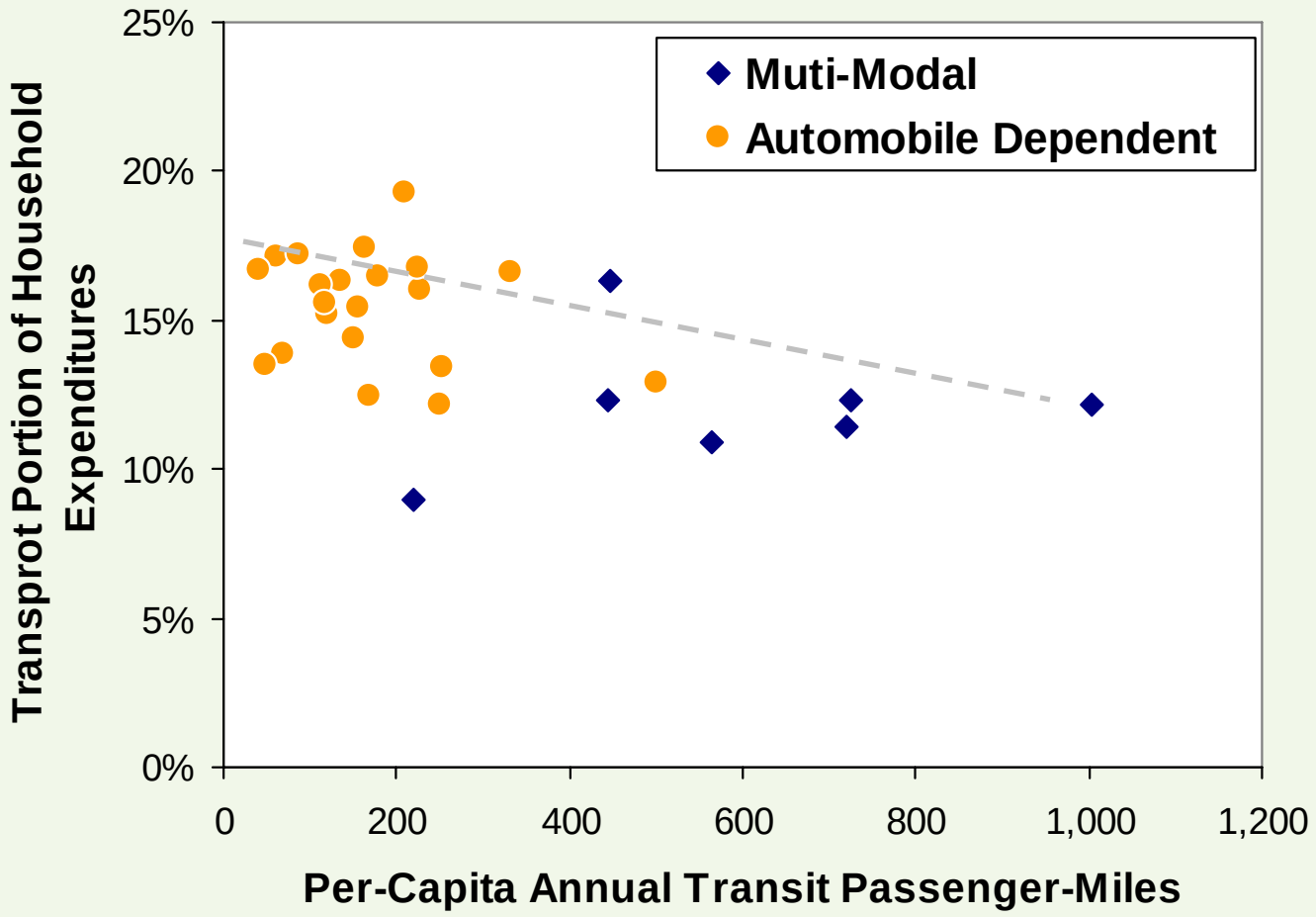
Congestion Costs



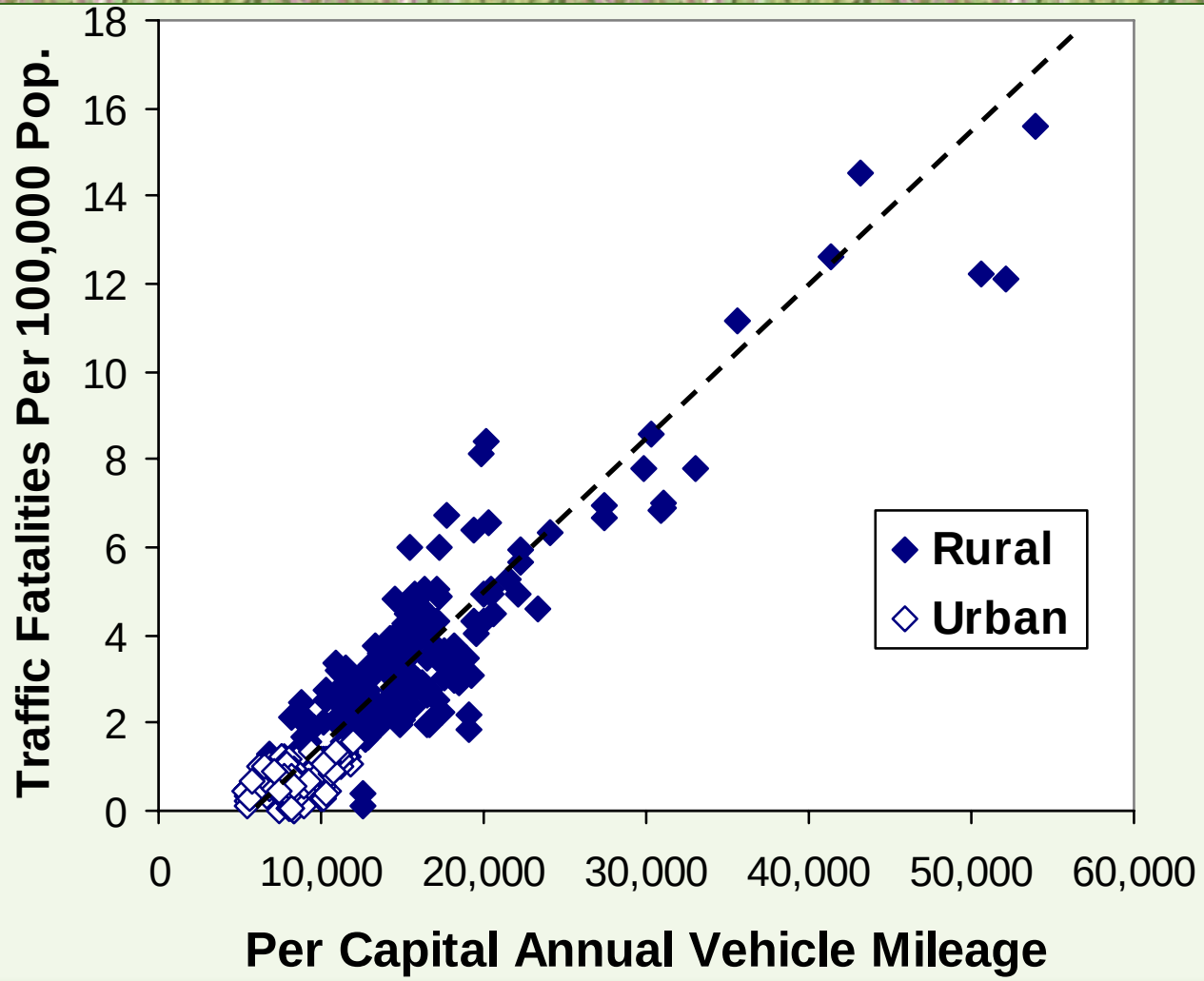
Traffic Fatalities



Household Transport Expenditures



U.S. Crash Rates



Fun With Statistics

- International Road Federation
- Millennium Cities and Mobility In Cities Database
- OECD Transport Statistics
- World Bank
- European Union
- European Commission
- Bureau of Transportation Statistics
- Highway Statistics
- Census Bureau
- National Household Travel Survey
- Regional travel surveys

Inadequacies:

- Consistency between jurisdictions and agencies.
- What data collected
- Definitions
- Quality
- Availability

International Data Improvement Program

- Perform comprehensive review of existing transportation-related data sets and data collection activities.
- Consult with data experts and users to identify best current practices with regard to factors such as collection methods, comprehensiveness and availability.
- Develop appropriate standards for transportation-related statistics, which clearly define minimum requirements for accuracy, transparency, comprehensiveness, frequency, consistency and availability.
- Work to have these standards adopted by all major transportation research organizations and their members, including TRB, WCTRS, OECD, World Bank, etc.
- Develop an auditing program through which organizations collecting transportation-related statistics can have their programs evaluated by peers to assess quality and recommend improvements.

Win-Win Strategies

Market reforms justified on economic principles that help provide various economic, social and environmental benefits.

- Improved travel options.
- Incentives to use efficient modes.
- Accessible land use.
- Policy and market reforms.

Employee Trip Reduction Programs

Employers encourage employees to walk, bicycle, carpool and ride transit rather than drive to work. For example, offer a tax incentive for businesses that have effective commute trip reduction programs.

Walking and Cycling Improvements

- More investment in sidewalks, crosswalks, paths and bike lanes.
- More traffic calming and streetscaping.
- Programs to encourage safe walking and cycling.

Attracting Discretionary Riders

- Quality service (convenient, fast, comfortable).
- Low fares.
- Support (walkable communities, park & ride facilities, commute trip reduction programs).
- Convenient information.
- Parking pricing or “cash out”.
- Integrated with special events.
- Positive Image.

Distance-Based Pricing

Motorists pay insurance, registration and lease fees by the vehicle-mile, so a $600 annual fees become 5¢/mile and a $2,000 annual fees become 16¢/mile. This gives motorists a significant financial incentive to drive less, but is not a new fee at all, simply a different way to pay existing fees.

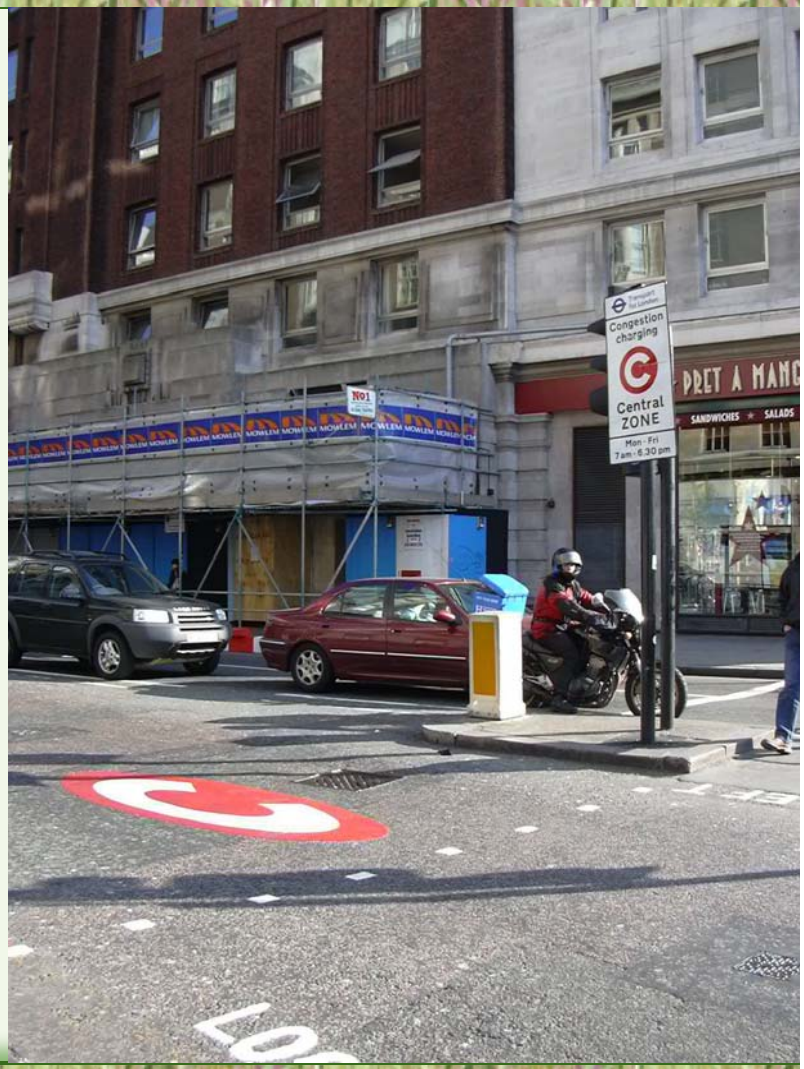
Parking Management

More efficient parking:

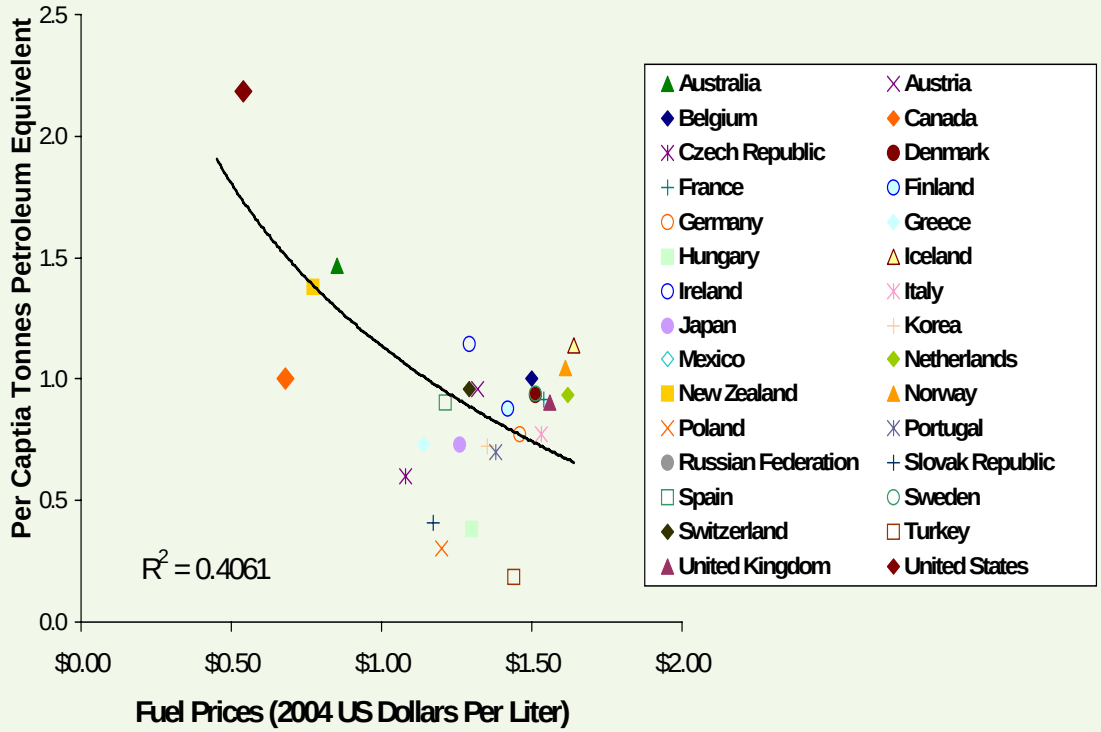
- Reduced and more flexible parking requirements.
- Shared parking.
- Charge users directly for parking, rather than indirectly through taxes and rents.
- *Parking Cash Out* (Employees who current receive free parking are able to choose a cash benefit or transit subsidy instead.)

Road Pricing

- Charge motorists directly for using specific roads, based on use.
- Charge tolls, with higher rates during congested periods and lower rates during off-peak.
- Use electronic pricing systems that eliminate the need for tollbooths.



Raise Fuel Taxes



- Increase existing taxes to reflect inflation and cover roadway costs.
- Revenue neutral tax shifts.
- Increases should be gradual and predictable (e.g., 5% annual increase over inflation for a decade).
- Emphasize fuel tax increases as part of a multi-faceted program to achieve economic and environmental objectives.

Reform Planning Practices

If these reforms were fully implemented to the degree justified on economic efficiency grounds, consumers would choose to drive 25-50% less, rely more on alternative modes, and be better off overall as a result.

Research Questions

- What is the best definition of sustainable transport and how can it be evaluated?
- How do transport and land use policies affect travel behavior?
- What are the full costs and benefits of vehicle travel?
- What existing transport and land use market distortions stimulate motor vehicle travel?
- Which emission reduction strategies are most cost effective overall, taking into account all impacts.
- How can efficient transport and smart growth be implemented in ways that are most attractive to consumers?
- What specific policy and planning reforms can be considered Win-Win emission reduction strategies?

www.vtpi.org

"Appropriate Response To Rising Fuel Prices"

"Smart Transport Emission Reduction"

"Win-Win Emission Reduction Strategies"

"Online TDM Encyclopedia"

Many Others…