

The background features several abstract, flowing shapes in shades of purple, green, and blue. Interspersed among these are several yellow triangular rays, some pointing towards the center and others pointing outwards, creating a sunburst or starburst effect. The overall aesthetic is clean and modern.

Motor Fuel Taxation, Energy Conservation and Economic Development: A Regional Approach



Richard W. England
University of New Hampshire, USA
Lincoln Institute of Land Policy, USA

Third World Congress of
Environmental & Resource Economists
6 July 2006




Motor Vehicle Transport in the United States

(Federal Highway Administration, 2003)

- 
- Over 231 million autos, trucks and buses.
 - Nearly 6.4 million km of public roads.
 - Vehicle travel = 4,650 billion km.
 - Nearly 642 billion litres of motor fuel consumption (7.24 km per litre).
- 





External Costs of Motor Vehicle Use in the United States

- Soil and groundwater contamination from leaking motor fuel storage tanks.
 - Over 40,000 fatalities and 3.1 million injuries on streets and highways during 2000.
 - Traffic congestion → 3.7 billion hours of travel delay in 85 metropolitan regions in 2003.
 - Ozone exposure beyond EPA air quality standard → 4000 extra hospital admissions and 900,000 extra school absences.
 - Etc.
- 

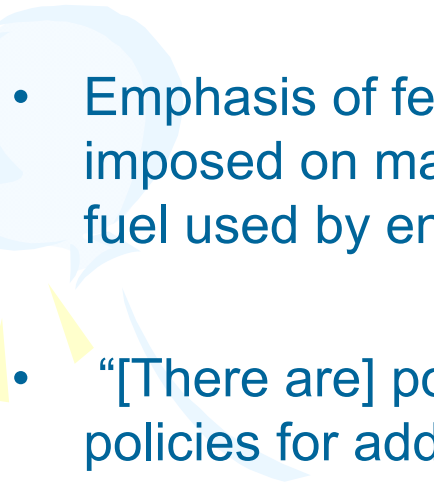



Motor Fuel Tax as Second-Best Tool for Reducing Transport Externalities

- Reduction of vehicle emissions in California via higher gas tax → 62 percent of maximum gain in social welfare via an emissions charge.
 - Long-run elasticity of U.S. highway fatalities with respect to real price of motor fuel = - 0.34.
 - “If raising a single tax has the potential to reduce air pollution, highway fatalities, traffic jams and metropolitan sprawl, then this fiscal policy deserves serious consideration.” (England)
- 
- 



Motor Fuel Taxation in a Continental Nation with a Federal Political System

- Enormous differences in climate, topography, degree of urbanization, industrial structure among U.S. states → suboptimal to impose uniform tax rate on every state and region in nation.
 - Emphasis of federal government on fuel-efficiency (CAFE) standard imposed on manufacturers of new vehicles, not on taxation of motor fuel used by entire vehicle stock.
 - “[There are] potential gains from experimentation with a variety of policies for addressing social and economic issues. And a federal system may offer some real opportunities for encouraging such experimentation and thereby promoting ‘technical progress’ in public policy.” (Oates 1999)
- 
- 



Regional Differences in the United States

	Texas	New England (6)
2004 population (millions)	22.49	14.24
Land area (thousands sq. mi.)	261.8	62.8
2003 motor fuel use (billions U.S. gallons)	14.39	7.98
2004 crude oil output (millions bpd)	1.07	0
2005 refining capacity (millions bpd)	4.63	0



Economic Development Impacts of Gas Tax Hike-and-Rebate Plan for Region Importing Motor Fuels

	Short run	Long run
Reallocation of consumer spending to regionally produced goods & services	+	++
Labor supply growth induced by regional amenity improvements		+
Avoidance of stricter emissions regulations imposed on industrial plants		+
Higher fuel prices for vehicle-dependent businesses within the region	--	-
Lower import price for motor fuels and reduced vulnerability to global price shocks	+	+



Short-run Adjustments in Motor Fuel Use after State Tax Hike

(millions US gallons per year)

- Connecticut - 136.5
- Maine - 65.5
- Massachusetts - 258.1
- New Hampshire - 51.9
- Rhode Island - 34.3
- Vermont - 28.5

Tax Rebates to Vehicle Owners in 2003

	Total rebates (millions USD)	Rebate per capita (USD)
Connecticut	761	260
Maine	428	414
Massachusetts	1416	261
New Hampshire	358	318
Rhode Island	195	245
Vermont	185	366



Economic Development Impacts in Massachusetts

(percent difference from baseline econometric forecast)

	2005	2015	2025
Total employment	0.11	0.12	0.15
Real disposable income per capita	0.13	0.13	0.13

Conclusion

“Although national governments certainly need to take coordinated action to reduce the carbon-intensity of the global economy, governments at the state and regional scale should not hesitate to take action, especially if their economies are heavy net importers of petroleum products. ... [R]egional economies like that of New England could enjoy environmental quality improvements, faster job growth and higher real incomes if state governments enacted higher taxes on motor fuels and rebated the incremental tax revenues to motor vehicle owners within their jurisdictions.” (England)