



Financing transport capacity in the United States

Is experience elsewhere useful?

Presentation to Minnesota Agri-growth Council

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The World Bank

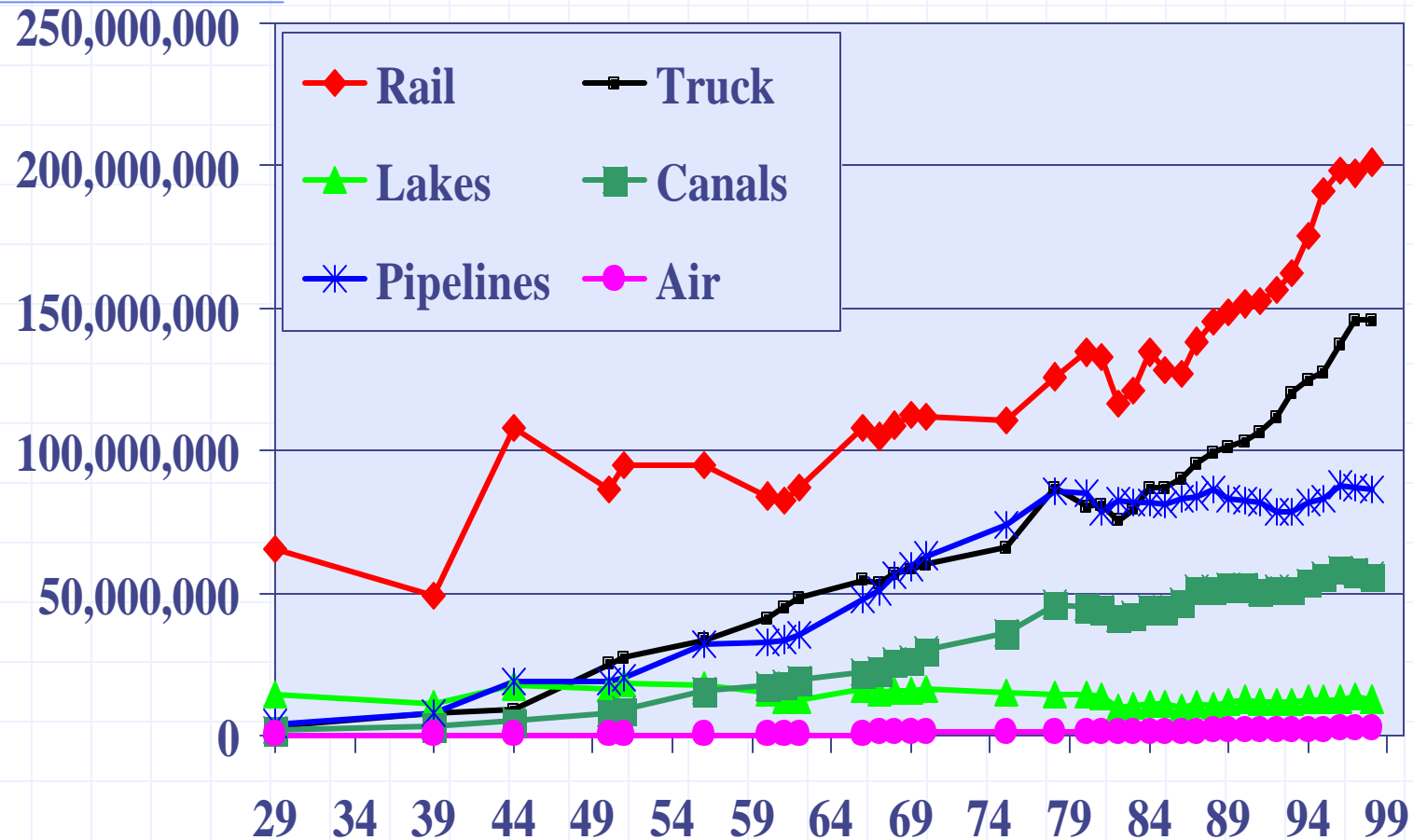
http://www.worldbank.org/transport/rl_over.htm

Freight demand growth in the U.S.

- ◆ Demand has grown steadily for truck and rail
- ◆ The relationship of transportation demand to GDP is strong, but a chicken and egg issue
- ◆ Limited potential for modal shifts
- ◆ Limited effect of electronic data versus freight movement

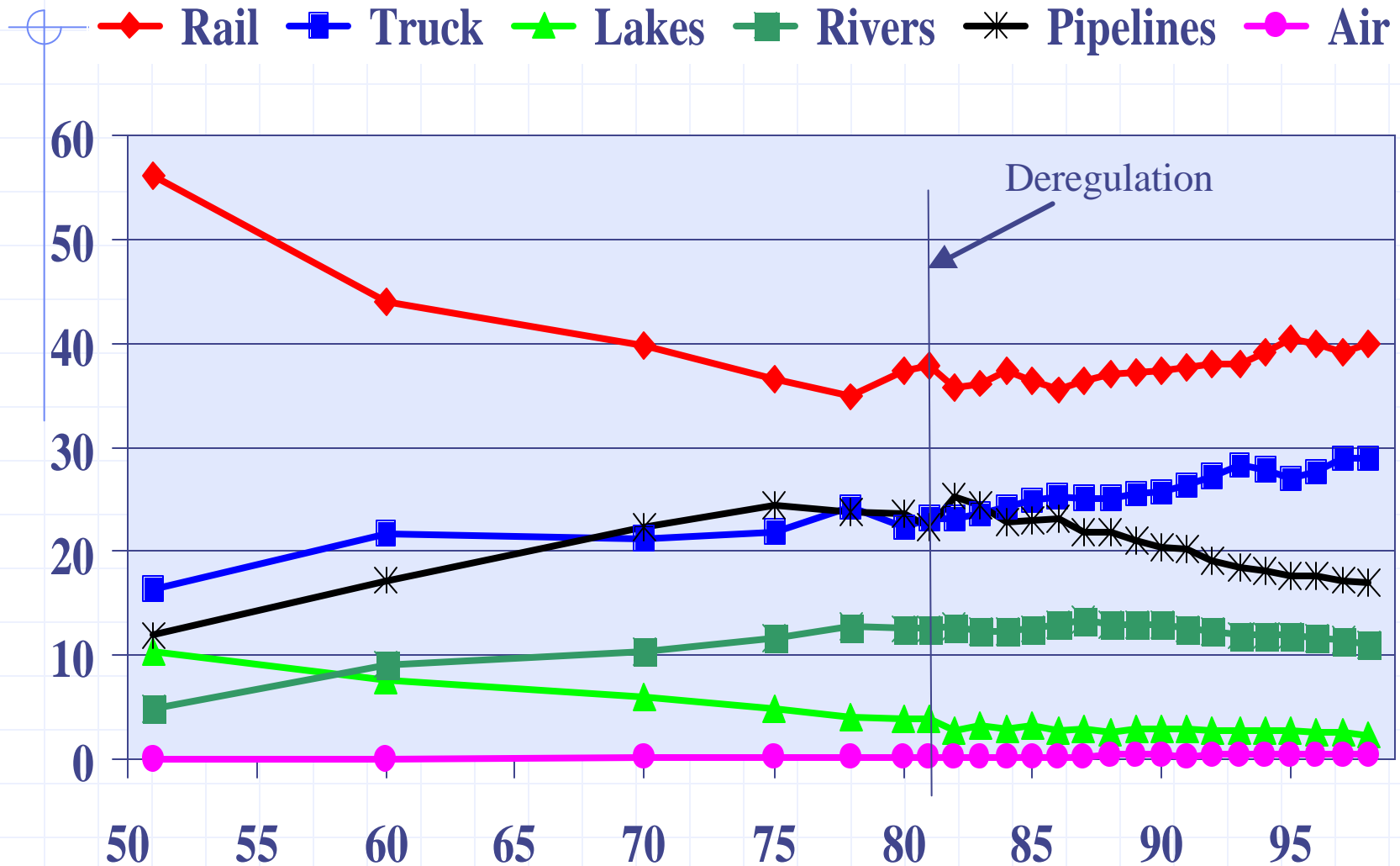
Ton-Km in the U.S. by mode

(000,000 Ton-Km)



Freight modal shares in the U.S.

(% T-Km)



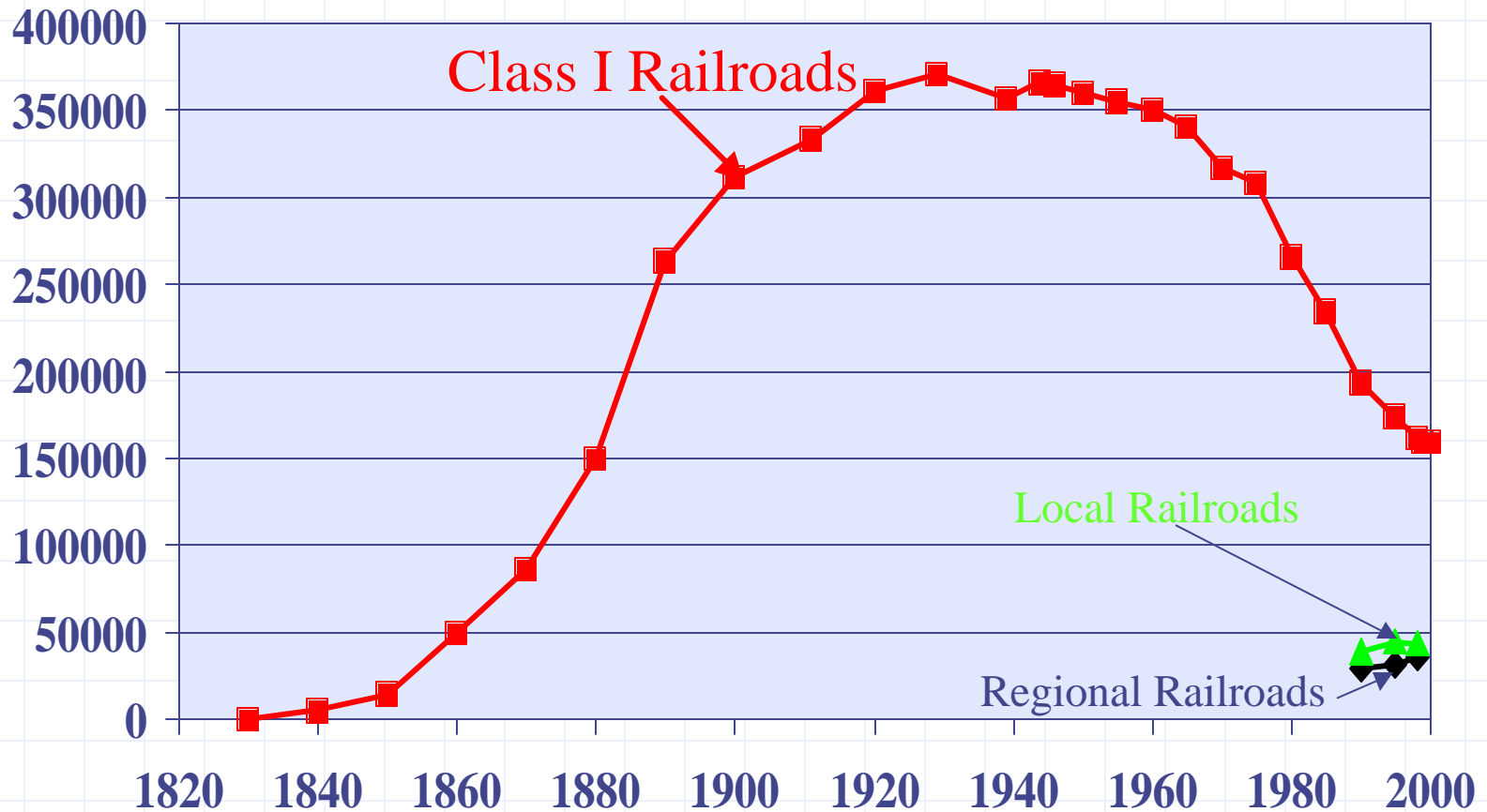
U.S. transportation capacity history -- railroads

◆ Rail (responding to market incentives)

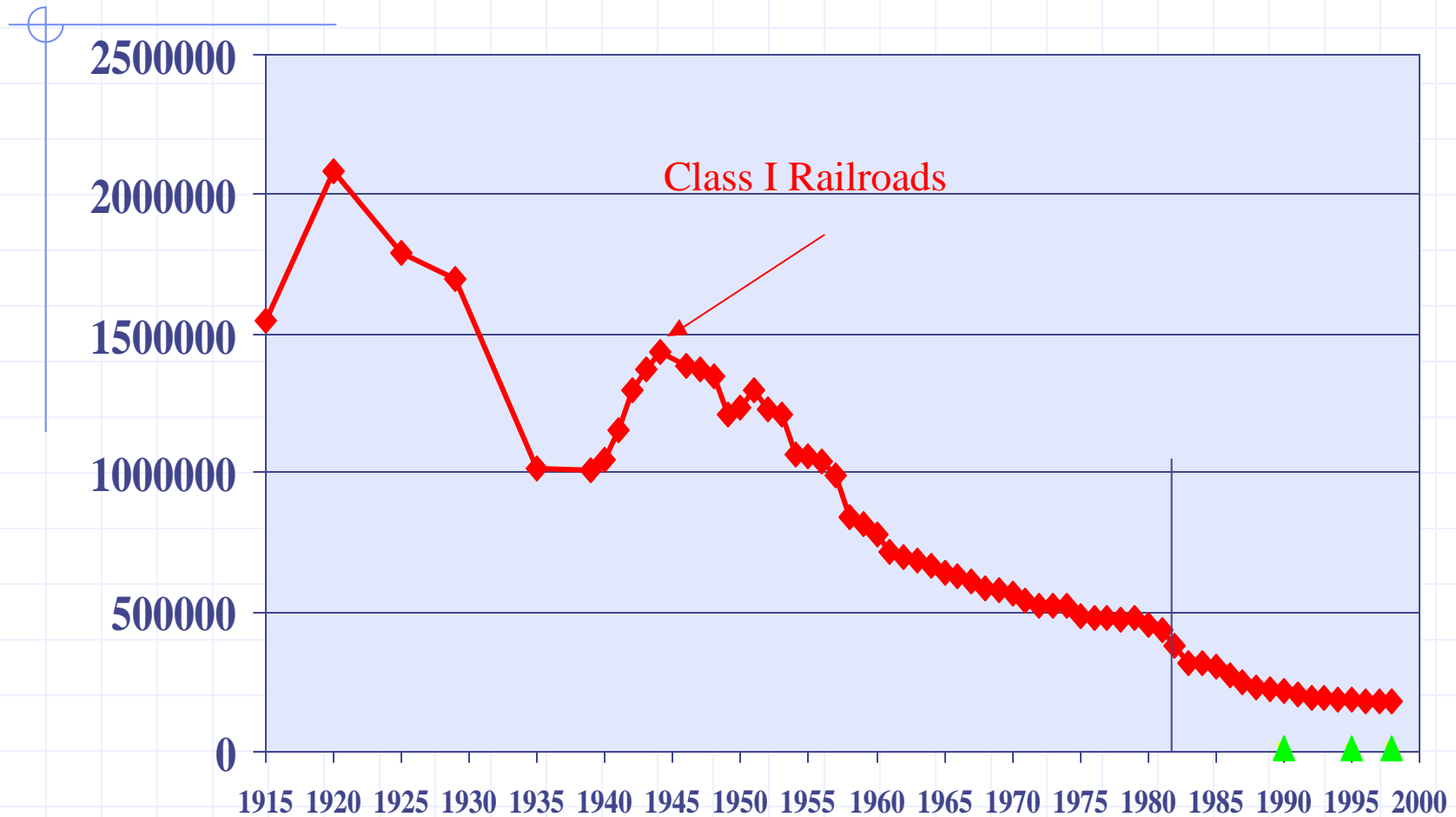
- ✍ Early growth, then decline
- ✍ Post –Staggers deregulation, reducing capacity, increasing demand and density.
- ✍ Dramatic productivity growth, decline in tariffs

◆ Capacity is becoming stretched

Km of Rail Line in the US



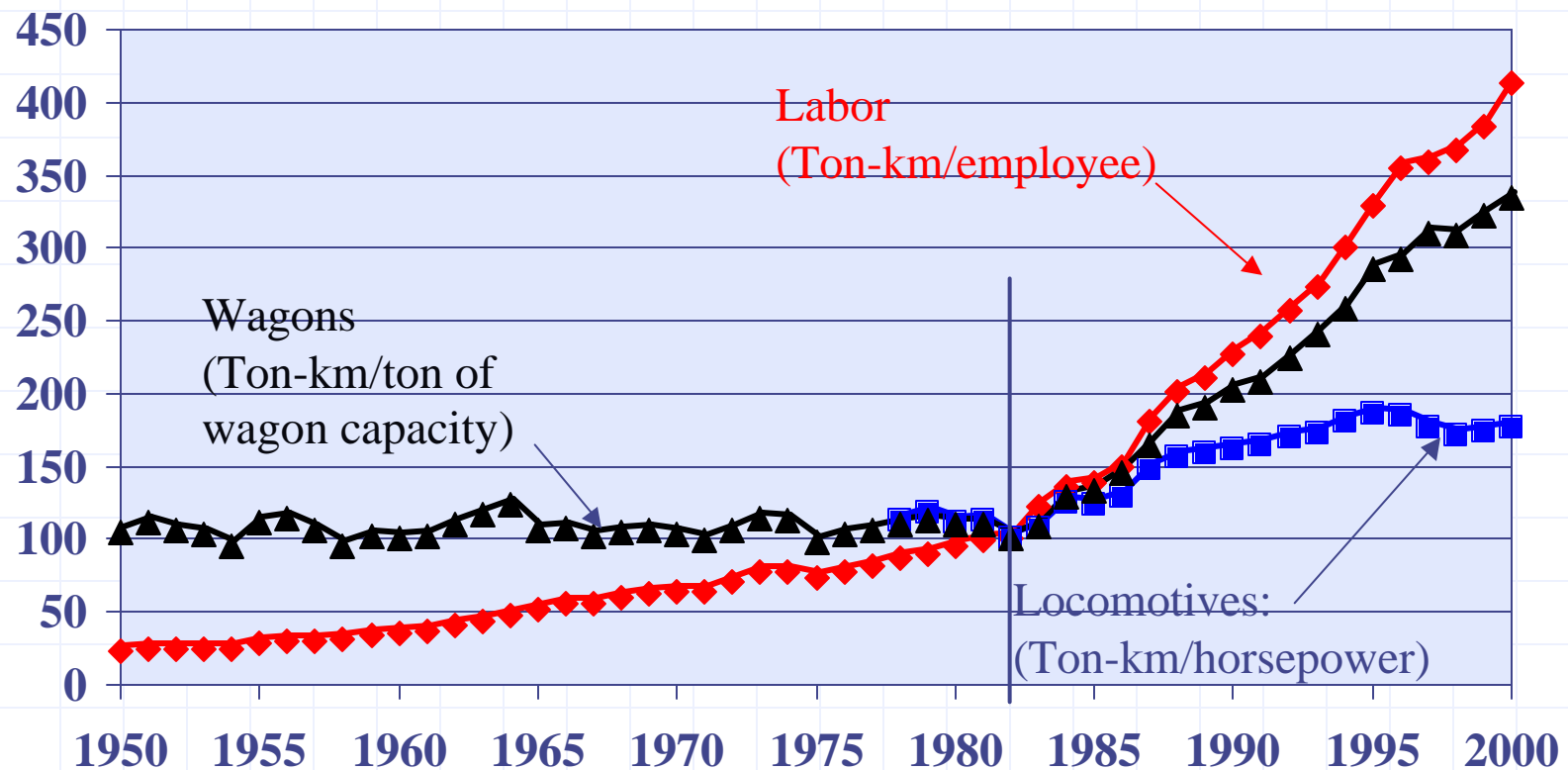
Employees of US railroads



In 1998 Regional Railroads had 10,995 employees and Local Railroads had 11,741 employees

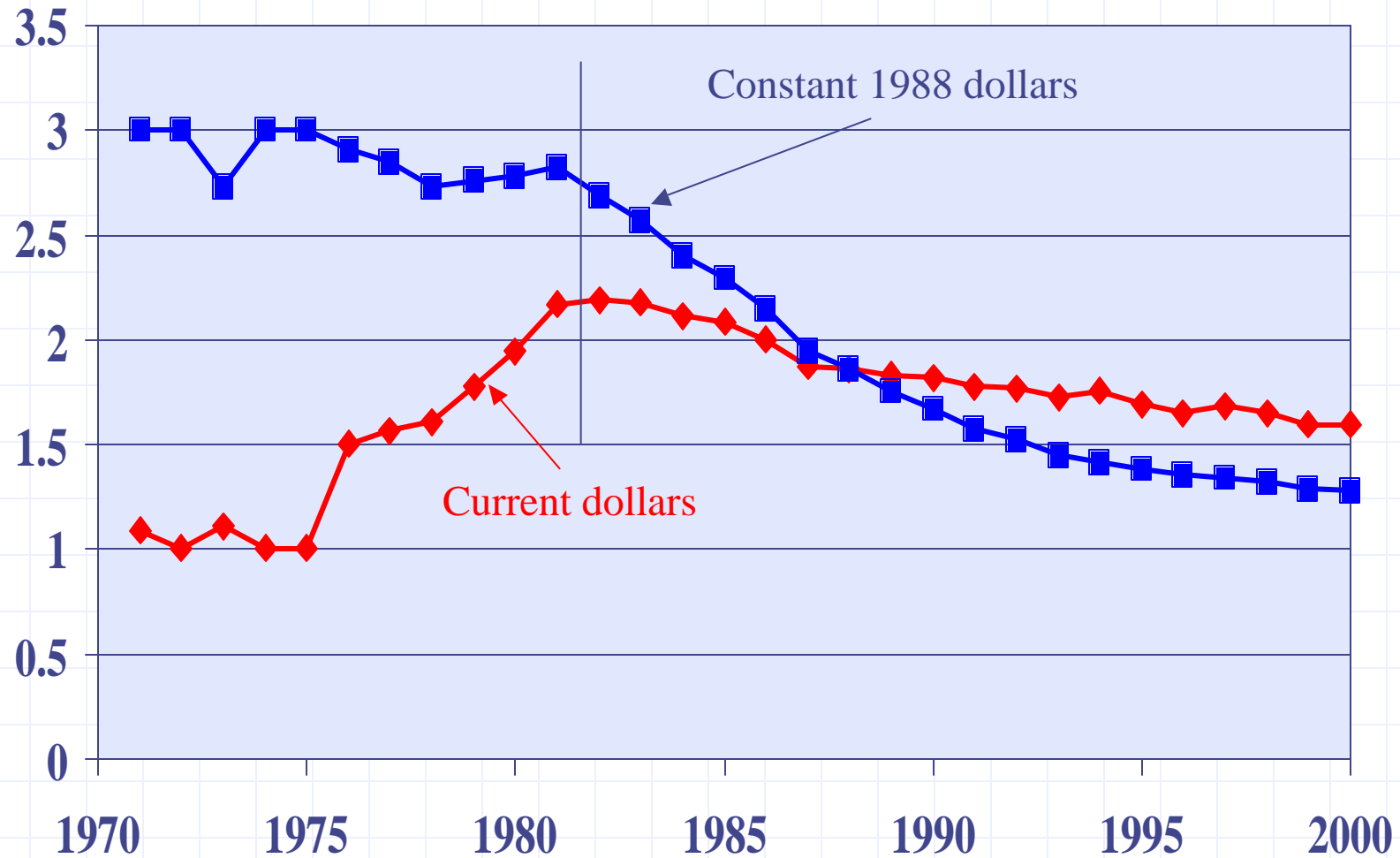
Productivity in U.S. railroads:

Index: 1982=100

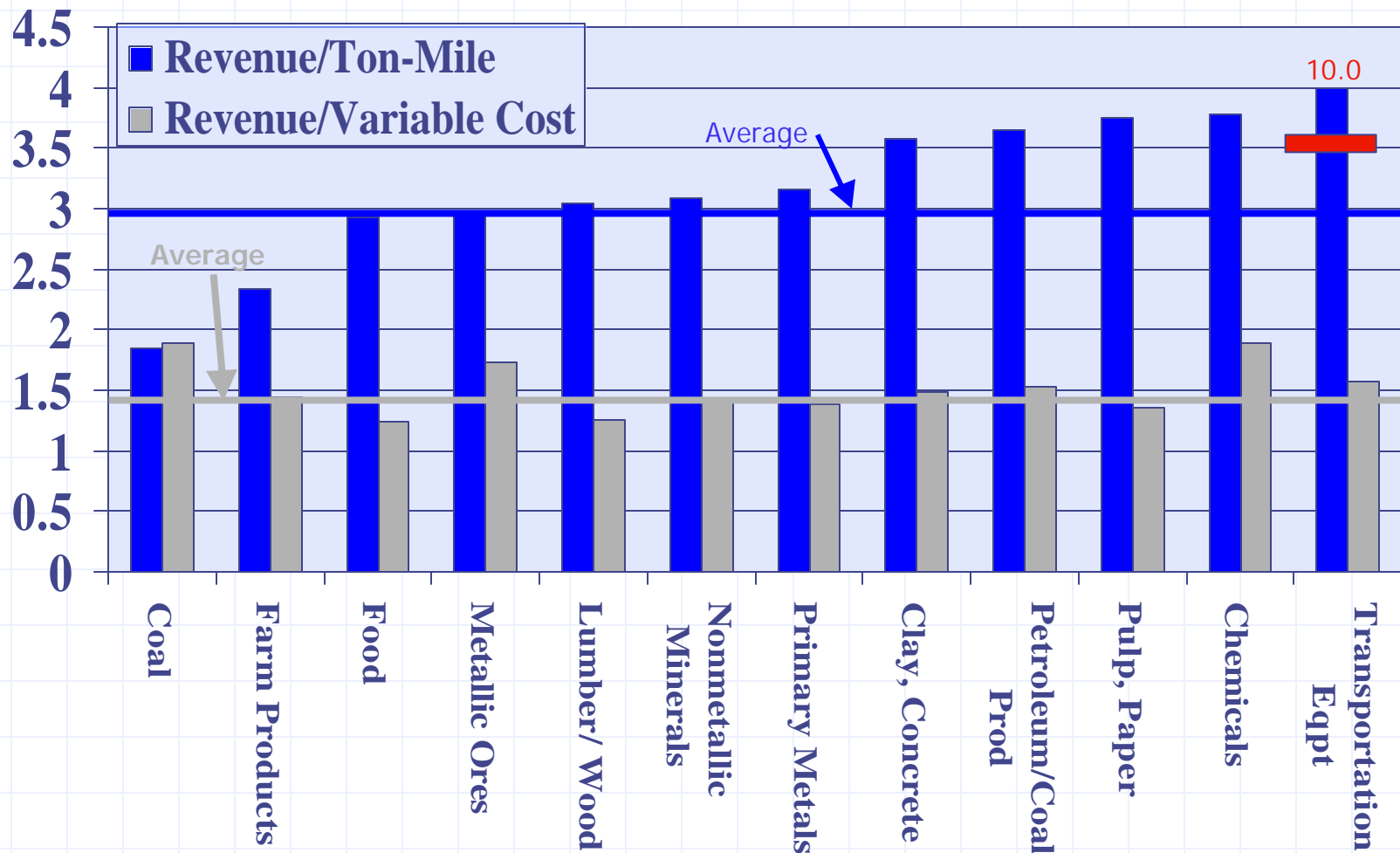


US rail freight revenue

(US cents/ton-km)

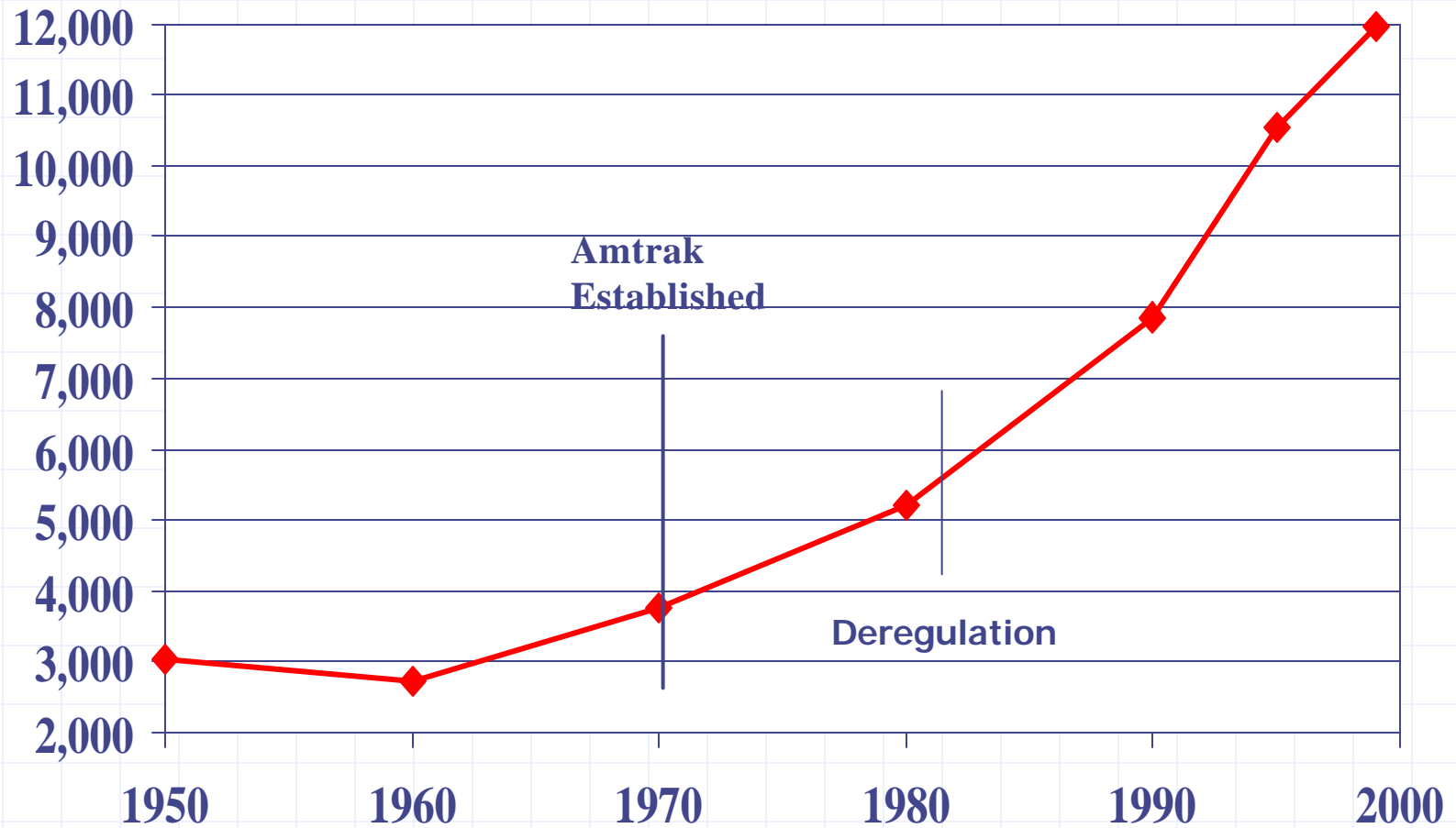


1997 U.S. rail traffic

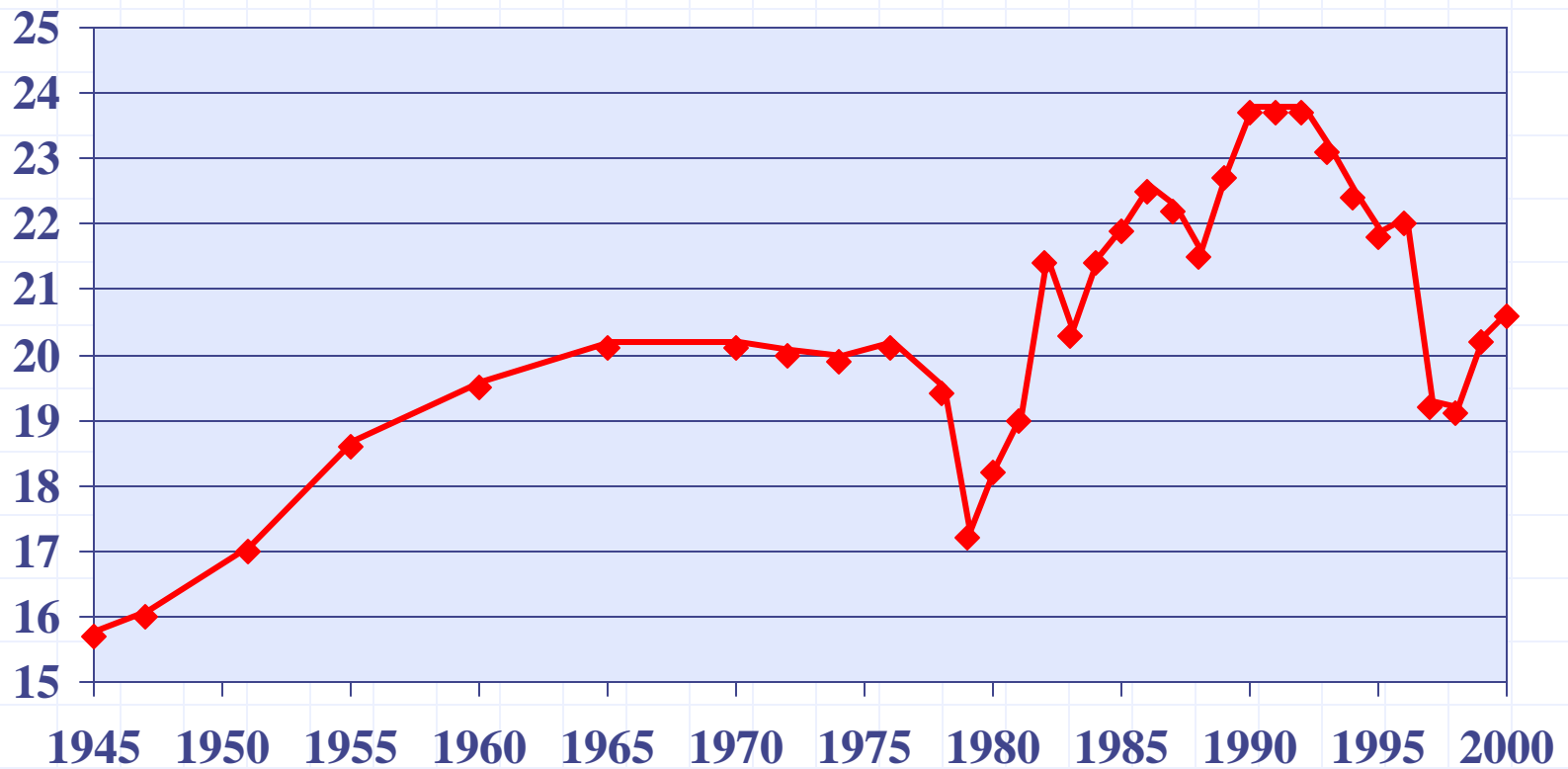


Top 12 commodities, 86 % of ton-miles

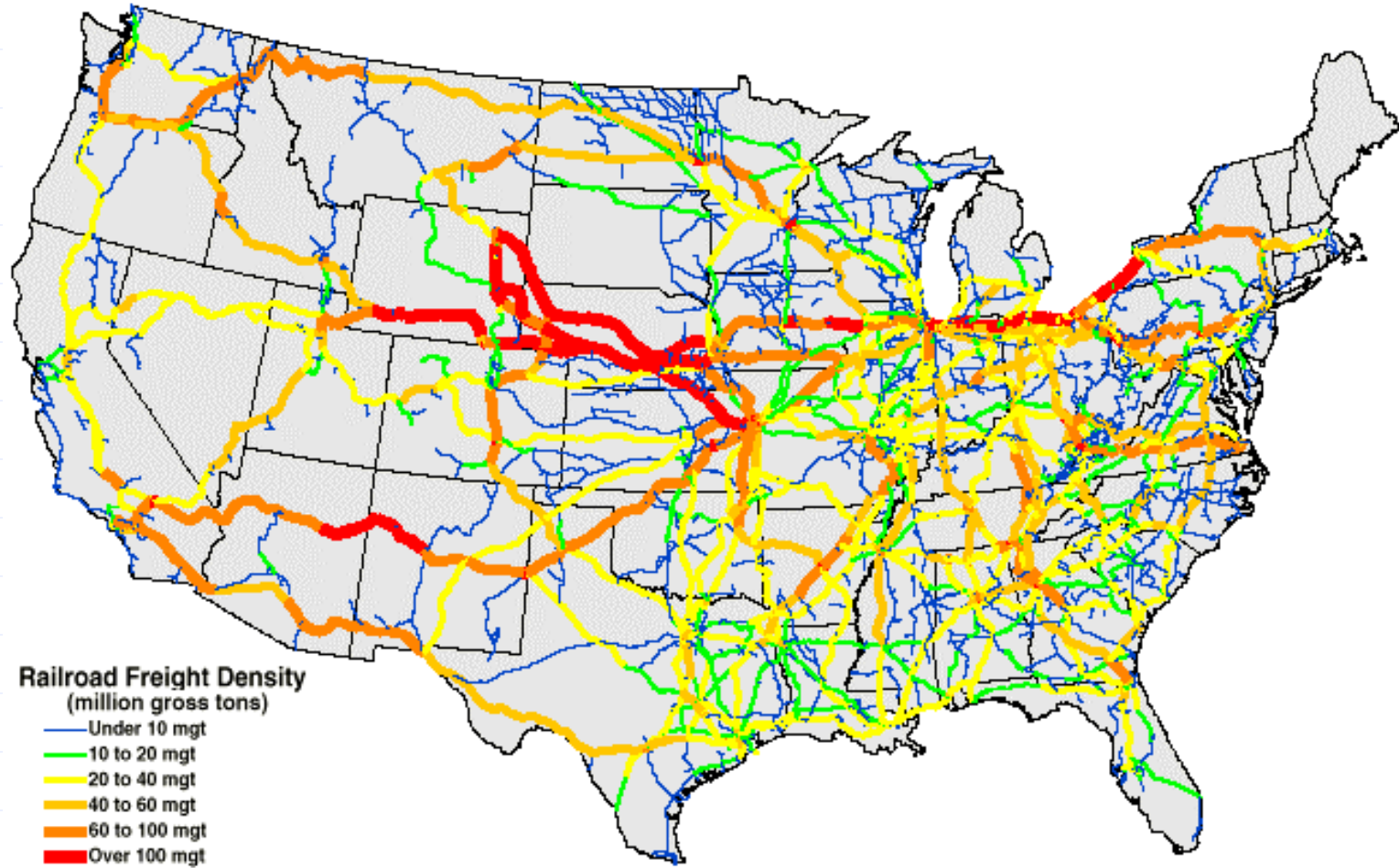
Ton-Mi/Mi on U.S. Class I Railroads



Average U.S. freight train speed (mph)



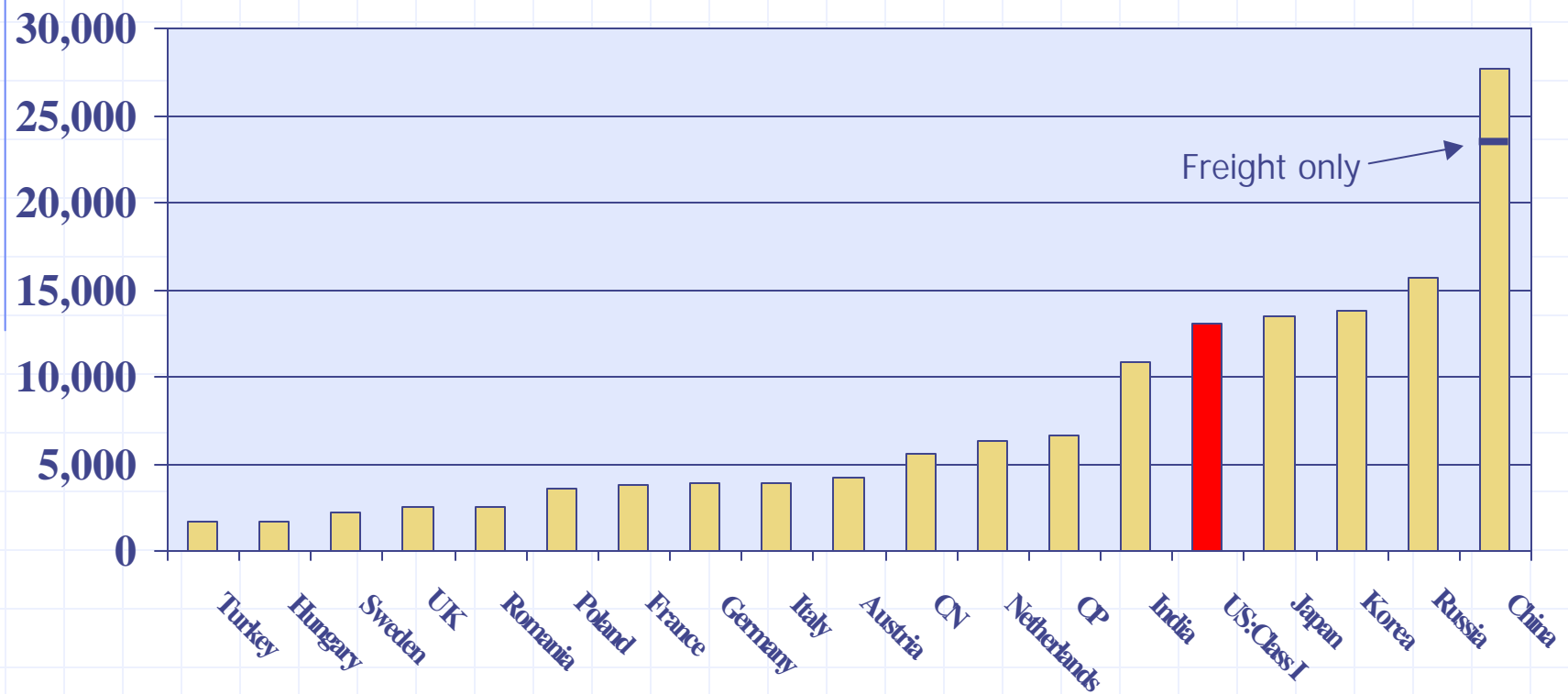
U.S. rail freight line traffic density -- 1995



Source: U.S. Department of Transportation, Federal Railroad Administration, Carload Waybill Statistics, 1995

Rail traffic density comparison

000 traffic units per kilometer – passenger and freight

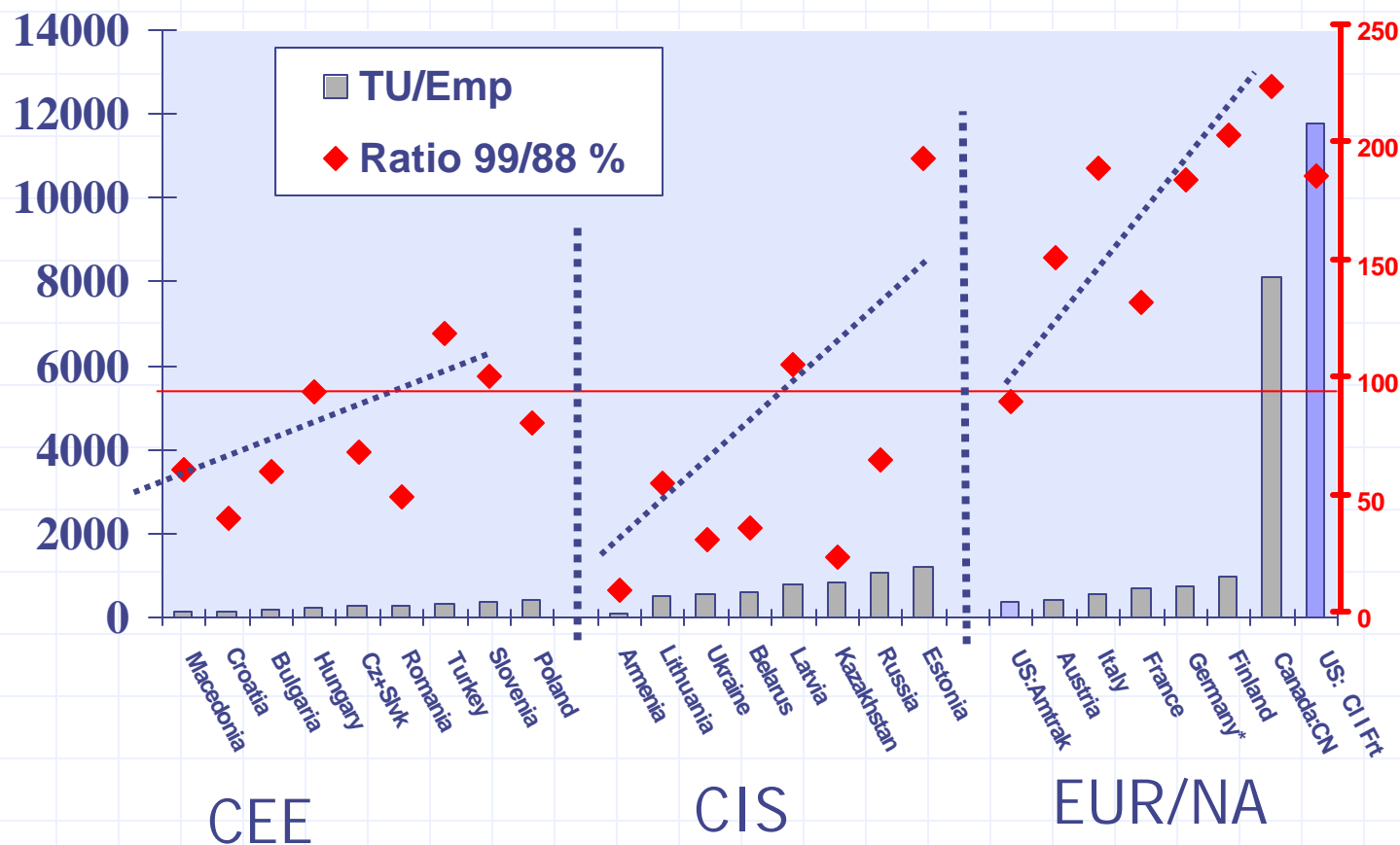


Note: "traffic units" is the sum of ton-km plus passenger-km

Labor productivity 1999 and compared with 1988

Output (000 TU)/Employee

Ratio of:
99 output/employee to
88 output/employee %



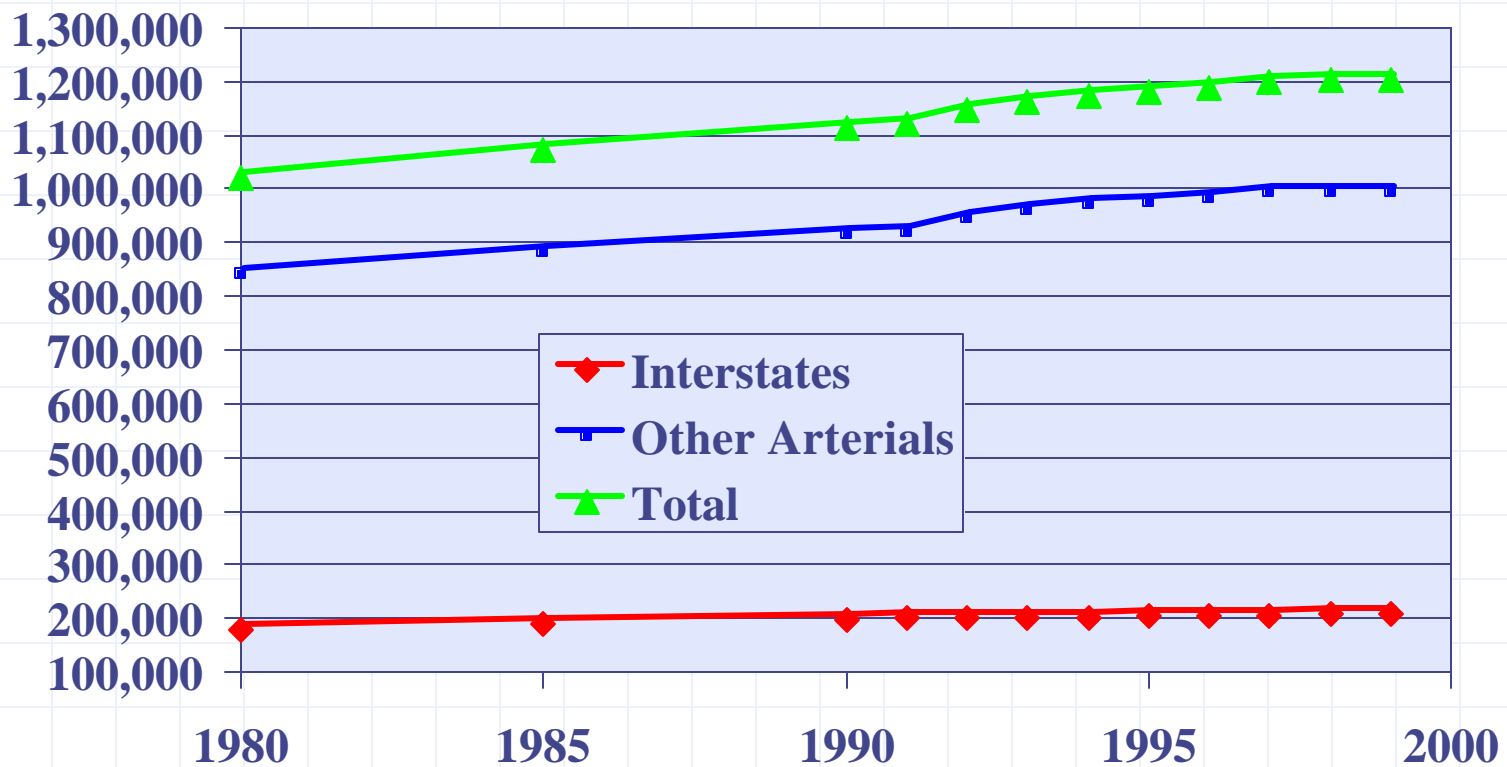
U.S. transport capacity: roads and highways

◆ Roads: (the U.S. built them and the traffic came even faster)

- ✍ Lane-mile capacity growth
- ✍ More rapid traffic increases (auto and bus vs. truck)
- ✍ The urban/rural balance

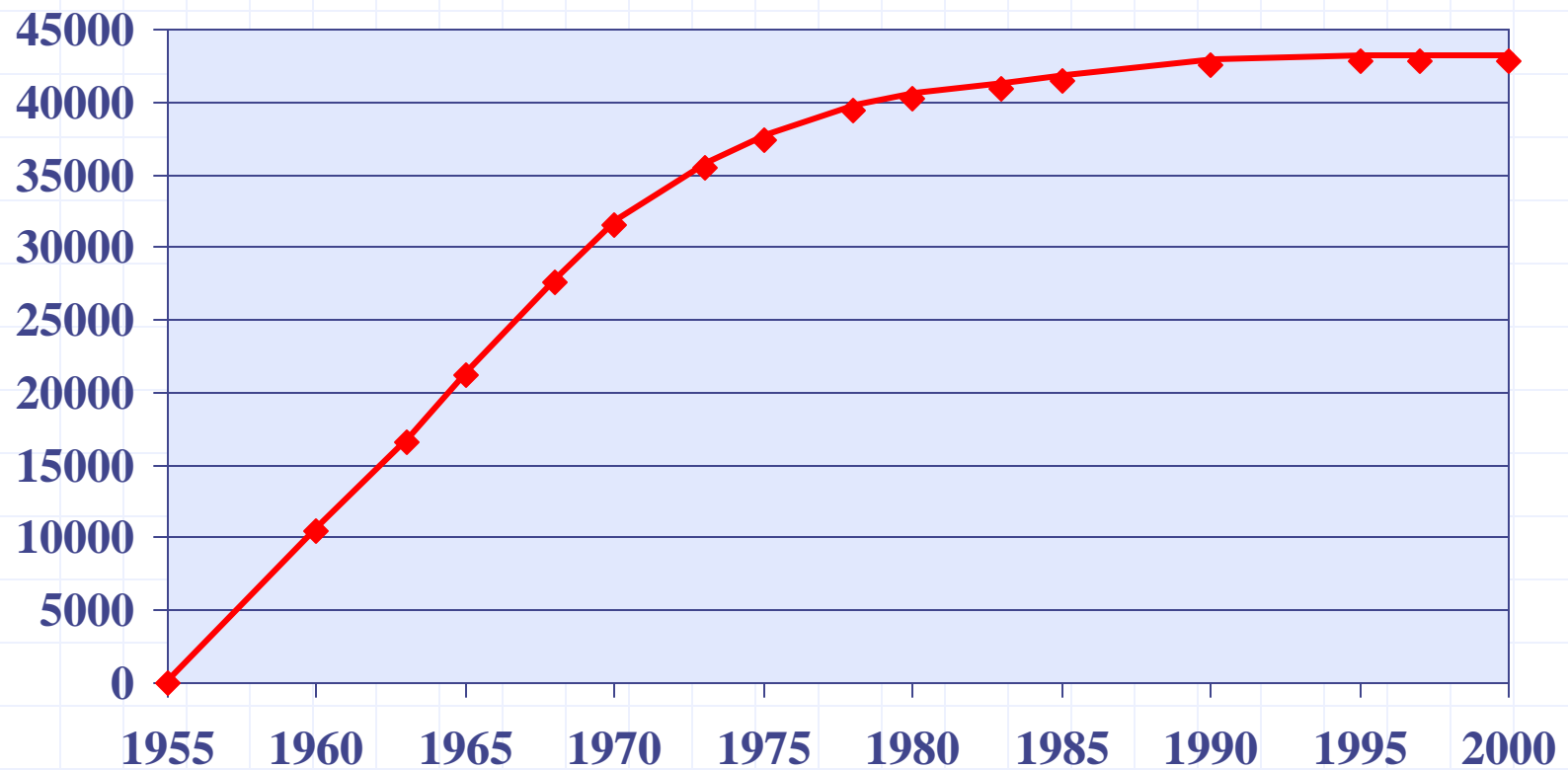
◆ Result: increasing congestion

Lane-miles of major highways in the U.S.



Source: National Transportation Statistics 2000

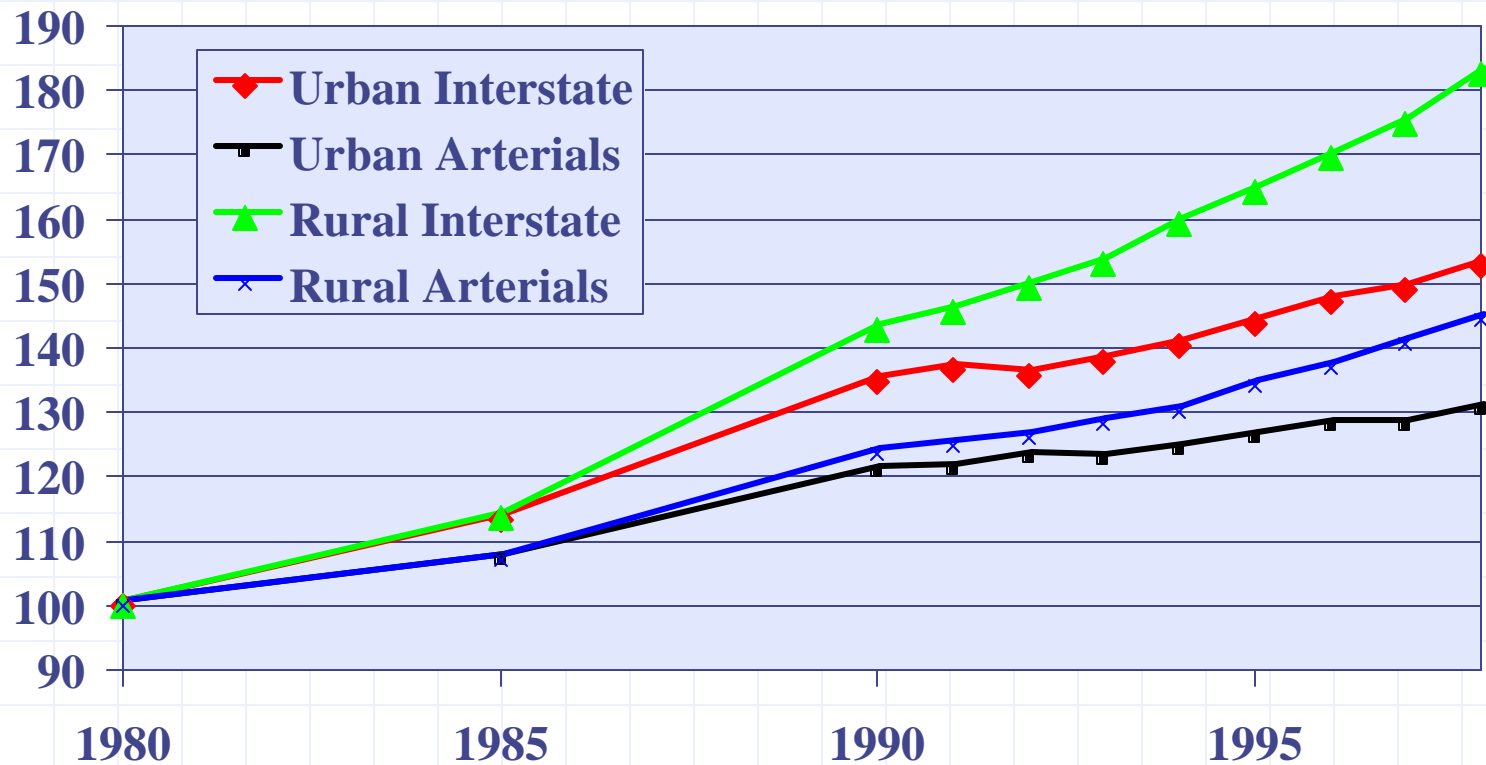
Interstate Highways mileage



Highway traffic density in the U.S.

Index: 1980=100

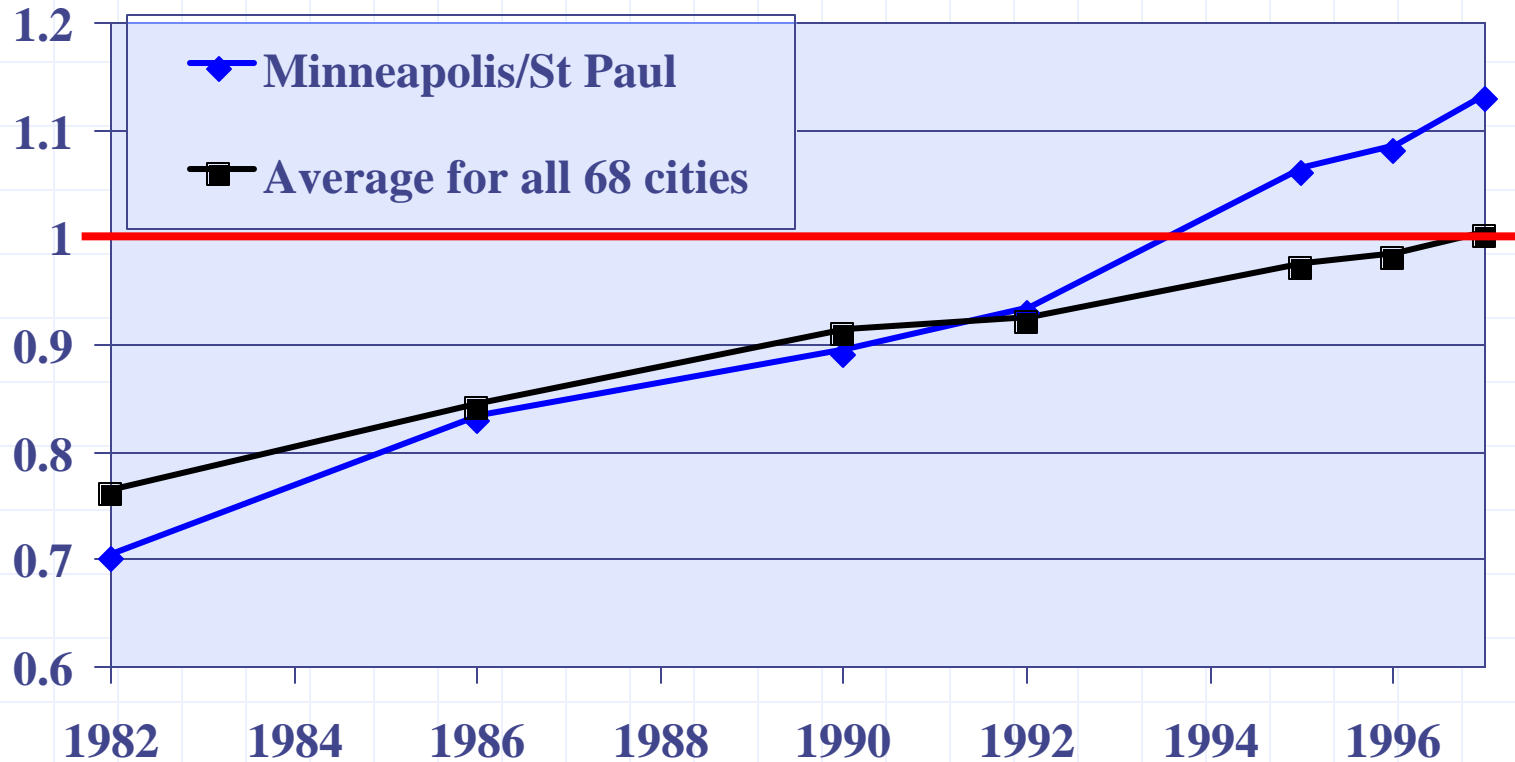
(Vehicle Miles Traveled/Lane-Mile) index



Urban highway congestion

Congestion Index:

>1.0 = “undesirable”



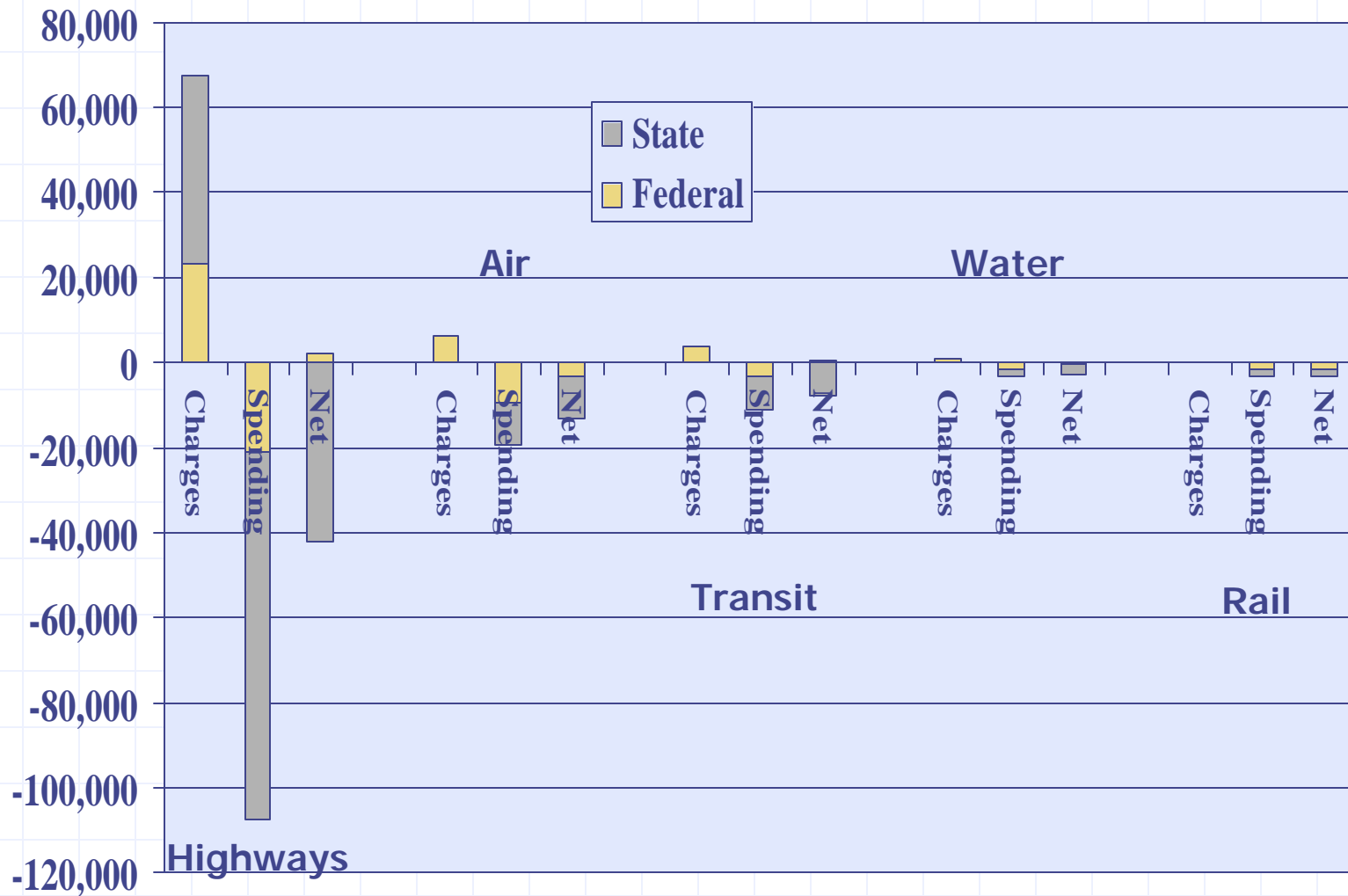
68 cities total. 50 largest plus 18 selected by States.

5 congested in 1982, 40 congested in 1997

Financing issues: past and future

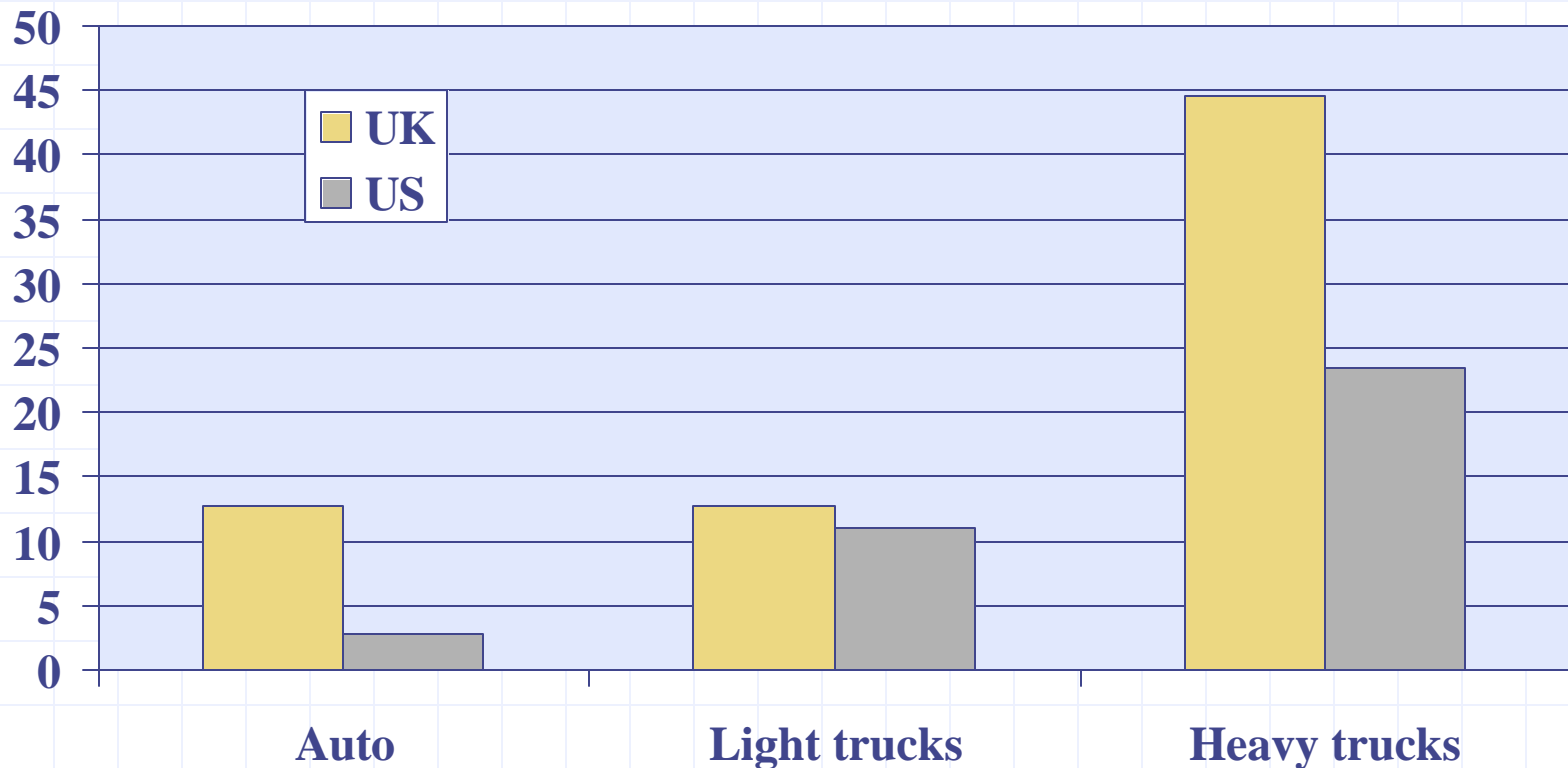
- ◆ How the U.S. financed transport capacity in the past
- ◆ Transport financing in U.S. compared with elsewhere
- ◆ The various degrees of cross subsidy

Balance of U.S. transportation spending in 1998



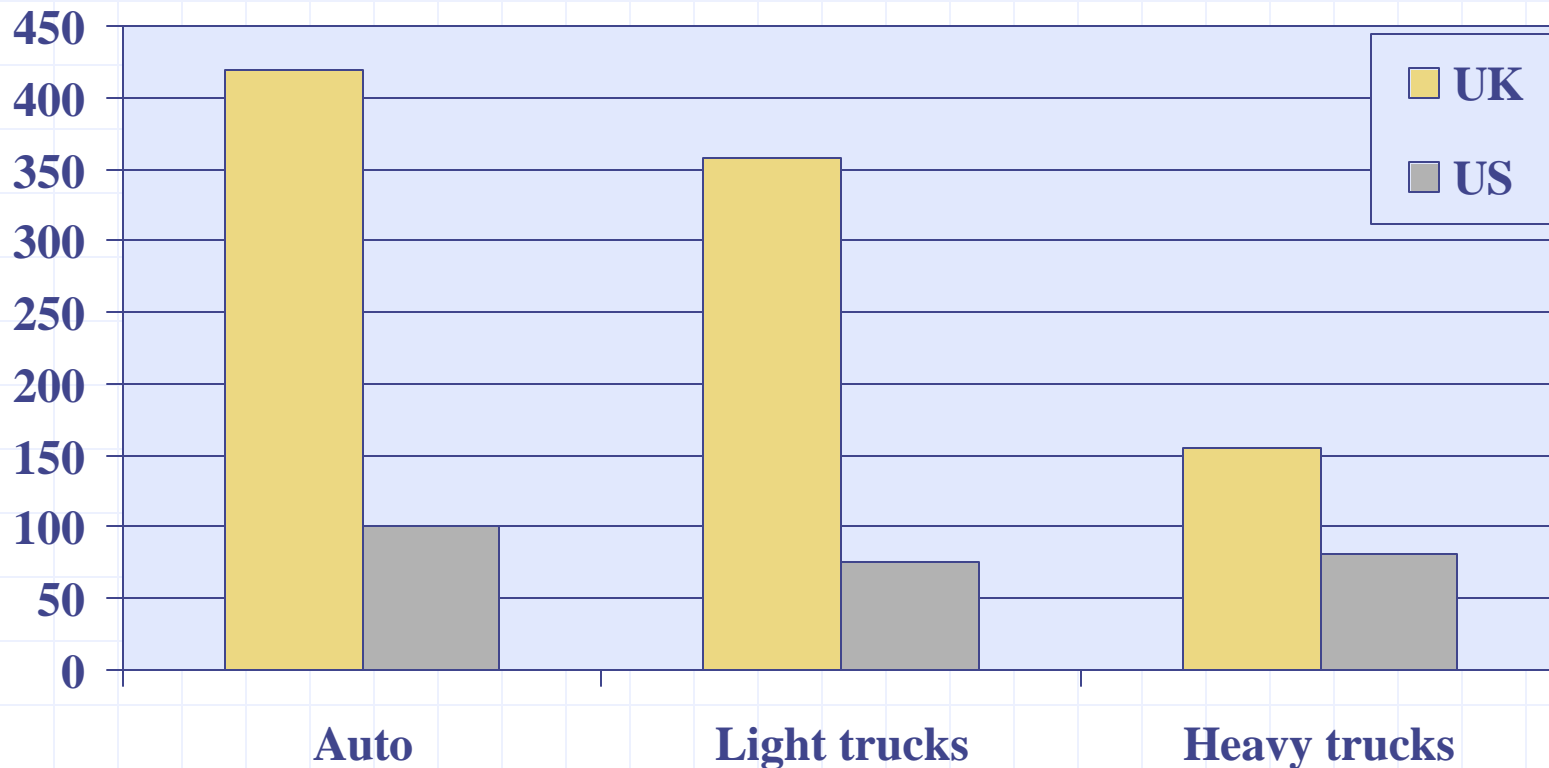
Average highway user charge revenue: U.K. compared to U.S.

(US cents per vehicle mile)



Source: Sansom, Nash, Mackie, et al, "Surface Transport Costs and Charges, Great Britain, 1998
And, Addendum to the 1997 Federal Highway Cost Allocation Study, May, 2000

Ratio of highway user charge revenue to fully allocated infrastructure costs

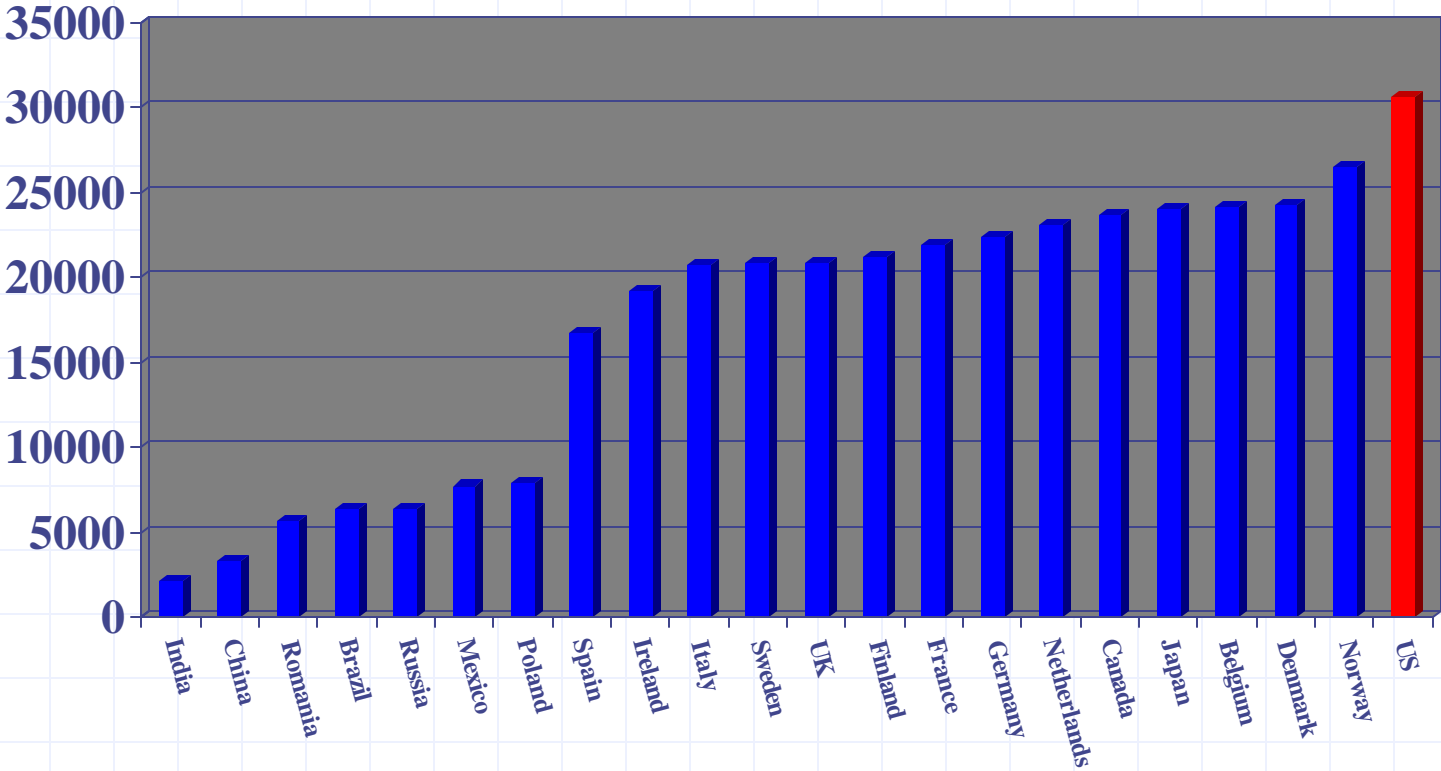


Source: Sansom, Nash, Mackie, et al, "Surface Transport Costs and Charges, Great Britain, 1998
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Financing capacity in the future: barriers

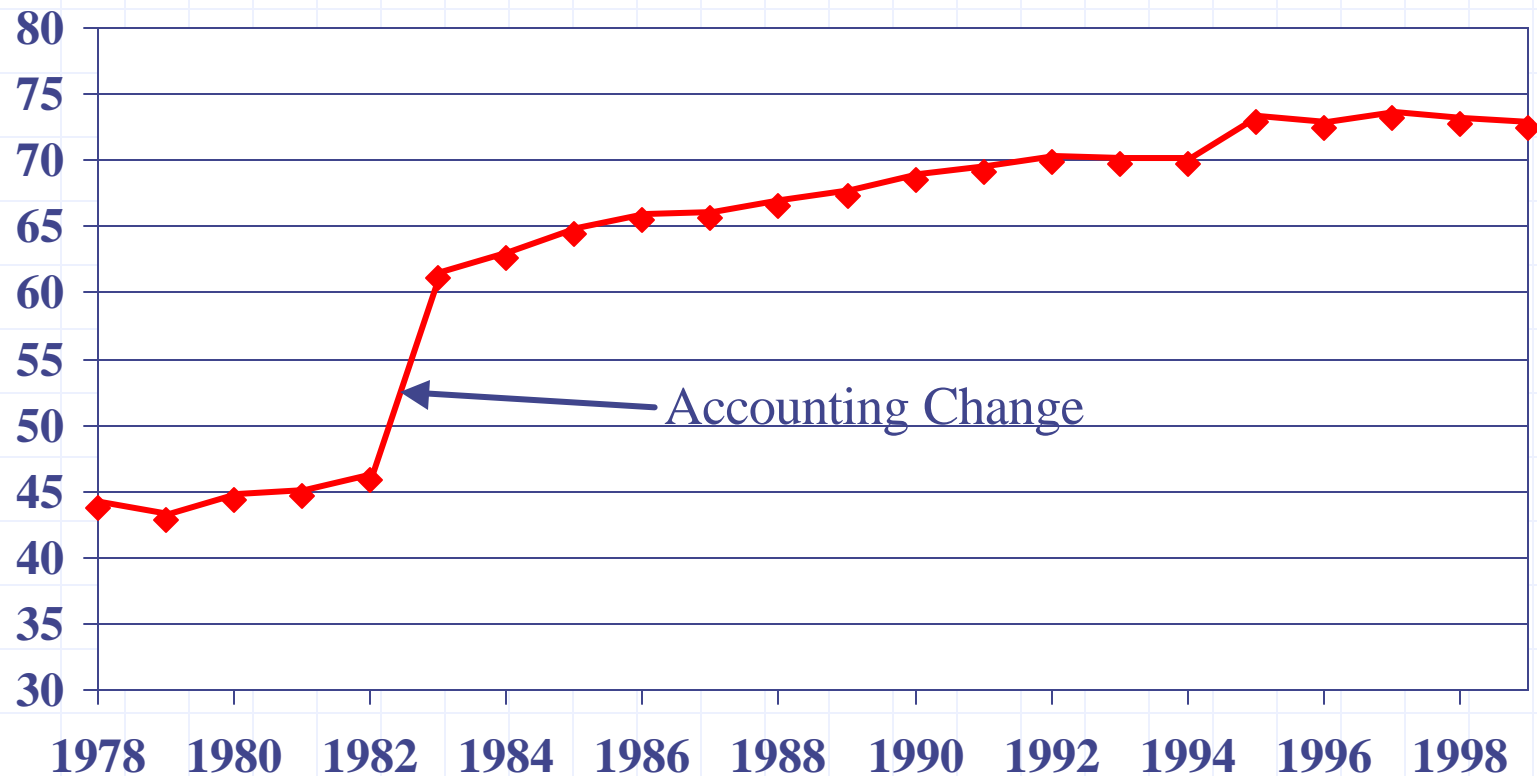
- ◆ **What can the U.S. afford?**
 - ✍ Railroads
 - ✍ Highways
- ◆ **Getting prices right, for capacity and for environmental effects**
- ◆ **Funding and administrative barriers (FAA and air traffic control, Corps of Engineers, funding fences)**
- ◆ **A better public/private balance**
 - ✍ Public investment in private rail infrastructure?
 - ✍ Private investment in highway infrastructure?
- ◆ **New technology (road pricing, intelligent vehicles, rail signaling and electrification): does or can it promote efficiency and increase capacity?**

GDP/Capita 1999 (US\$ at PPP)

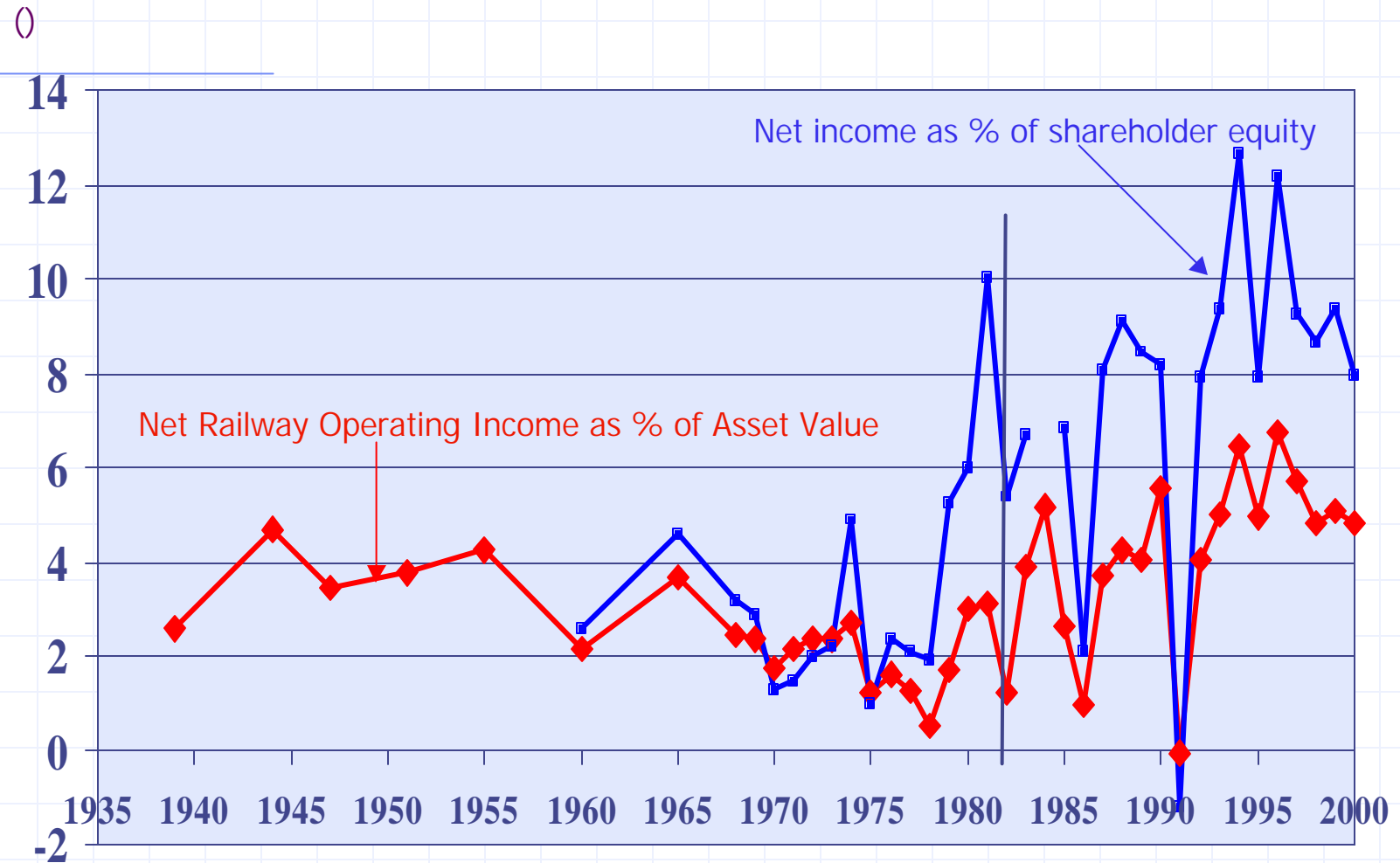


Source: WDR 2000/2001, pg 274/275

Class I railroad investment in track as % of total investment

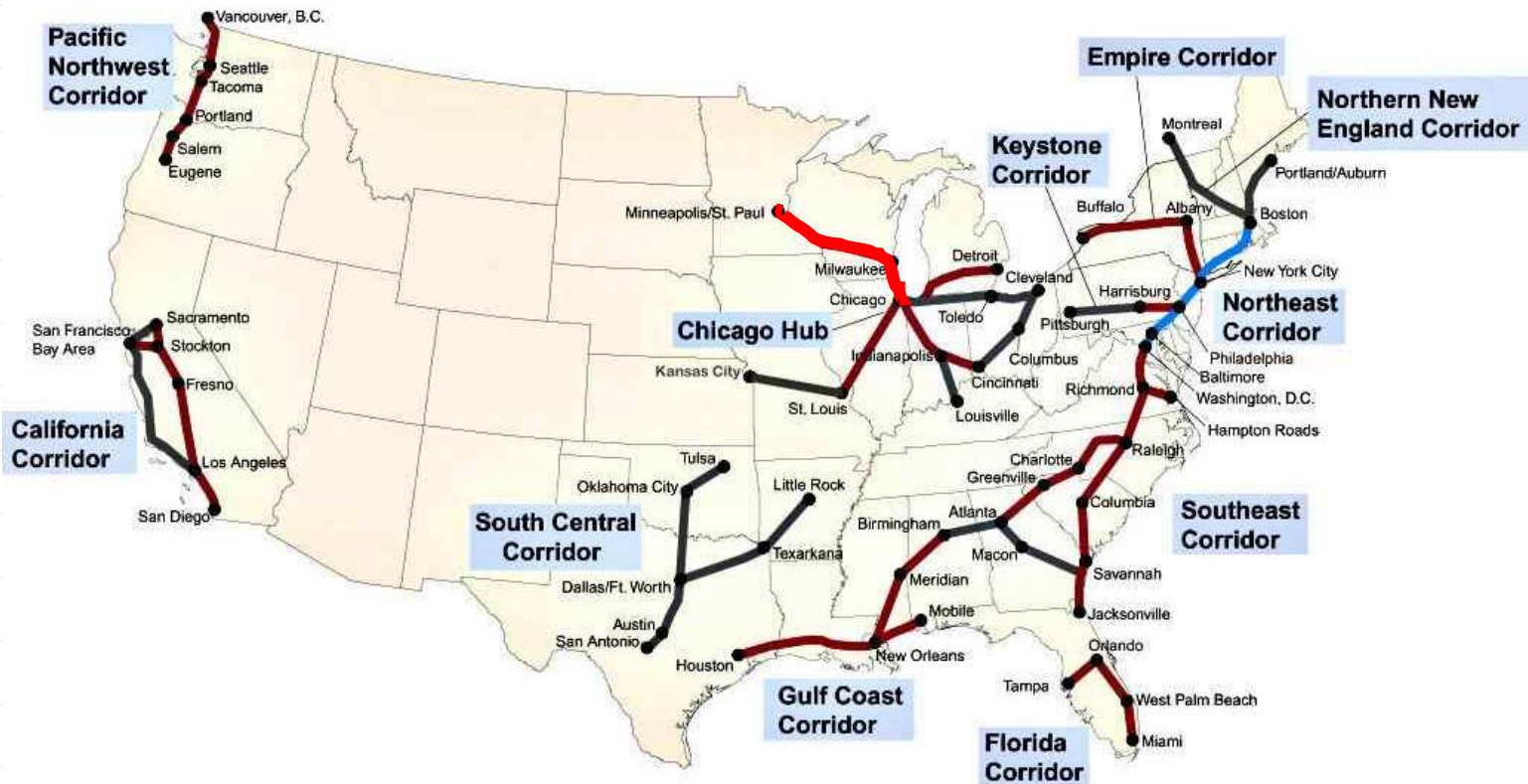





Rate of Return in U.S. Railroads



One approach to relieving urban congestion

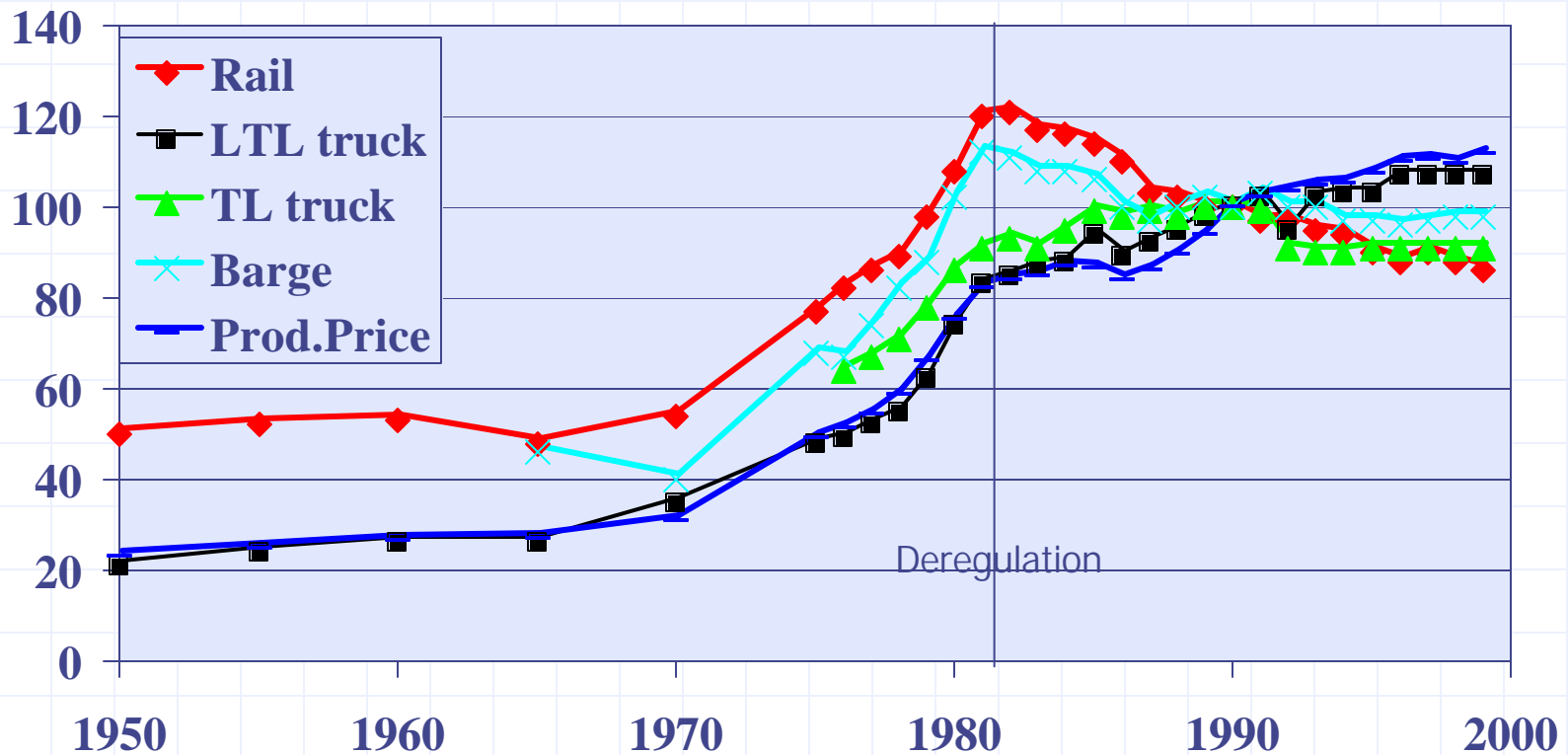
Designated High Speed Rail Corridors As Of 1/19/01



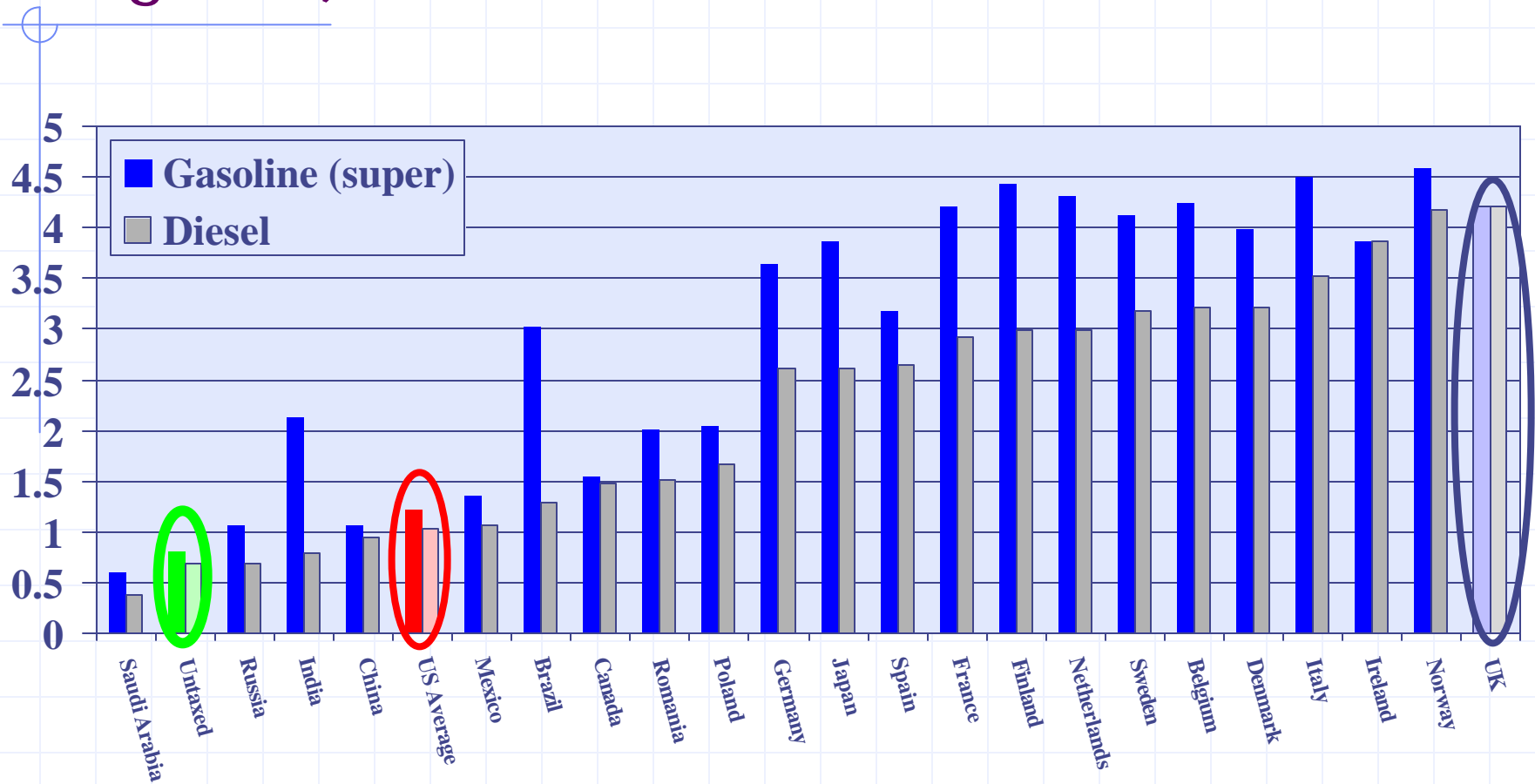
-  Northeast Corridor
-  Designated Corridors Prior to 10/11/2000
-  New Designations, Extensions, California Clarification Through 1/19/01

Average U.S. freight tariffs

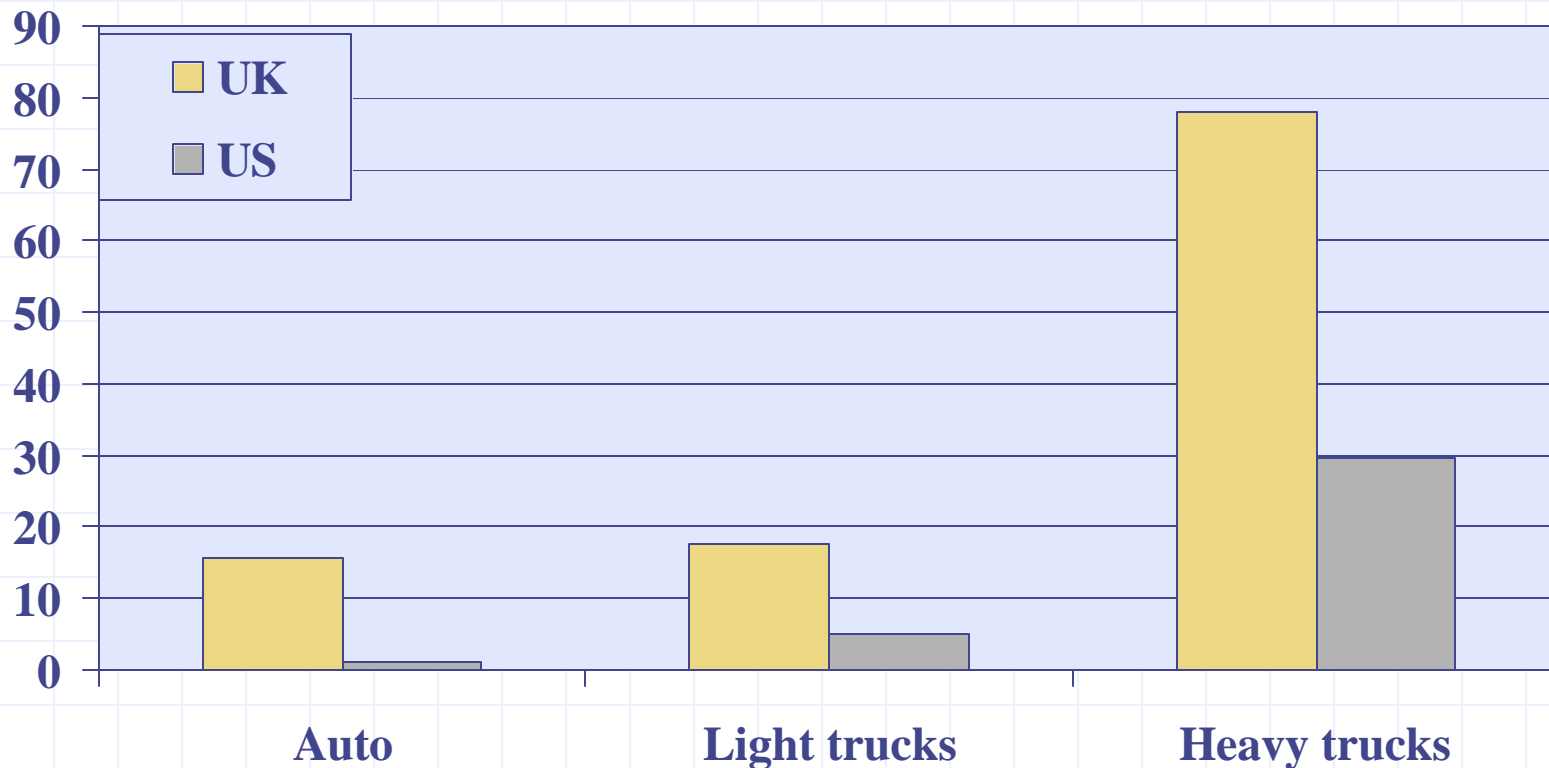
Index: 1990 = 100



Gasoline and diesel fuel prices (US \$/gallon) 1998

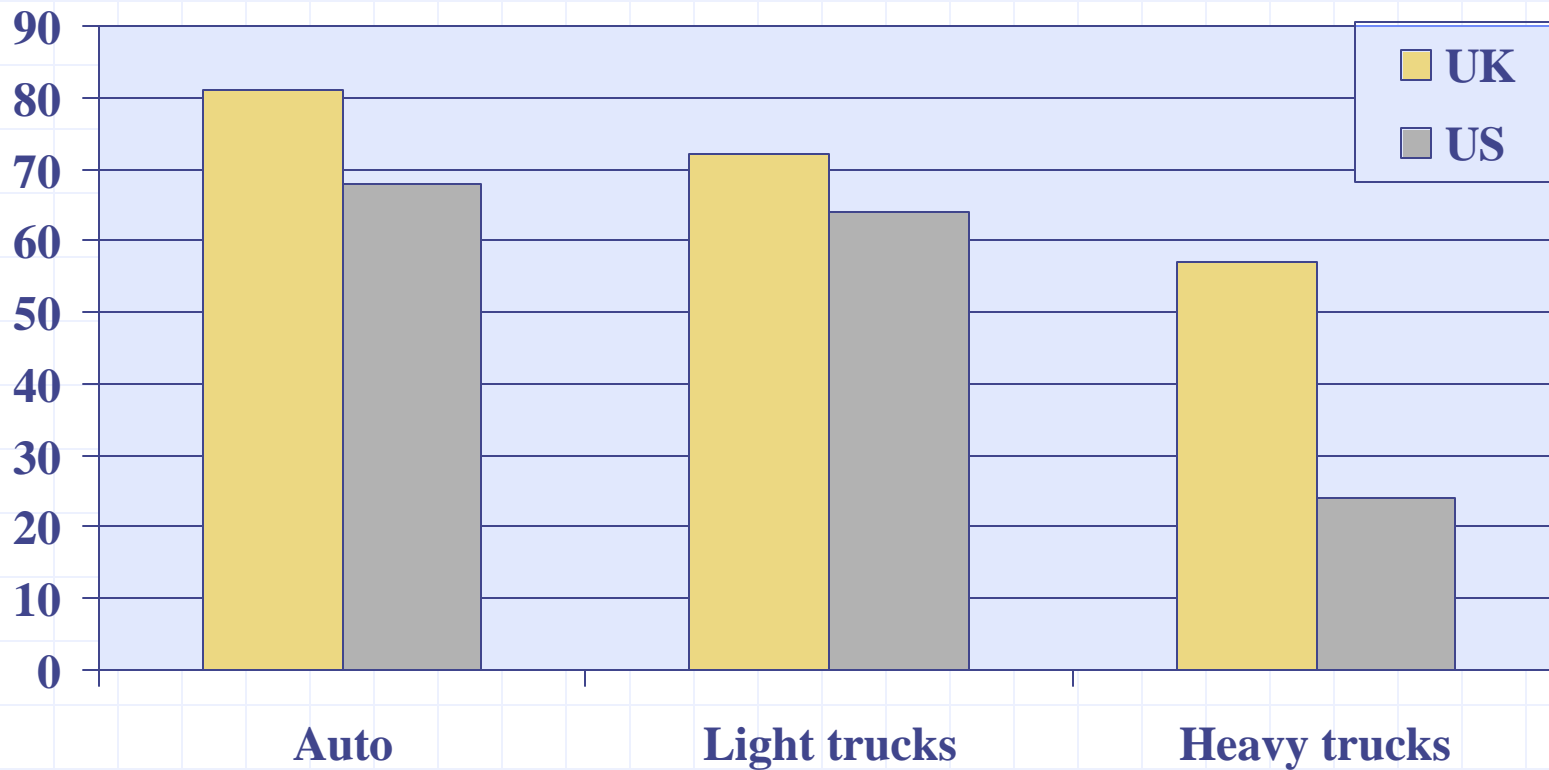


Ratio of highway user charge revenue to marginal transport costs in the U.K. and U.S.



Source: Sansom, Nash, Mackie, et al, "Surface Transport Costs and Charges, Great Britain, 1998
And, Addendum to the 1997 Federal Highway Cost Allocation Study, May, 2000

Percent of marginal costs attributable to congestion



Source: Sansom, Nash, Mackie, et al, "Surface Transport Costs and Charges, Great Britain, 1998
And, Addendum to the 1997 Federal Highway Cost Allocation Study, May, 2000