Measuring Transportation Investment:
Challenges and Opportunities

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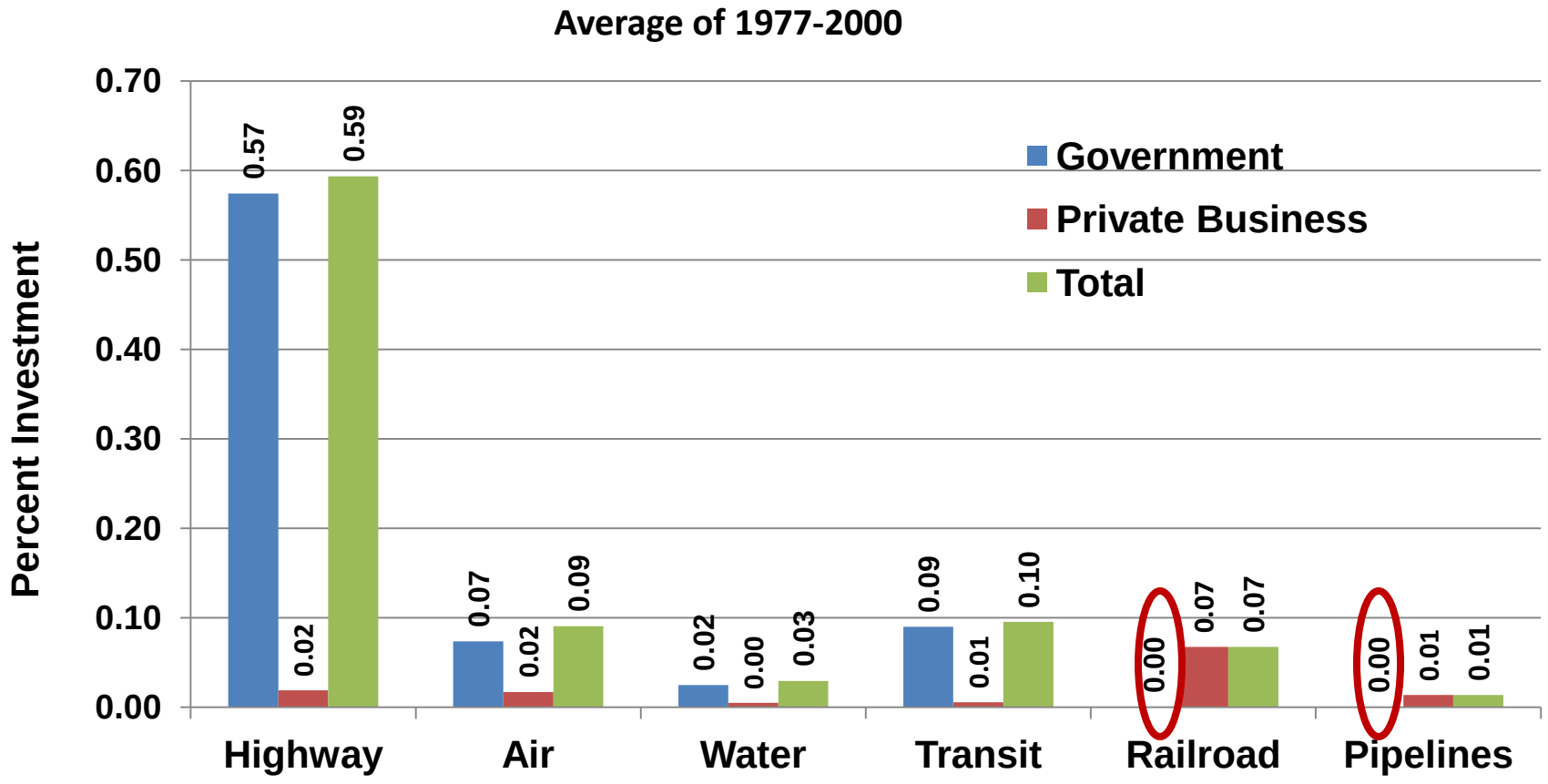
Presentation Outline

- Definition of transportation investment
  - ✓ What are we measuring? And why?
- Trends in U.S. transportation investment and impacts on the economy
- Challenges and opportunities
  - ✓ Data gaps
  - ✓ Are data comprehensive enough to understand the impacts of transport investment on the economy?
  - ✓ Are data sufficiently compatible to enable comparative analyses – across time, sectors, modes, and/or countries?

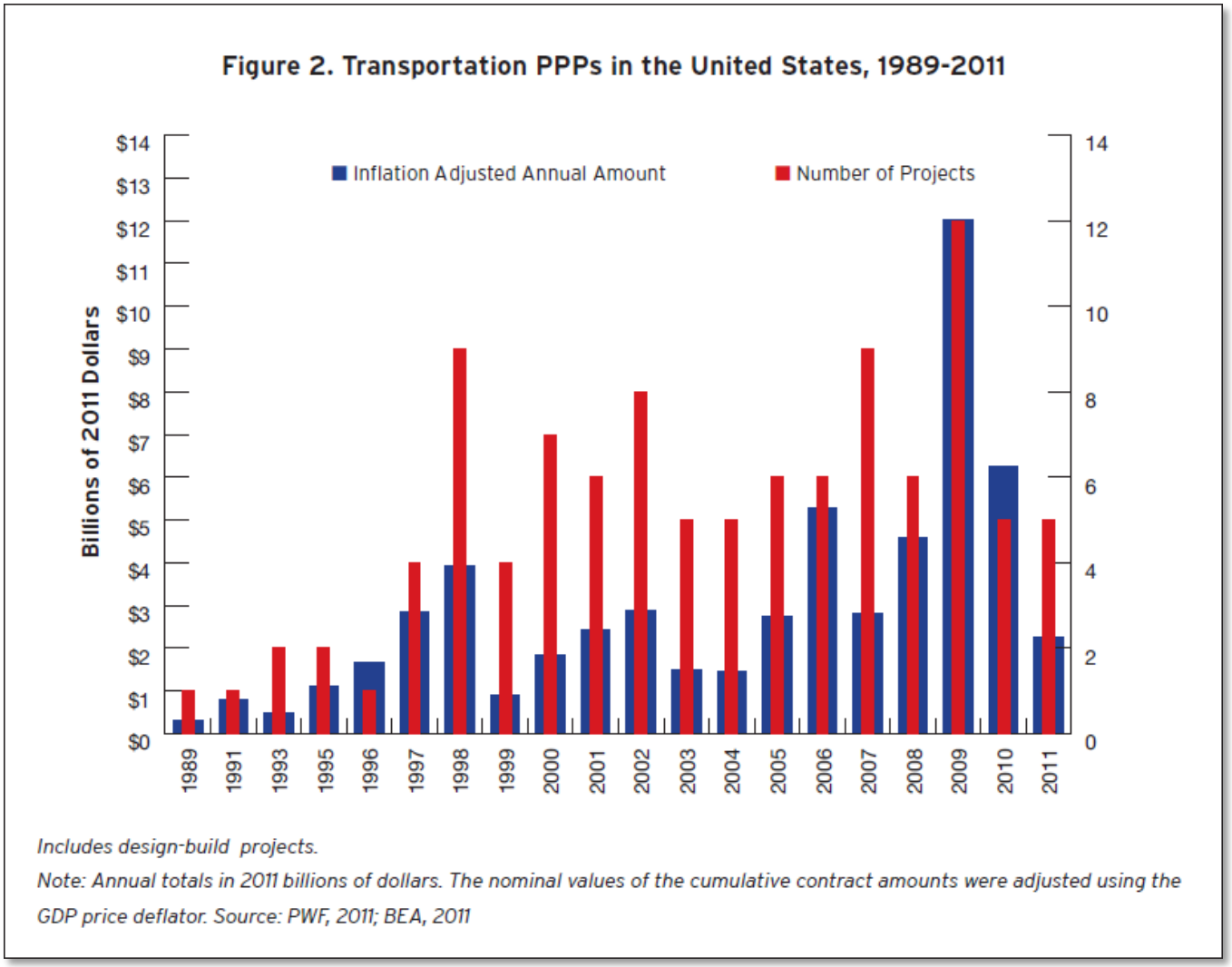
Definition of Transportation Investment

- "*Transportation investment is defined as <u>additions</u> to transportation fixed assets. Transportation fixed assets refer to:*
  - ✓ *structures,*
  - ✓ *motor vehicles, and*
  - ✓ *other machinery and equipment that are used in the provision of transportation services for more than one year*."
- Although it is a definition used by OECD, U.S. Bureau of Economic Analysis and U.S. Bureau of Transportation Statistics…
- Is it comprehensive enough to understand the impact of transport investment on the economy?

In the U.S., government is the predominant investor in transportation infrastructure, with few exceptions.

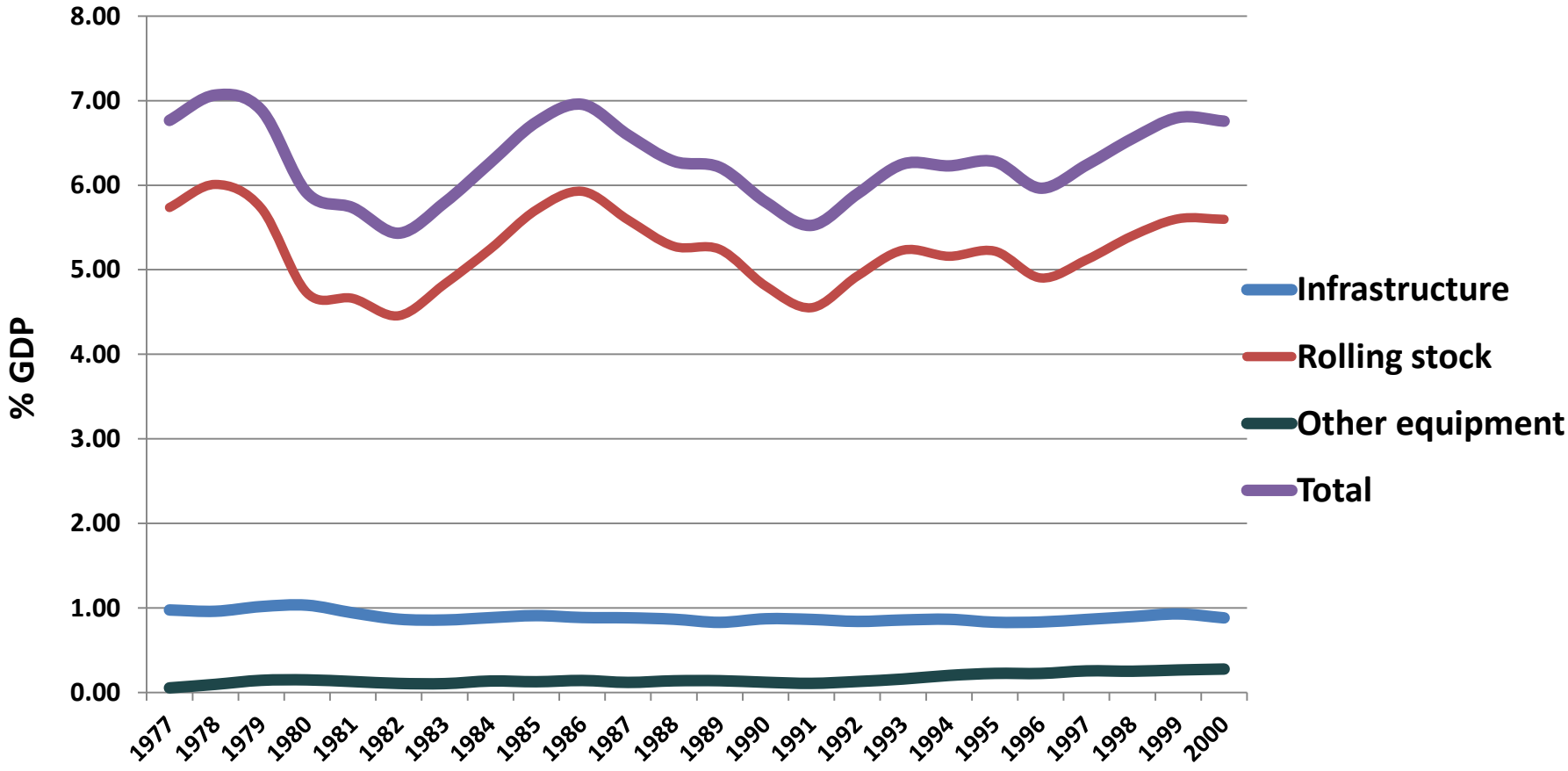


The number of public-private partnerships peaked in in the U.S. in 2009, followed by a sharp decline



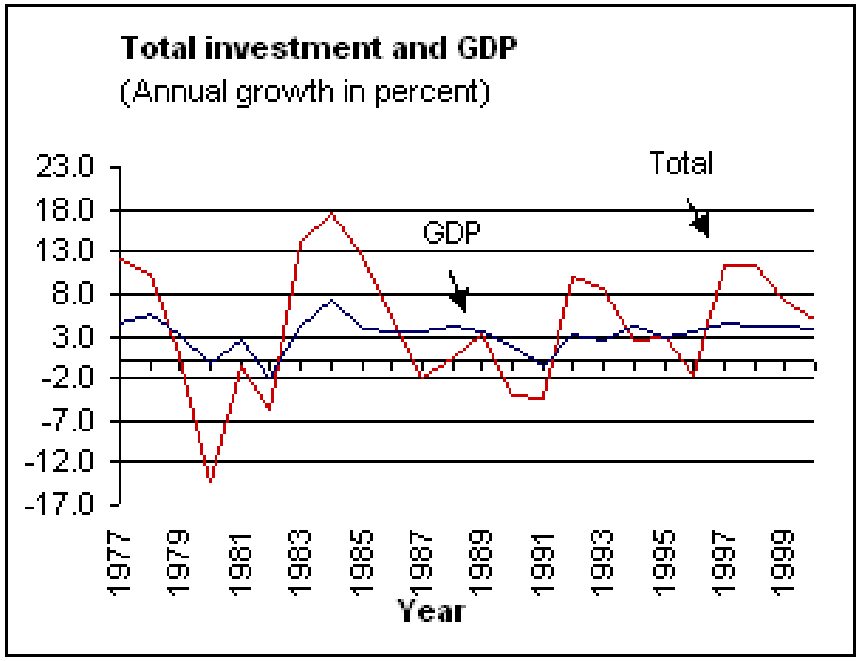
Source: *Moving Forward on Public-Private Partnerships*, Istrate & Puentes; Brookings Institute-Rockefeller Foundation

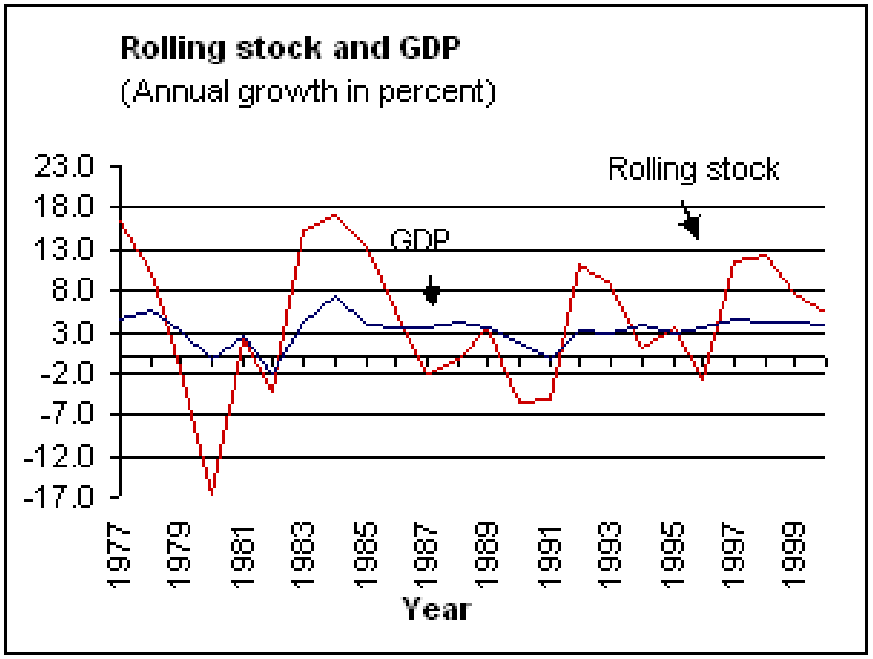
Transportation Investment as Percentage of U.S. GDP by Type, 1977-2000



Source: BTS compiled based on various BEA data.

Total Transportation Investment Closely Echoes the Business Cycle

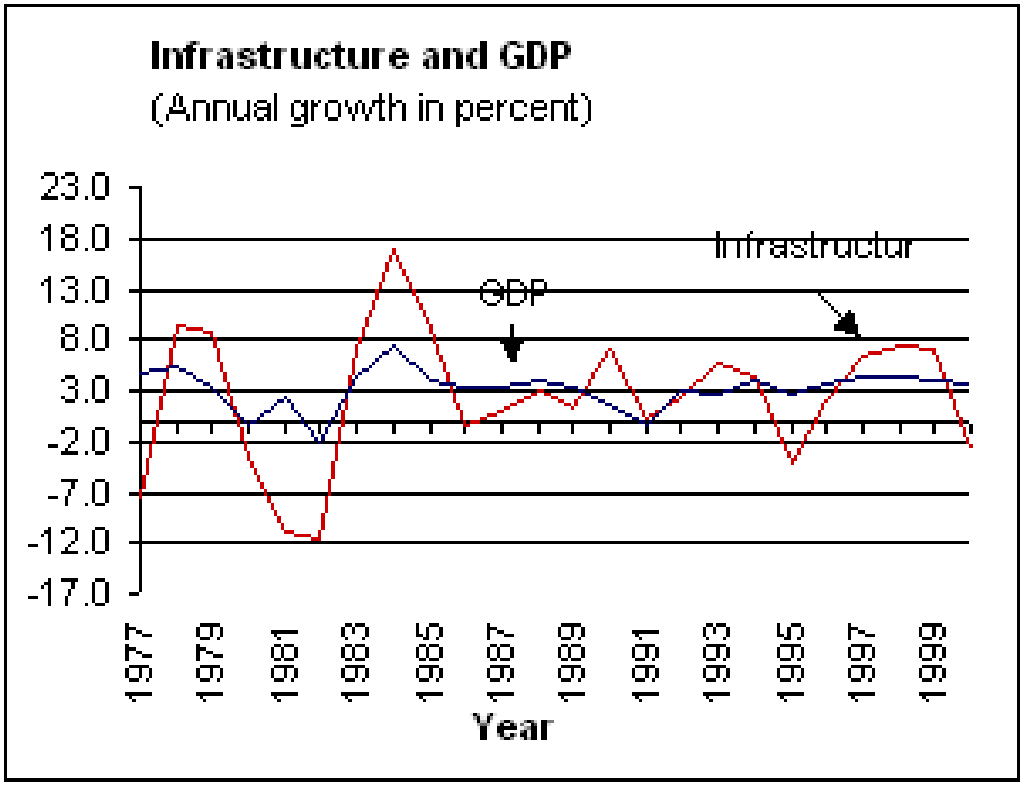




Notes: All growth rates are calculated based on chained 1996 dollar values. Other equipment includes transportation industries' investment in all types of equipment excluding rolling stock.

Sources: BTS calculations based on data from U.S. Department of Commerce, Bureau of Economic Analysis (BEA), "Fixed Assets and Consumer Durables," "National Income and Product Account (NIPA) Tables," available at http://www.bea.gov, as of July 2002; and personal communication with BEA.

Investment in transportation infrastructure appears to lag the business cycle.



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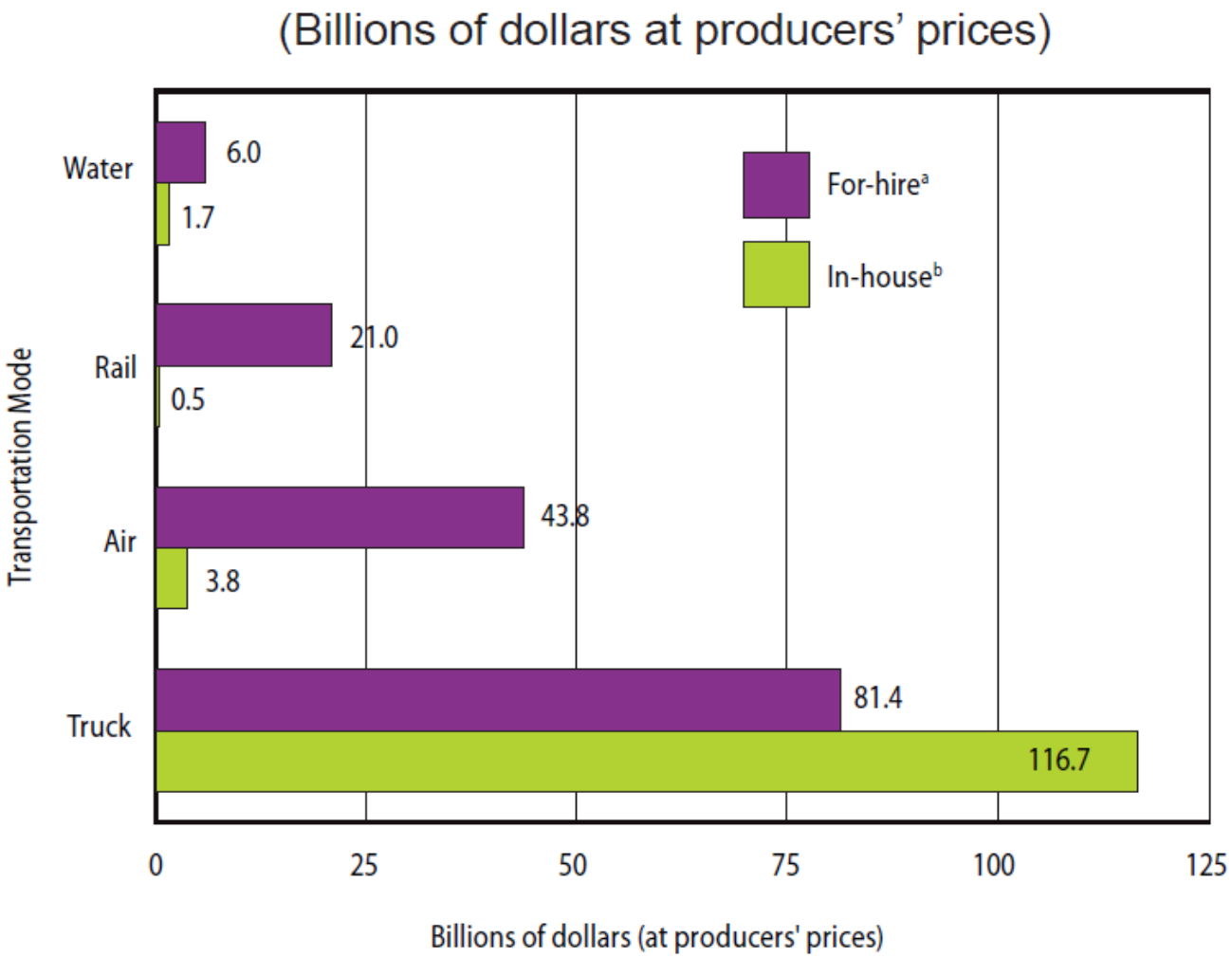
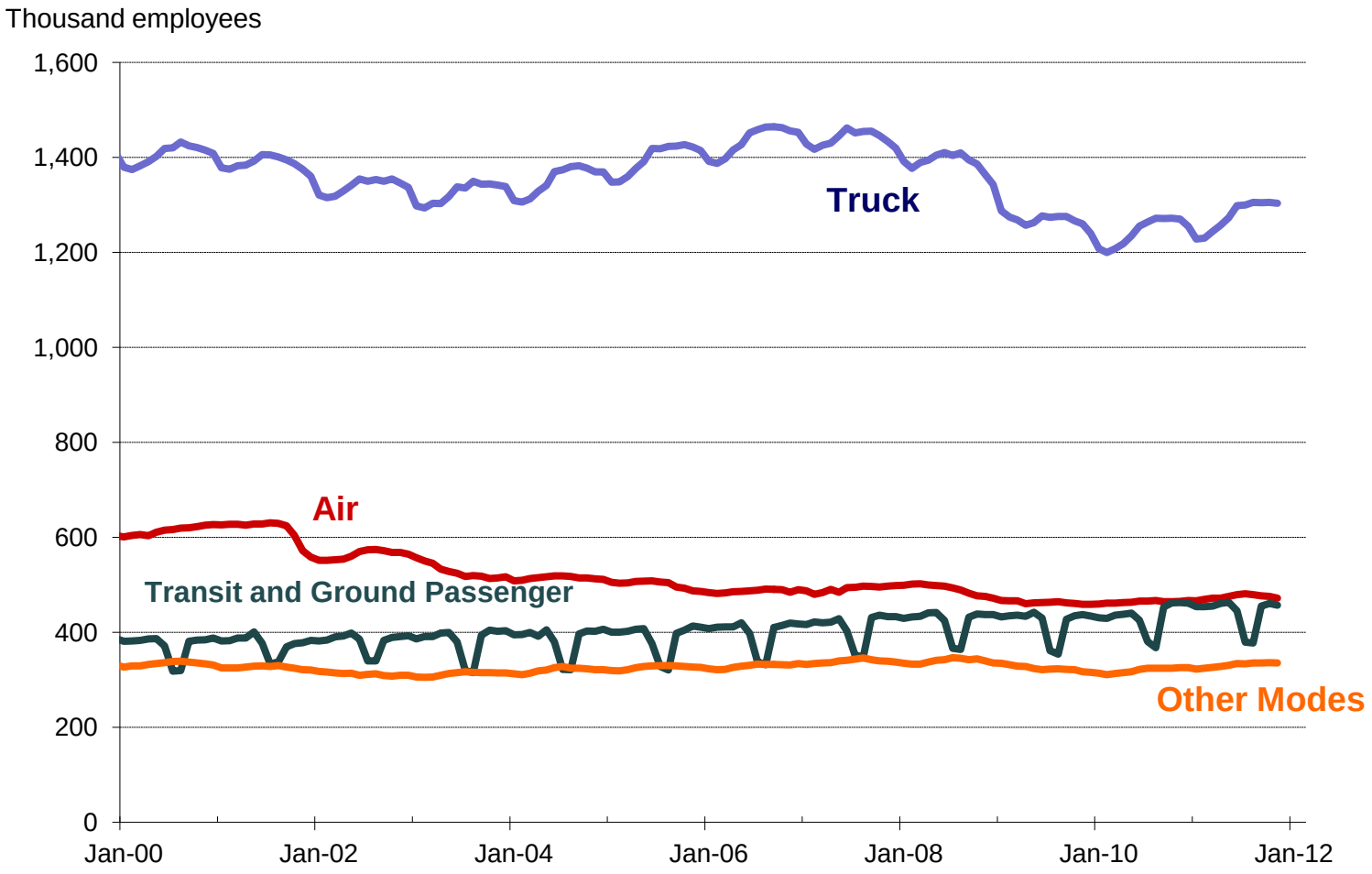
Transportation services contributed about $370 billion of value-added in U.S. in 1997, with trucking dominating.



Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics,
http://www.bts.gov/publications/transportation_satellite_accounts

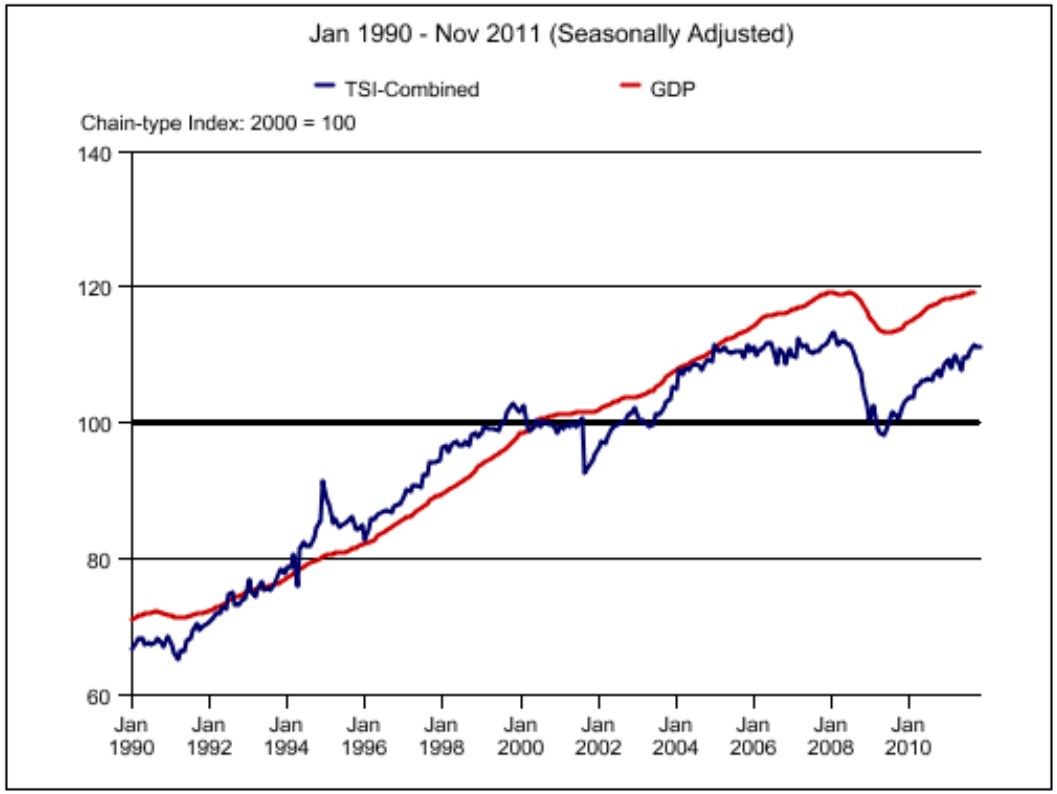
Employment in for-hire transportation industry usually reflects the demand in the economy.



Source: Bureau of Labor Statistics

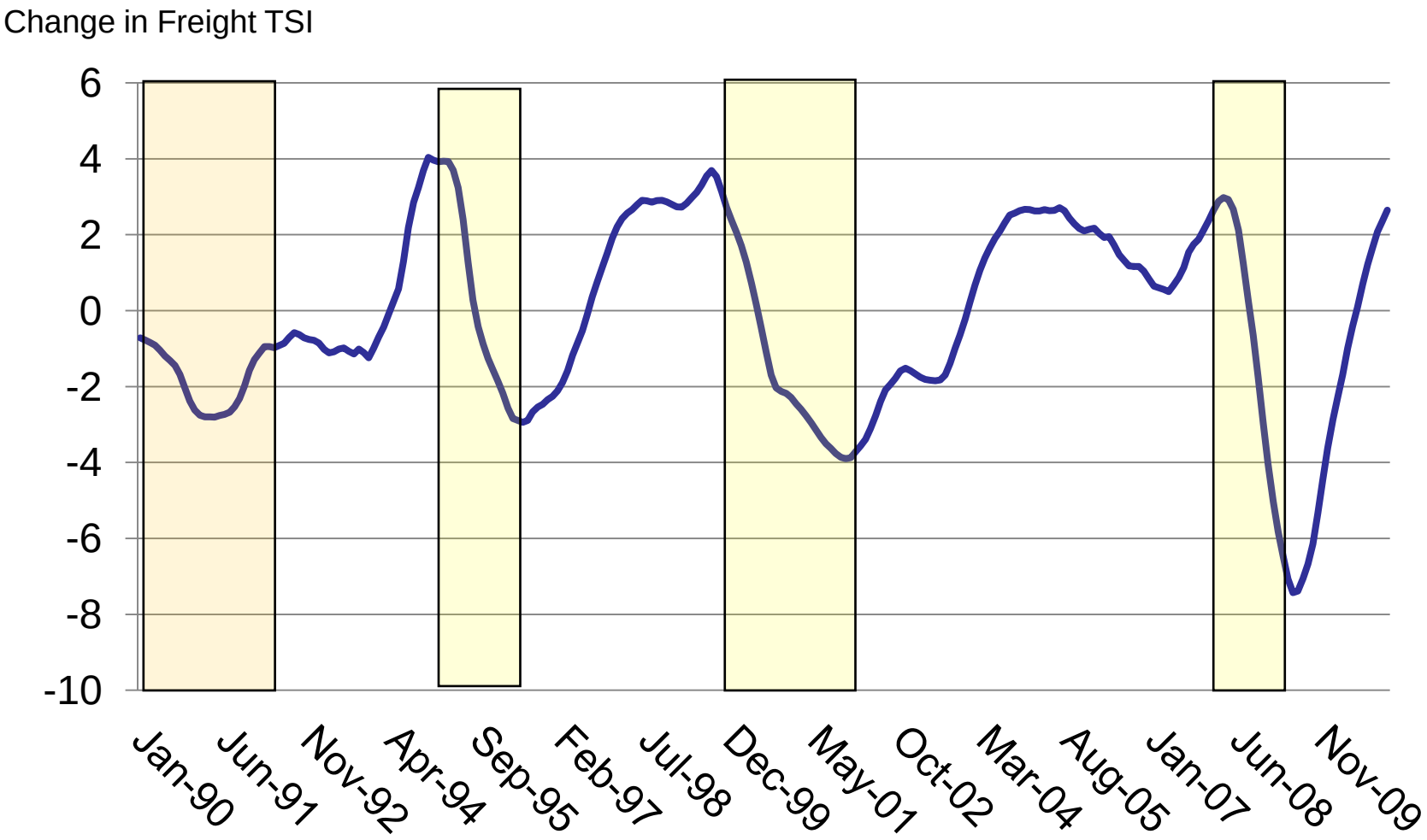
Transportation Services Index (TSI) shows U.S. transportation activities have increased over time with GDP

- Transportation Services Index (TSI) was developed by BTS to measure freight/passenger movement
- Study shows that TSI might have been a leading economic indicator for recessions
- 2008-09 recession is a case study for economic indicators in transportation



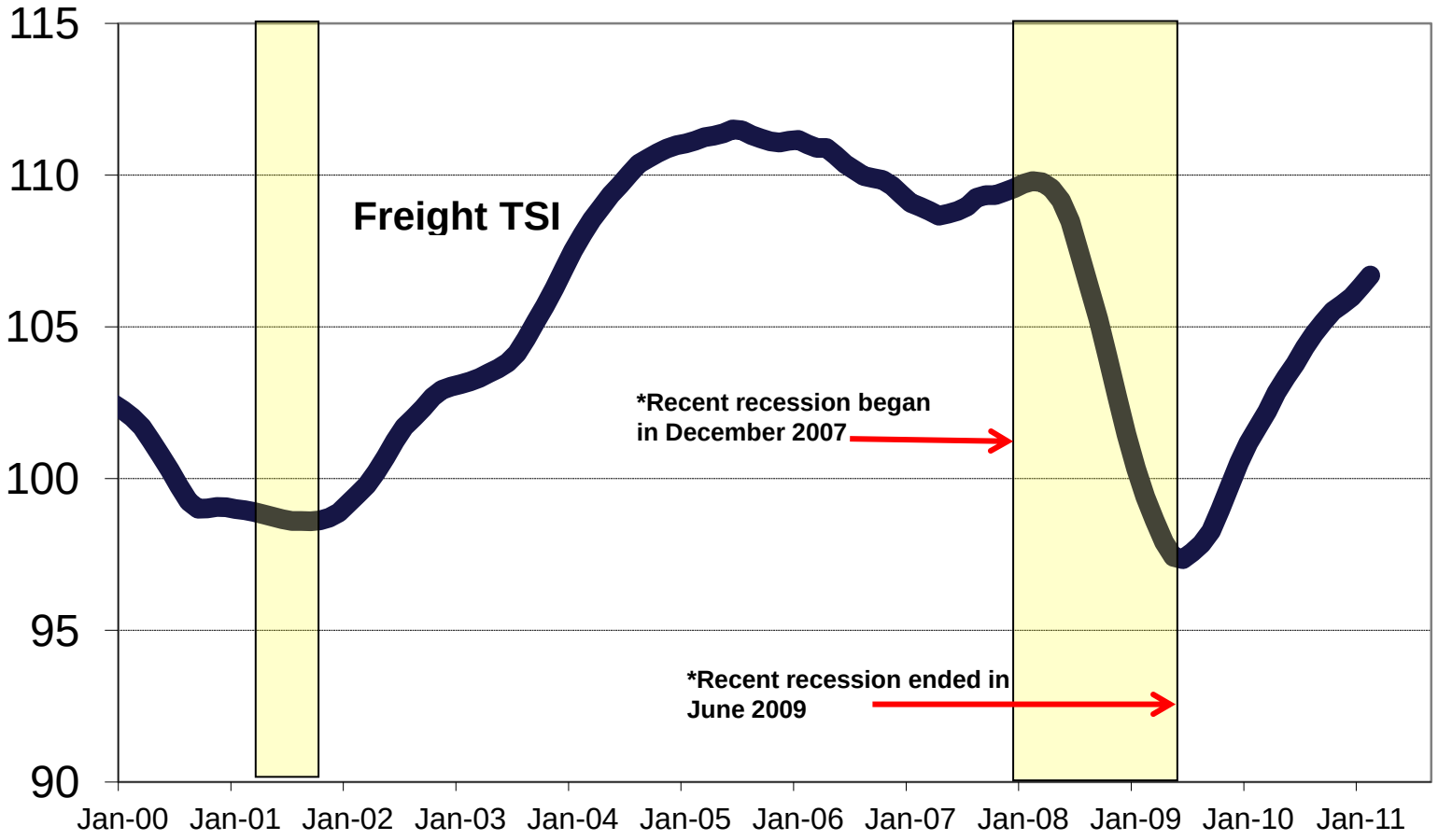
Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, November 2011

Relationship between freight shipment cycles and economic slowdowns during the last two decades



Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, November 2011

Controlling for long-term growth and seasonal variation, declines in freight led the recent recession



*National Bureau of Economic Research declarations of recession beginning and end points.

Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, November 2011

Challenges in Measuring Transportation Investment

- Transportation investment data are available across sector (public, private, household), transport mode and investment type

	Private	
	Structures	Equipment
Air	$	$
Rail	$	$
Water	$	$
Trucking	$	$
Pipeline	$	$
Other	$	$

	Government	
	Structures	Equipment
Roadways	$	$
Other infrastructure	$	$

	Household
Motor vehicles	$
Recreational vehicles	$

- **But *detail* varies by sector, transport mode and investment type**

Challenges in Measuring Transportation Investment (cont'd)

- The challenge of defining and identifying public-private partnerships (PPPs) – many different types
- Different data timeframes make comparisons difficult
- Should maintenance and operations (including projected expenditures) be included as part of the investment?
  - ✓ New construction vs. capacity improvement vs. rehabilitation
- Micro vs. Macro level?

Challenges in Measuring Transportation Investment (cont'd)

- The lack of "impact" data, and the difficulty of defining impact metrics. What should be include?
  - ✓ GDP growth, Employment, demand vs. supply
  - ✓ System improvements (e.g., safety, efficiency by reducing costs and improving reliability)
  - ✓ Improvements in energy and environment
- To better inform investment decision making, investment data should align with
  - ✓ system performance data (e.g., traffic flows, freight movement, infrastructure criticality) and
  - ✓ demand forecasts based on trends in demographics, trade and freight.