

# INNOVATIONS IN U.S. INFRASTRUCTURE FINANCING: AN EVALUATION

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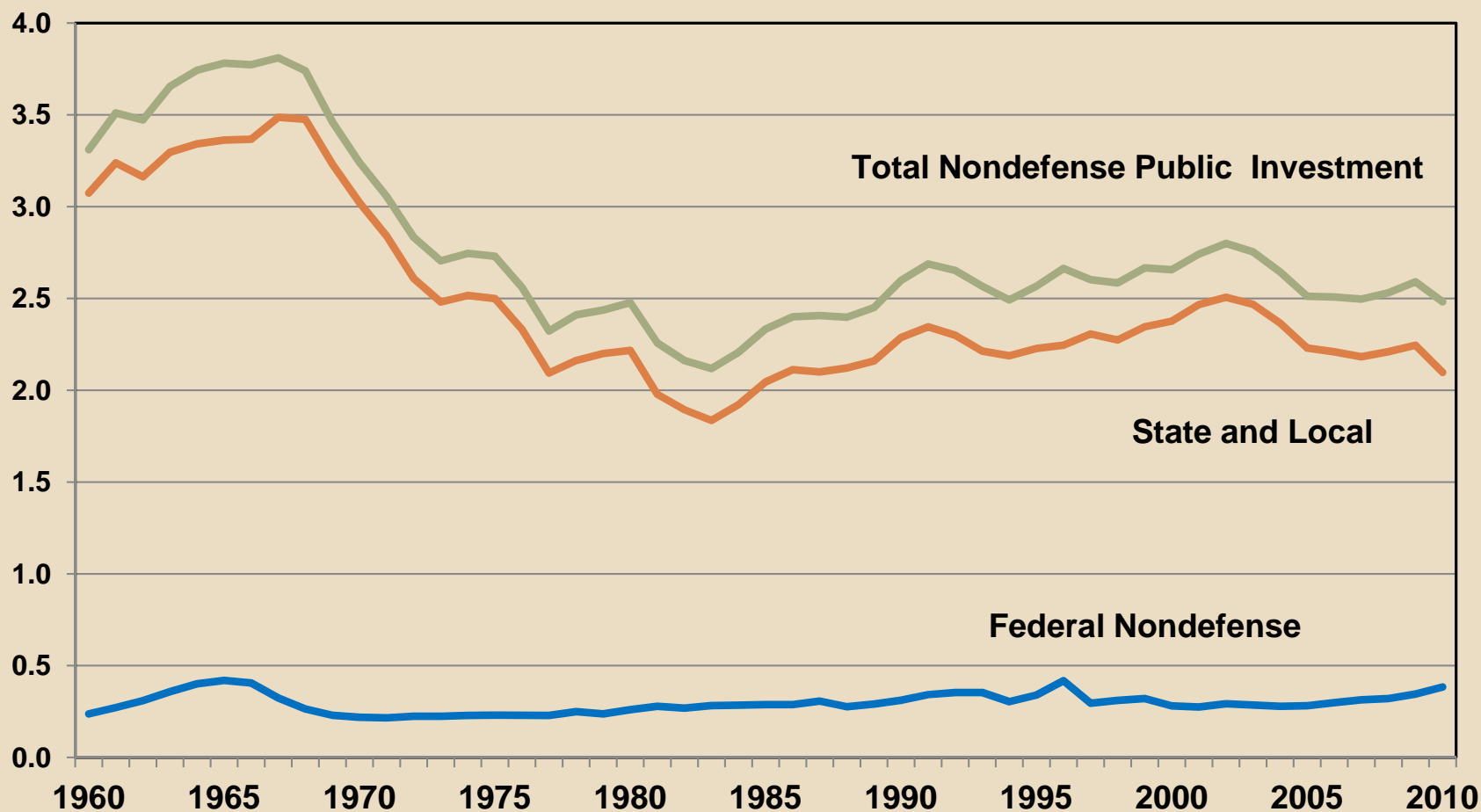
# Overview

- Discussion of the condition of US infrastructure
- Financial crisis has led to a new search for effective means of stimulus, especially public infrastructure
- Growing interest in “green growth” will lead to increased demand for new infrastructure investment
- We look at three new approaches to financing infrastructure projects: Build America Bonds, a national infrastructure bank, and public-private partnerships

# Trends in Infrastructure Spending

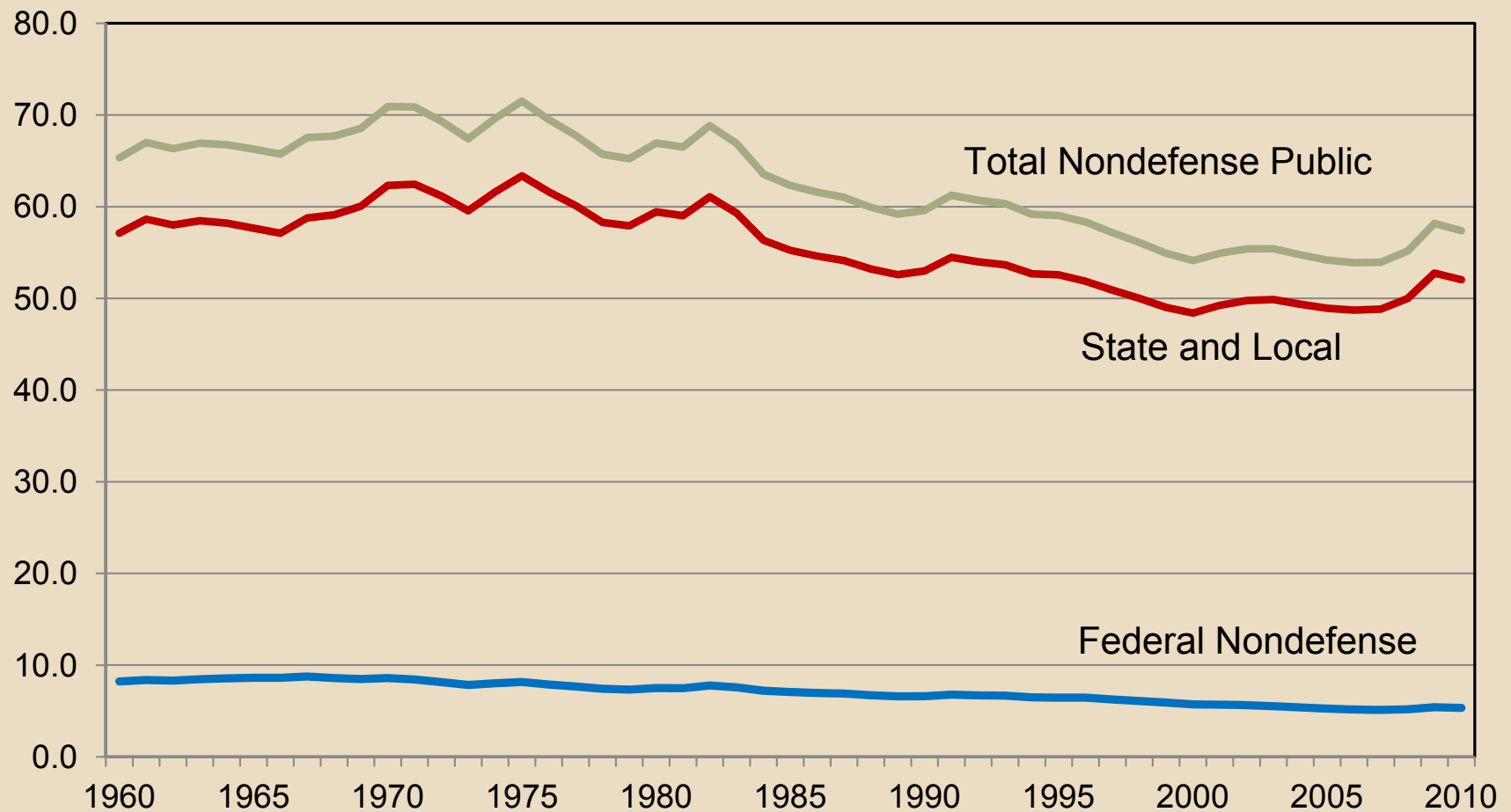
- Public sector investment peaked in 1960-70s under impetus of construction of interstate highway system.
  - ▣ Since 1980 public investment has been about 2.5% of GDP, compared to 3.5% in the 1960s
  - ▣ Stable share of GDP over past three decades
  - ▣ 80% of investment is by state & local governments
- Similar pattern for public capital stock.
- Infrastructure for communications and electrical utilities is in private sector.

# Public Investment as a Percent of GDP (2005 prices), 1960-2010



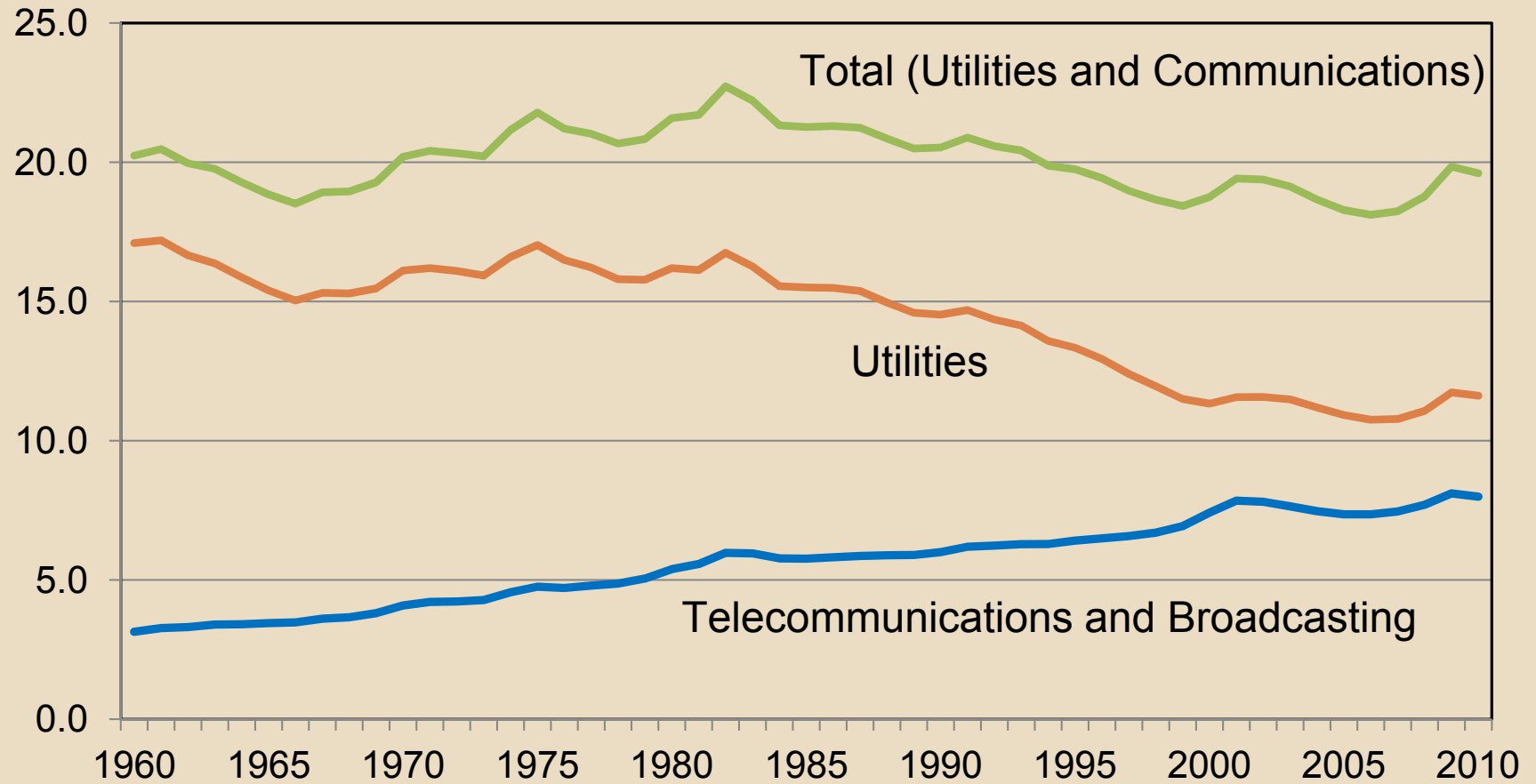
Source: Bureau of Economic Analysis, August 2011.

# Public Capital Stock as Percent of GDP (2005 prices), 1960-2010



Source: Bureau of Economic Analysis, August 2011, and authors' calculations.

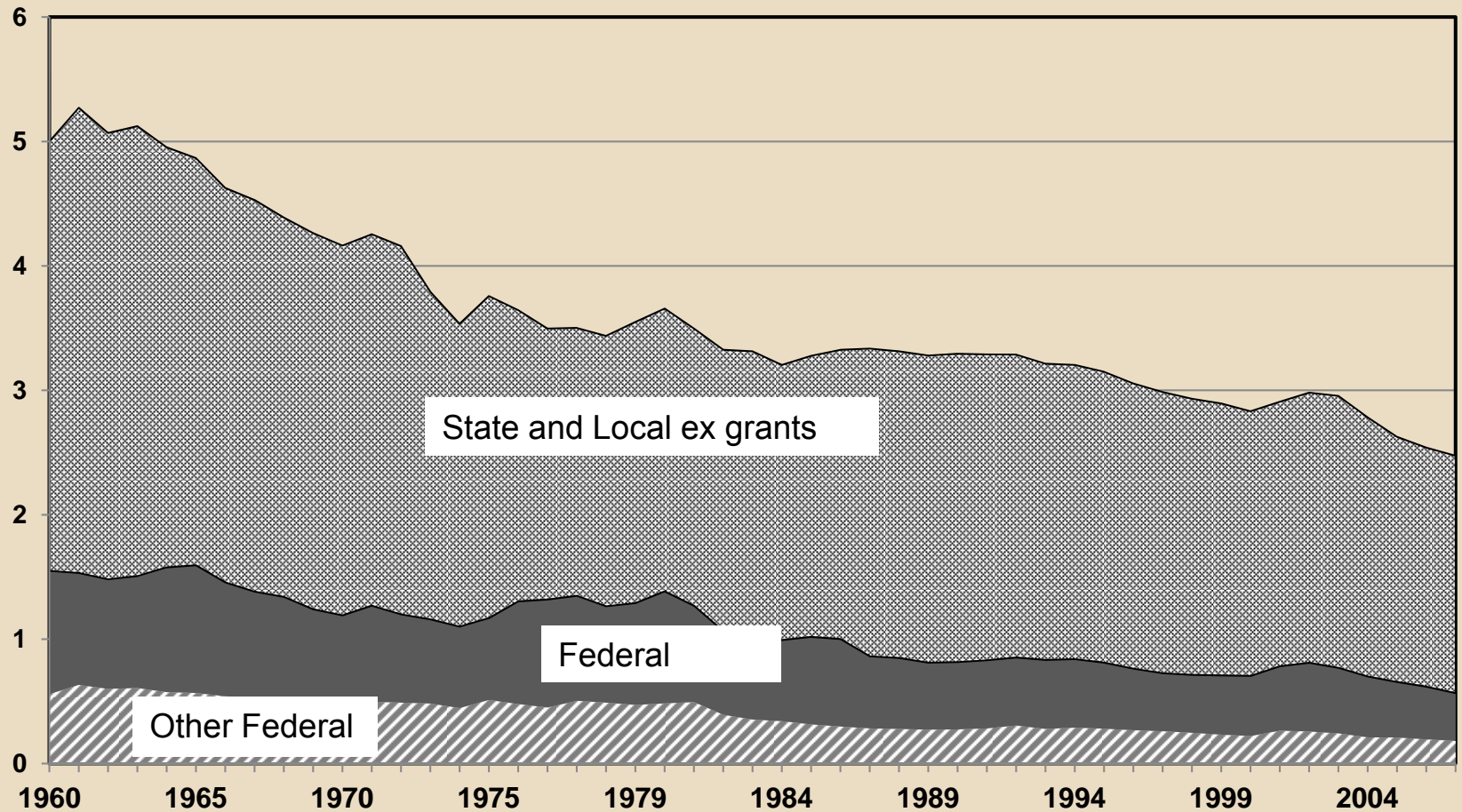
# Private Capital Stock as Percent of GDP (2005 prices), 1960-2010



# Trends in Infrastructure Spending

- CBO provides alternative perspective by including operating and maintenance (O&M) as well as capital outlays.
  - Limited to transportation and water
  - Excludes equipment and public buildings
  - 30-40% of public investment
  - O&M represents more than half of total spending.
  - Even more dominated by S&L governments
- Stronger evidence of a secular decline in infrastructure spending
  - Combination of reduced federal and less S&L funding.

# Federal and State and Local Spending on Infrastructure as a Percent of GDP (2009 prices), 1960-2007



Source: Congressional Budget Office, 2010.



# Trends in Infrastructure Spending

- Fundamentally, a problem of funding, not financing.
- Public wants more infrastructure, but unwilling to support tax or user fees to pay for it.
  - Just beginning to support congestion charges.
- Federal grants provide a large and distorting subsidy (70-80%) concentrated on new investments.
  - Allocated by political jurisdiction rather than need.
  - Existing system is poorly maintained.
- Lack of cost-benefit analysis

# Infrastructure for the Green Economy

- Green economy focuses on energy, but can include pollution abatement, recycling and transportation
- Opportunity to improve energy efficiency in buildings through infrastructure investment
- Increased interest in high-speed rail networks
- Green economy amplifies the pressure for added public outlays

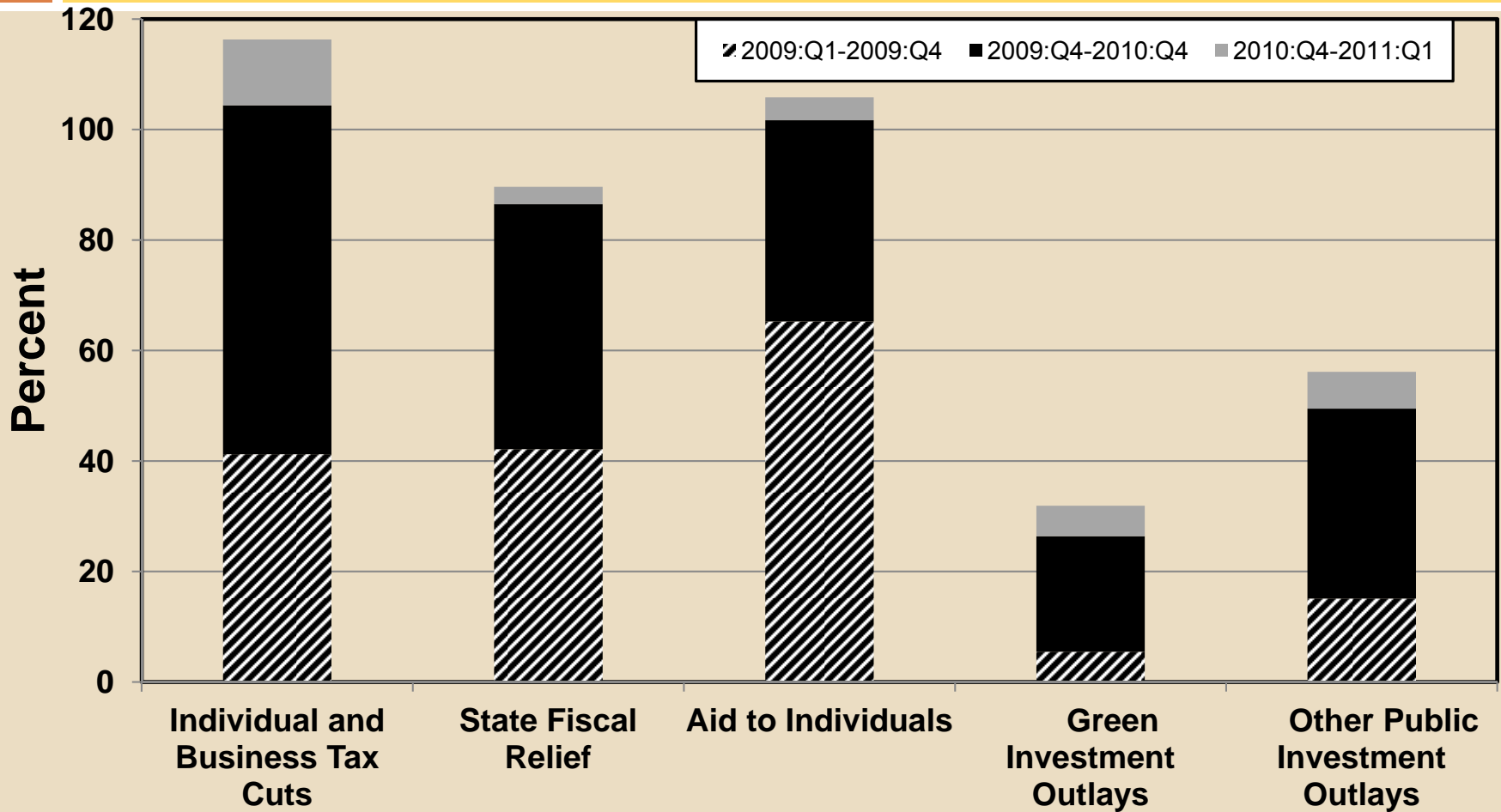
# Infrastructure and Fiscal Stimulus

- Fiscal stimulus measures need to be timely, targeted and temporary
  - Normally rules out infrastructure projects because of long lags, but
  - Duration of economic downturn makes infrastructure spending attractive.
- Multiplier for direct outlays is assumed to be about 1.5, and only 0.7 for taxes and transfers
- ARRA allocated 40% to tax cuts and transfers to individuals, 40% to public investment, and 20% to fiscal relief for states
  - \$90 billion allocated to green infrastructure

# Infrastructure and Fiscal Stimulus

- Tax and transfer and state programs distributed quickly
- Less than 50% of public investment and only 25% of green investment spent by end of 2010.
- Administration has proposed another round of fiscal stimulus with a larger infrastructure component, but
  - ▣ It is unlikely to be approved by the Congress.
  - ▣ Dominate political focus on fiscal consolidation.

# Outlays of ARRA as a Percent of Appropriations, 2009-2011



Source: Outlays come from the Council of Economic Advisors' Economic Impact of the ARRA Seventh Quarterly Report. Appropriations come from the breakdown of spending as listed in the New York Times based on estimates by House and Senate committees and the CBO. Green estimates come from the Economic Policy Institute's Rebuilding Green Report and Department of Energy and Department of Transportation Weekly Financial and Activity Reports.

# Financial Innovations

- Problem is not really financial in US context
  - Large bond market
  - S&L issues are exempt from federal tax,
- But popular topic of discussion:
  - Build America Bonds
  - National Infrastructure Bank
  - Public-Private Partnerships

# Build America Bonds (BABs)

- Current municipal bond exemption from income taxation has led to excess cost to the federal government
- Build America Bonds were taxable but the federal government provided direct subsidy payments to the bond issuer equal to 35% of the interest cost
- Appealed to a much broader investor market
- Proposal to extend BABs in future years with a smaller interest subsidy of 28%
- Bond program appears more efficient, but outcome of smaller direct payment is unknown.

# Average Yields on AAA Bonds of 10-Year Maturity, 1991-2010

	Yield			Implicit tax rate	
	Municipal	Treasury	Corporate	Treasury	Corporate
<b>1991-1995</b>	5.33	6.88	7.38	0.22	0.28
<b>1996-2000</b>	4.71	5.95	6.67	0.21	0.29
<b>2001-2005</b>	3.88	4.44	5.35	0.12	0.27
<b>2006-2010</b>	3.58	3.91	4.93	0.07	0.27

Source: Corporate rate from S&P's Global Fixed Income Research/Haver Analytics, Municipal rate from Wall Street Journal/Haver Analytics, and Treasury rate from the Economic Report of the President. The implicit tax rate  $\theta$  is the value that satisfies  $(1-\theta)RT = RM$ , where  $RT$  denotes a taxable interest rate and  $RM$  denotes the interest rate on a tax-exempt bond.



# National Infrastructure Bank

- Size and liquidity of the municipal bond market causes an infrastructure bank to be less attractive financial option in the US.
- Can be an alternative mechanism for managing the federal government's infrastructure investments
- Allocate funds on merit and help shift more funds towards O&M
- Most of these management reforms could be introduced independently of the bank

# Public-Private Partnerships

- Can relieve financial pressures on state and local governments, improve management, and help separate politics from operations.
- Design, build and operate can lead to design efficiencies.
- Financing costs higher than for tax-exempt S&L governments.
- Often seen as political attempt to mortgage future or sell assets for current cash
- Difficult contracting process.

# Conclusion

- Deterioration of public infrastructure and its potential to act as fiscal stimulus has led to discussion of new financial innovations
- Yet, provision of infrastructure is a problem of inadequate funding, not a shortage of financing
- Problems arise from failure to provide sustained funding source, and distortions in S&L government decisions due to subsidy effect of federal grants
- Currently only limited use of cost-benefit analysis.
- Important to focus funds on the repair and upgrading of the current system