The Fiscal Sustainability of State and Local Governments

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Motivation

- State and local governments face long-term fiscal challenges:
  - Disproportionate growth in health care costs
  - Large unfunded pension and OPEB liabilities
  - Impending substantial cuts in federal aid
- Failure to achieve fiscal sustainability could cause:
  - Intergenerational inequality
  - Disruption of future public services
  - Lower credit ratings and higher borrowing costs
  - Instability of the broad financial system

Research Goals

- Clarify and interpret fiscal sustainability of state and local governments
- Use new data and methodology to estimate "trend gaps" in the recent decade
- Forecast trend gaps for future years

Defining State & Local Fiscal Sustainability

- Chapman (2008): long-run capability to ensure the continued provision of service and capital levels that the public demand
- GASB (2011): a government's ability and willingness to generate revenues needed to meet both current service commitments and financial obligations when they come due
- Ward and Dadayan (2009): a government's ability to balance revenues and expenditures in the long term

Interpreting Fiscal Sustainability

- Summary: long-term ability of state and local governments to
  - Provide public services the public demand and are willing to pay for
  - Balance revenues and expenditures
- Our interpretation:
  - Such ability should be determined by underlying economic, social, and demographic characteristics.
  - Because it is a long-term concept, it should focus on the trend revenue and expenditure, not influenced by cyclical movements or other short-term factors.

Existing Empirical Studies

- GAO (2008, 2011, 2012) studies the whole state & local government sector, using aggregate data
- Ulbrich (1997) studies South Carolina's state general funds
- Dye and Hudspeth (2010) study Illinois' state "consolidated funds"

Common Measurement Problems

- Directly use actual revenues and expenditures to measure fiscal balances/gaps for the past years
  - Do not separate the trend from cyclical movements
  - Their balance/gap measures indeed fluctuate with business cycles

- Apply long-term growth rates to actual revenues and expenditures of a base year to make projections
  - Implicitly assume the cyclical and other short-term influences in the base year are permanent
  - Could overestimate future gaps if the base year is in recession

Data

- Use state and local level data from the 1990—2009 Annual Survey of State and Local Government Finance
- Combine state and local finances
- Examine all revenue and expenditure categories

Pension and OPEB Data

- Data source: Pew Center on the States
- Use Actuarially Required Contributions (ARCs) to measure long-term retirement costs
  - Include payments for amortizing unfunded liability
  - More comprehensive than actual government contributions
- ARCs underrepresent true retirement costs
  - Governments tend to choose high discount rates to artificially lower ARCs
  - The Pew Center's data underreport at local level

Example of Revenue Regressions

	log(tax revenue)
log(personal income)	1.063***
Log(personal income)*(multiple state income tax rate brackets)	0.004***
State unemployment rate	-0.007*
Percent of population with less than a high school degree	-0.003
Percent of population with at least a college degree	-0.003
State Fixed Effects	Yes
Year Fixed Effects	Yes
Number of observations	918
R-Squared	0.947

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors are clustered by state.

Example of Expenditure Regressions

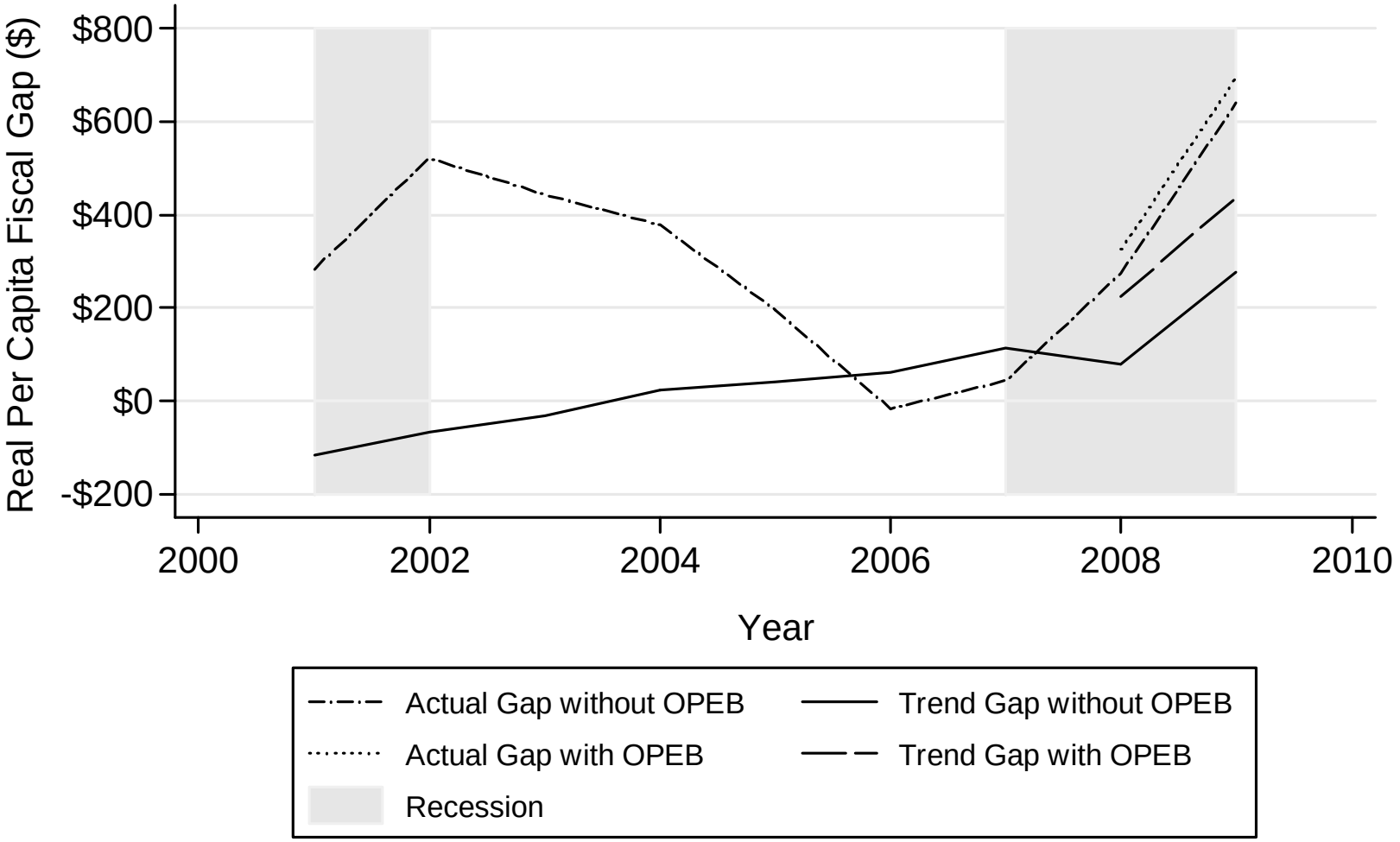
	log(education spending)	log(social services and income maintenance spending)
Log(personal income)	0.556***	0.408
Percent of population with less than a high school degree	-0.003	-0.002
Percent of population with at least a college degree	0.002	-0.003
State unemployment rate	-0.006	0.014**
Percent of population aged 65 and older	0.004	0.027
Percent of population aged less than 18	0.033***	-0.002*
log(population density)	-0.208**	
Education CPI	0.006***	
Medical care CPI		0.018***
State Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Number of observations	765	918
R-Squared	0.943	0.935

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors are clustered by state.

Estimating Trend Gap

- Use regression coefficients and actual values of explanatory variables to estimate trend revenue and expenditure
- Remove the effect of business cycles and other short-term influences:
  - Replace actual unemployment rate with the average unemployment rate for each state across 1990-2009
  - Replace actual personal income with estimated income under the long-run state average unemployment rate and potential GDP
  - Exclude year fixed effects in estimating trends
- Trend gap = trend expenditure – trend revenue

Figure 1. The Combined State and Local Fiscal Gap: Actual vs. Trend



Note : Weighted by population. All gap measures include pension.

Future Work

- Identify and quantify driving forces for the increasing trend gaps
  - Preliminary investigation shows rapid growth of SSIM (mostly Medicaid), pension, and OPEB costs.
- Forecast future trend gaps

Conclusion

- State and local trend gaps have been steadily increasing in the recent decade.
- This increasing pattern is unlikely to change substantially in a short time period.
- GASB (2011) recommends conducting long-term financial planning to improve fiscal sustainability.
- Our analysis suggests that it is important to separate trends from cyclical, short-term responses in long-term planning.

Additional Materials

Revenue Regressions

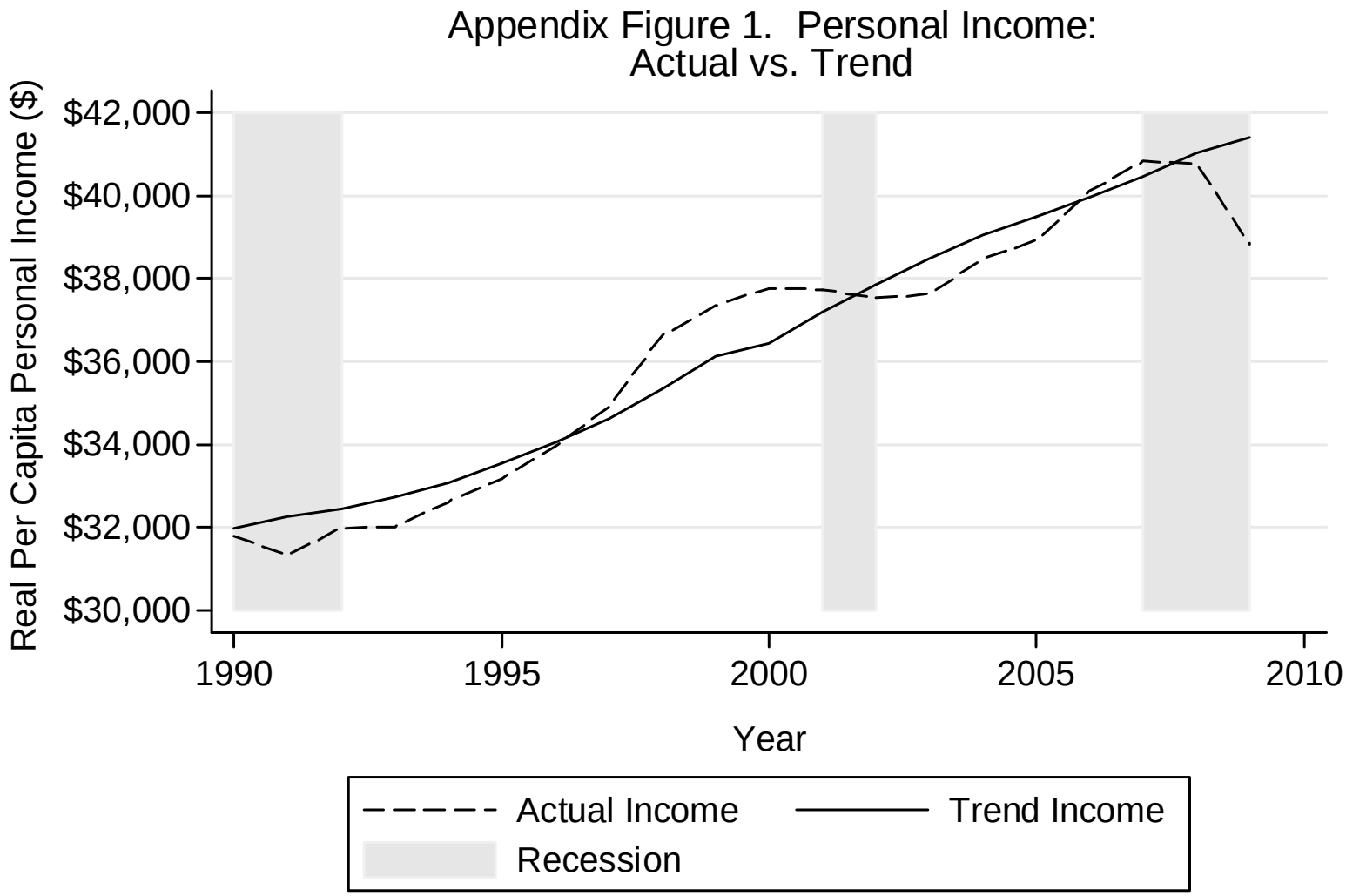
	log(tax revenue)	log(other own revenue)	log(federal transfers)
log(personal income)	1.063***	0.601**	
Log(personal income)*(multiple state income tax rate brackets)	0.004***		
State unemployment rate	-0.007*		
1 year lag on state unemployment rate		0.018***	0.036***
Percent of population with less than a high school degree	-0.003	-0.009***	
Percent of population with at least a college degree	-0.003	0.002	
log(real GDP)			1.789***
State Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	No
Number of observations	918	918	918
R-Squared	0.947	0.959	0.923

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors are clustered by state.

Other Expenditure Regressions

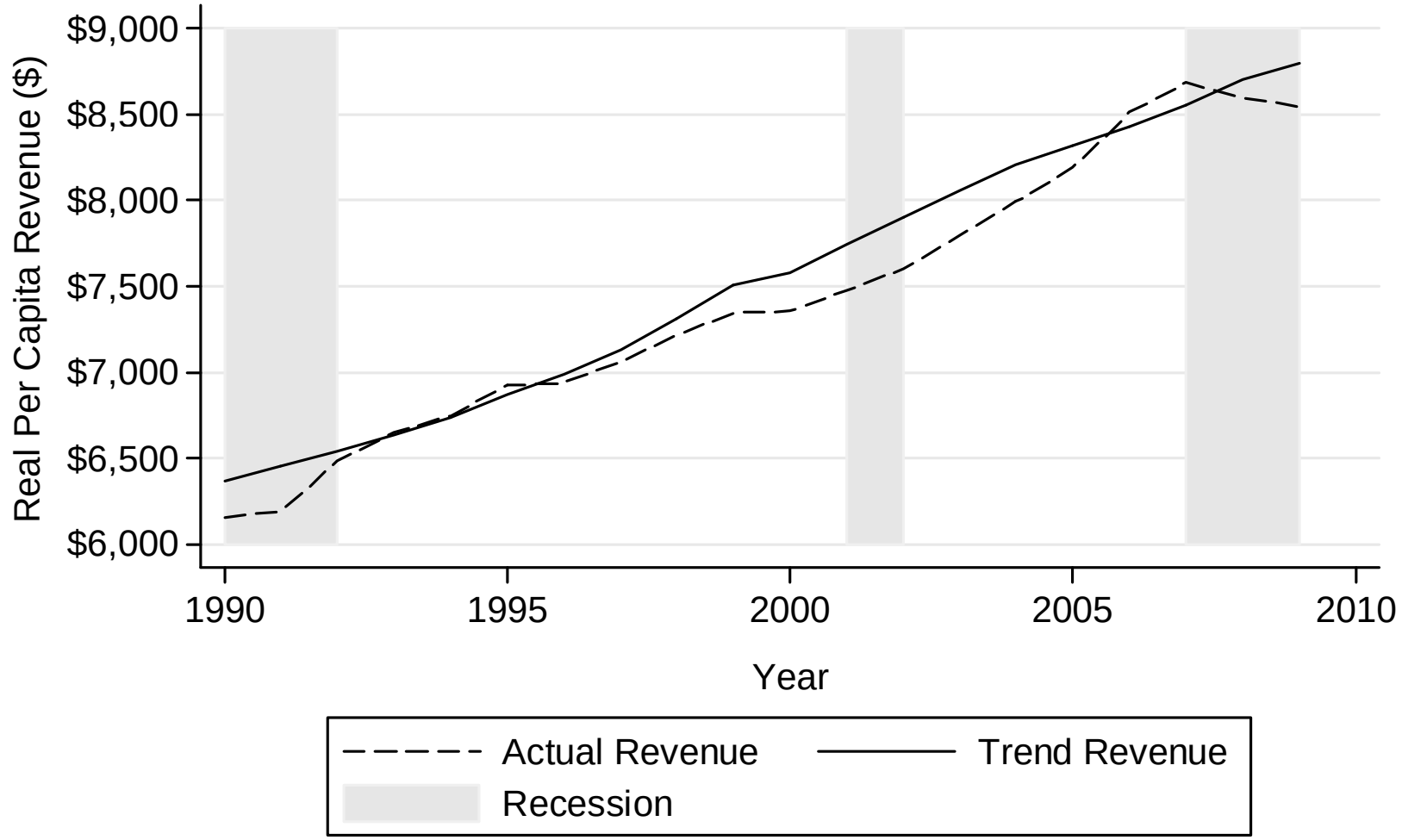
	log(transportation)	log(public safety)	log(environment and housing)	log (government administration)	log(other expenditures)
log(personal income)	0.854***	0.442	1.061***	0.678***	0.844***
Percent of population with less than a high school degree	-0.009*	-0.008*	-0.008*	-0.013***	0.002
Percent of population with at least a college degree	-0.006	-0.009**	-0.000	-0.007**	-0.003
State Unemployment rate	0.000	-0.002	0.004	-0.003	0.022**
Percent of population aged 65 +		-0.016			
Percent of population aged less than 18		-0.045***			
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Number of observations	918	918	918	918	918
R-squared	0.855	0.961	0.912	0.938	0.949

Note: *** p<0.01, ** p<0.05, * p<0.1; Standard errors are clustered by state.



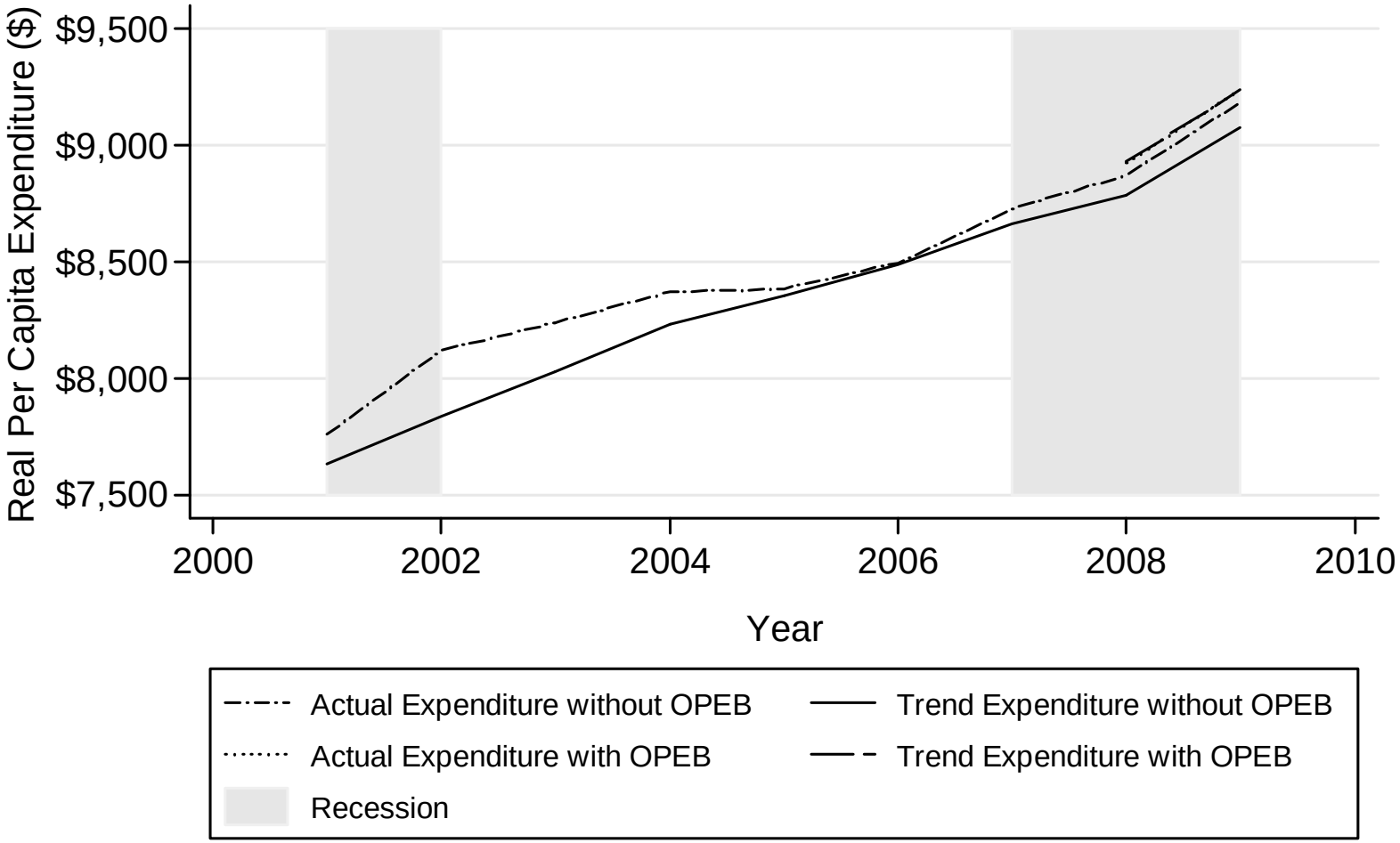
$$\log(PI) = -0.007(U) + 0.606\log(GDP) - 0.001(LTHS) + 0.003(COLLEGE)$$
$$- 0.013(AGE65) - 0.021(AGE18) + S$$

Appendix Figure 2. The Combined State and Local Revenue: Actual vs. Trend

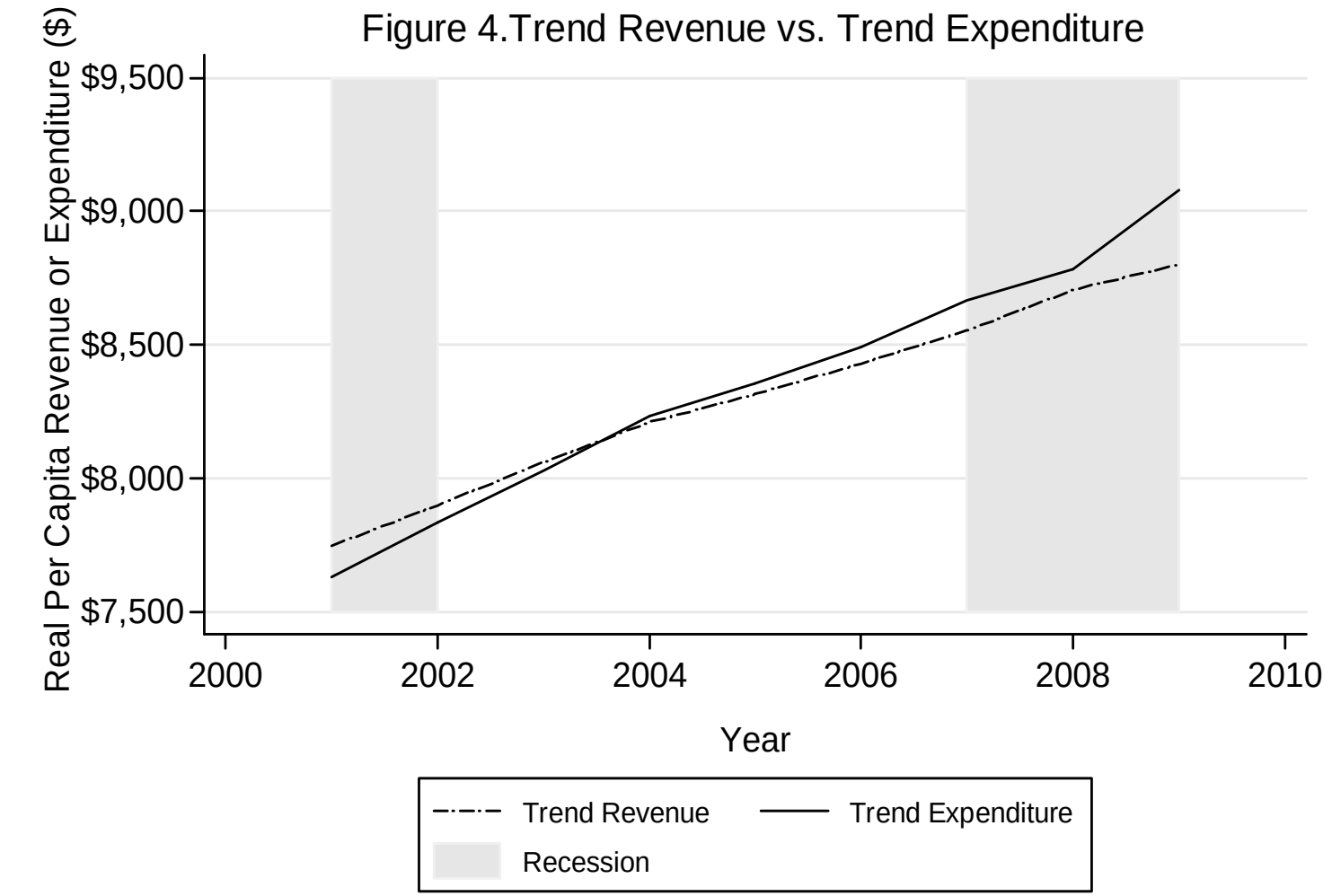


Note : Weighted by population

Appendix Figure 3. The Combined State and Local Expenditures: Actual vs. Trend



Note : Weighted by population. All expenditure measures include pension.



Note : Weighted by population. The trend expenditure measure includes pension but not OPEB.