

Earmarking and the Business Cycle: The Case of Higher Education Spending

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Motivation

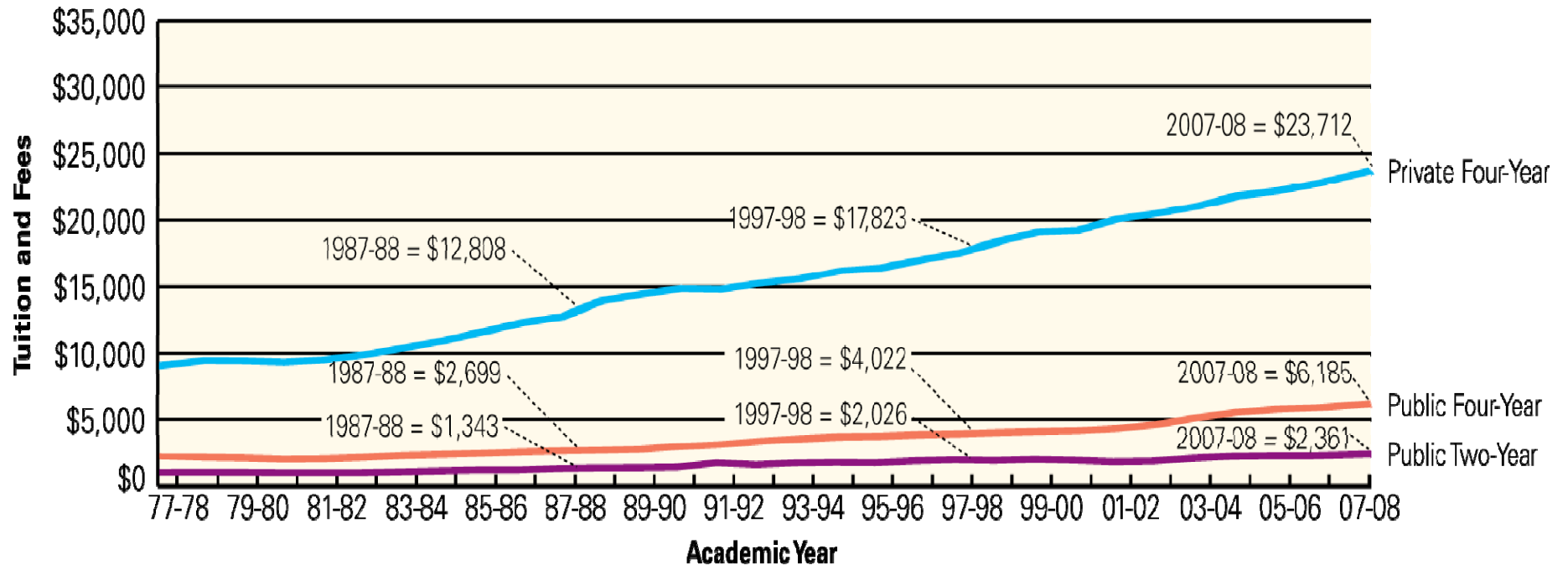
- This year in Georgia, the state legislature suggested a \$300 million cut to the Board of Regents on top of an already announced \$180 million cut.
- Combined, these cuts represented 48% of GA's revenue shortfall; but the university system only represents 12% of the state budget.
- We hear similar stories in numerous states (NC, VA, IN, MA).

Motivation

Why higher education?

- Colleges and universities have the ability to offset state funding shortfalls with tuition and fee increases.
- Other expenditure categories like Medicaid, K-12 education, and corrections do not have external revenue sources. (American Association of State Colleges & Universities, 2008)

Average Tuition & Fees (Enrollment-Weighted) 2007 Dollars

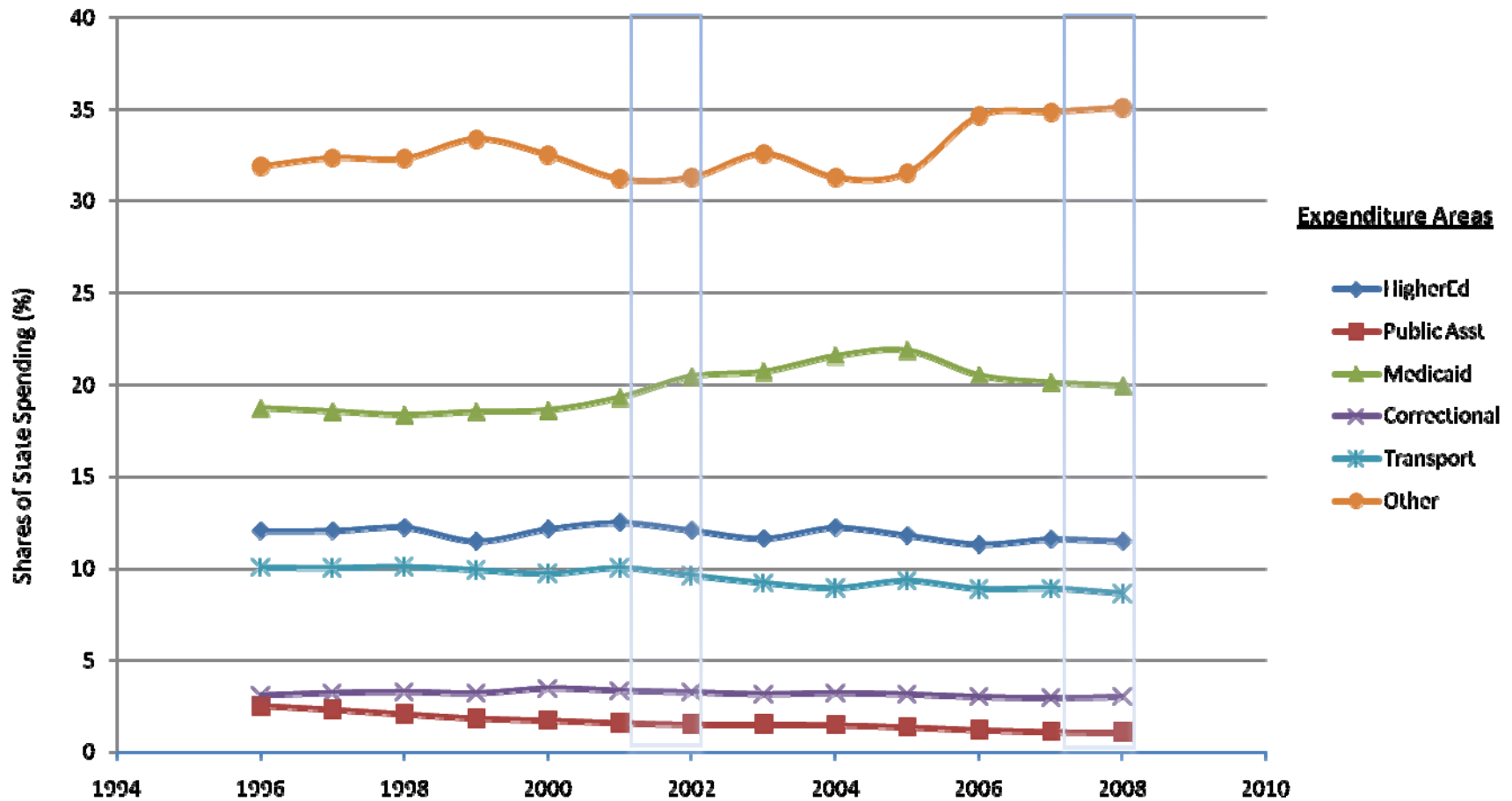


Source: The College Board, Trends in Higher Education Series 2007

Motivation

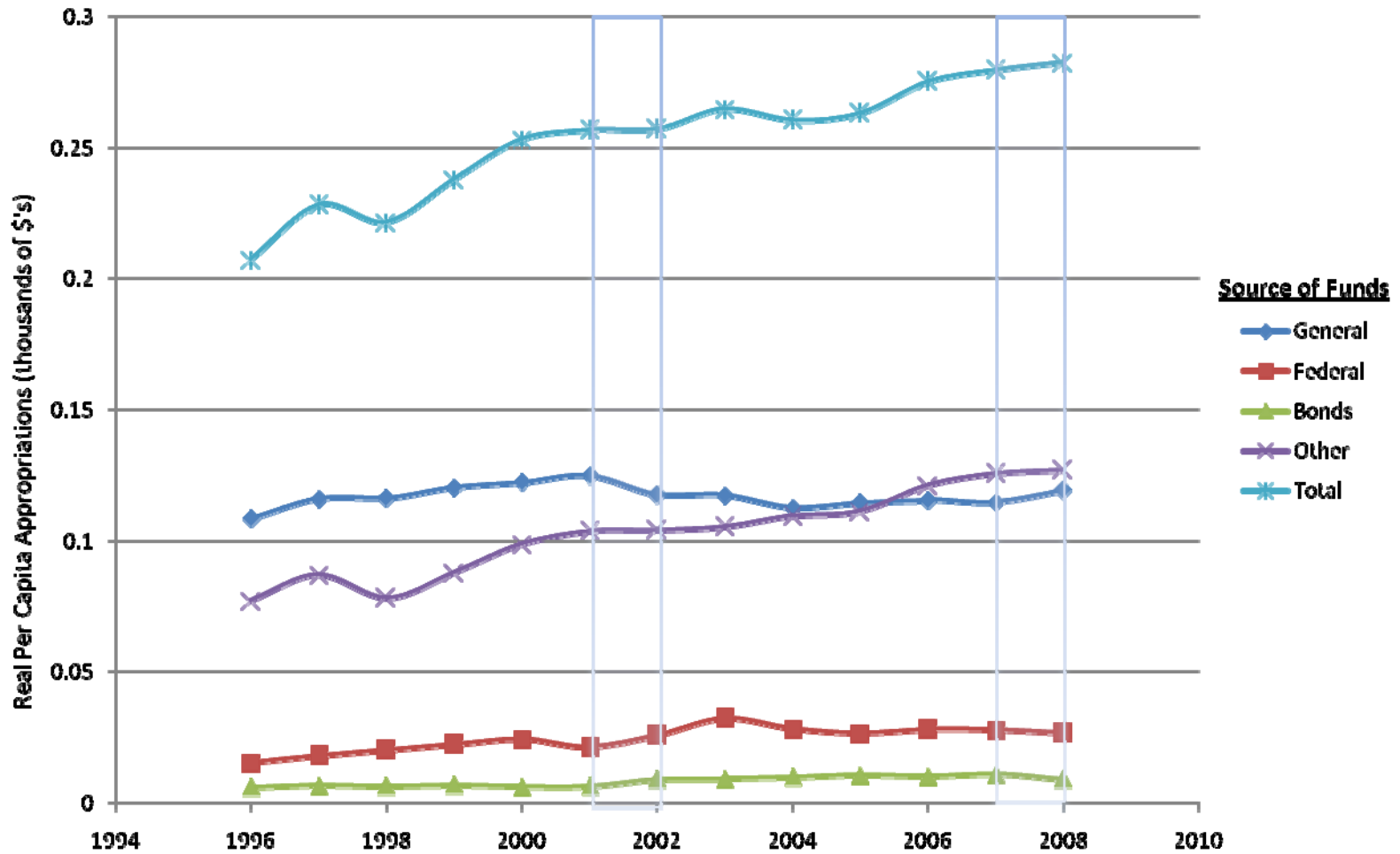
- Does higher education appropriation get disproportionately hit in recessions vs. expansions?
 - i. Relative to other expenditure categories
 - ii. State sources of higher education spending
 - General: Revenue received from broad-based state taxes.
 - Federal: Funds received directly from government
 - Bonds: Revenue from sale of bonds, generally for capital projects
 - Other: Revenue from sources that are restricted by law for a particular function or activity. (NASBO, 2009)

Shares of State Spending (%)



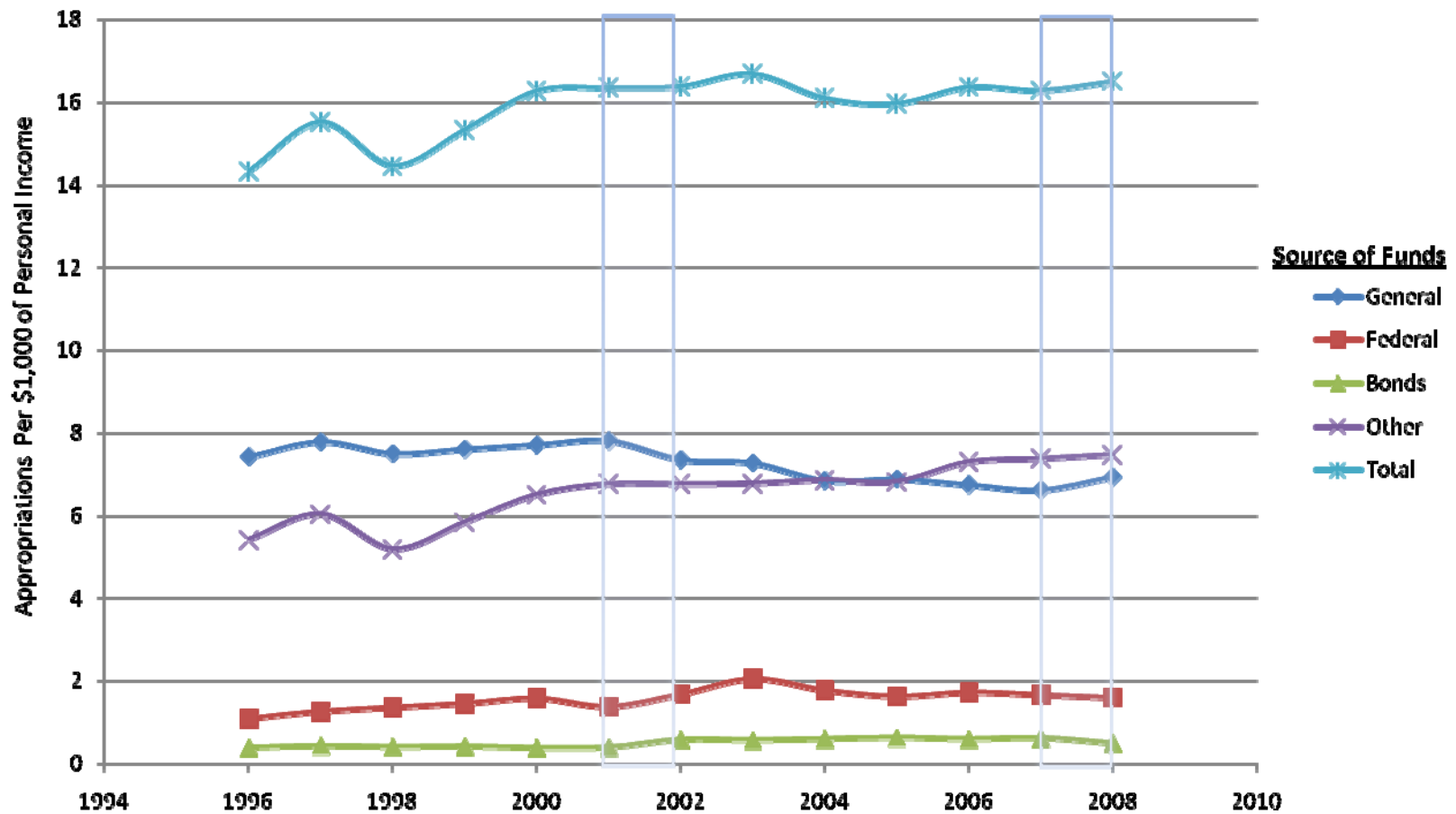
Source: Author's Calculations using data from National Association of State Budget Officers, State Expenditure Reports 1996-2009

Appropriations for Higher Education Per Capita (thousands of \$'s) , by Source 2004 Dollars



Source: Author's Calculations using data from National Association of State Budget Officers, State Expenditure Reports 1996-2009

Appropriations for Higher Education Per \$1,000 of Personal Income, by Source 2004 Dollars



Source: Author's Calculations using data from National Association of State Budget Officers, State Expenditure Reports 1996-2009

“Other” Funds

- More common name: Earmarks
 - Represents large portion of state’s funding: 25.7 % of total state expenditure in 2008 was derived from this funding source. (NASBO, 2009)
- Examples of Earmarks
 - Gas tax (highways), tobacco /alcohol (health/welfare)
 - Insurance tax (state pension), public utilities (education, local gov’t)
 - Severance tax (education, conservation), Lotteries (education, pension), Income tax “check-off boxes”
- Education Earmarks (SHEEO)
 - Lotteries, state-funded endowments, severance tax/fees (land grant universities), local appropriations

Why Earmark?

- Advocates
 - i. Greater Efficiency: By linking the tax to the benefit , we in essence, create a user charge.
 - ii. Transparency: Makes higher taxes easier to accept if you see where they go.
 - iii. Politics: Makes for a credible commitment device.
 - iv. Stability: Dedicated funding provides reliable funding stream, regardless of economic conditions. (AASCU, 2008)
- Critics
 - i. Inflexibility: Reduces ability of state legislature to adapt to public needs. (AASCU, 2008)
 - ii. Efficiency: From theoretical perspective, earmarking can be viewed as unnecessary constraint during budget decision making process. (Dye & McGuire, 1992)

Fungibility

- *How fungible is earmarked revenue and general revenue in the context of higher education spending?*
 - Do states cut general contributions when earmarked revenues increase? Magnitude?
- *Are there differential effects in recessions versus expansions?*
 - When recessions hit, all revenue sources get hurt. We'd expect larger cuts from the general fund as a result.
 - Consider multiple state-specific recession measures
 - Decline in tax revenue growth, total revenue growth

Previous Work

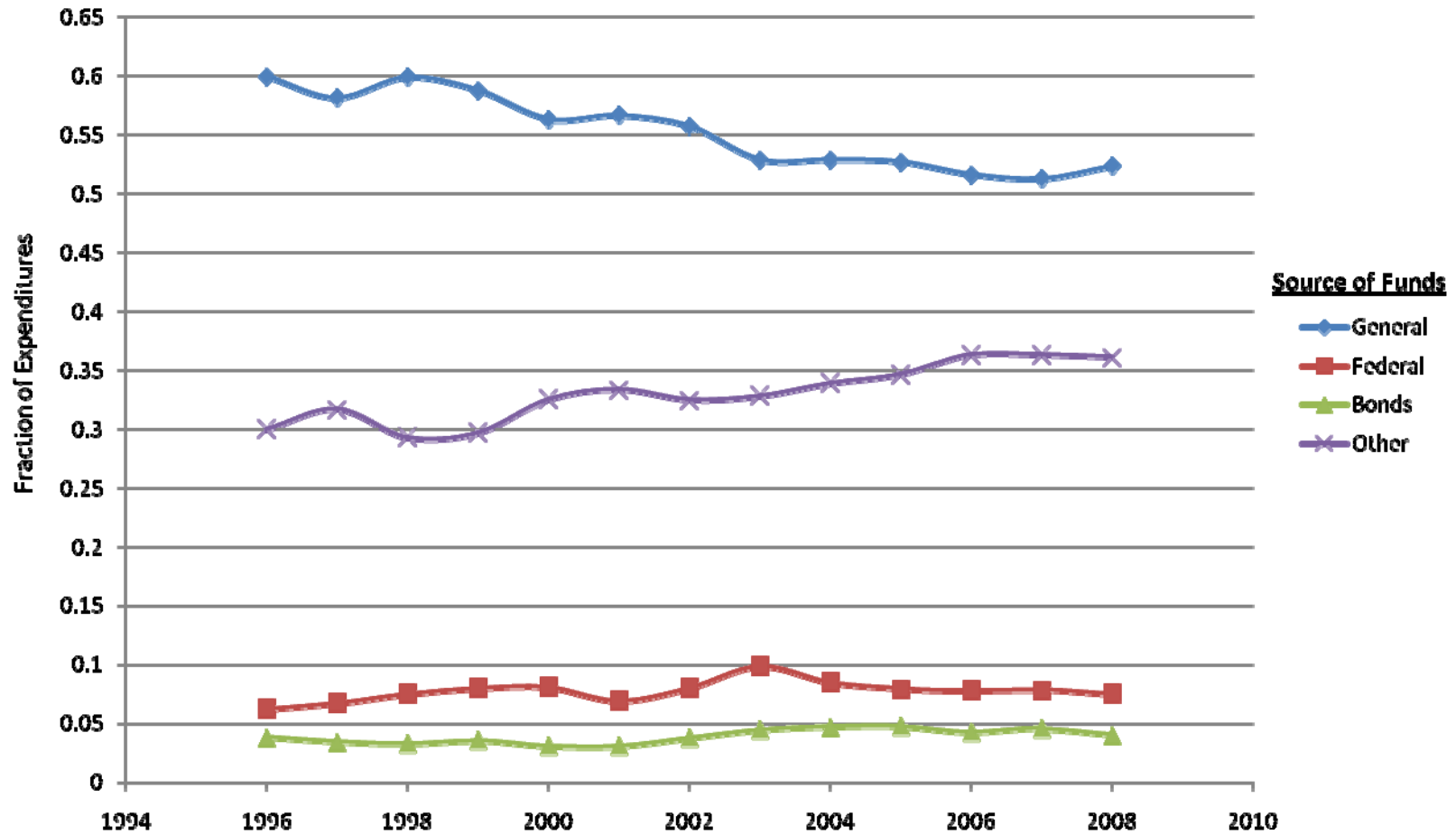
- Dye & McGuire (1992): \$1 increase in earmarked revenue for education (K-12), highways, and aid leads to less than a dollar increase on expenditure in these categories.
- Evans & Zhang (2002): \$1 increase in earmarked lottery profits leads to \$0.50-0.70 increase in state per pupil revenues.
- Novarro (2002): \$1 increase in earmarked lottery profits for education leads to increased educational spending by \$0.36 more than \$1 increase in non-earmarked increase in lottery profits.
- Humphreys (2000): 1% change in real per capita income (measure of the business cycle) associated with 1.39% change in real state appropriation to higher education per capita.

Data

- Higher education expenditure by funding source from NASBO (1996-2008).
- Demographic and socio-economic characteristics from Census.
- 48 mainland states
- Approximately 420 state observations in expansion, 200 in a recession.

Preliminary Results:

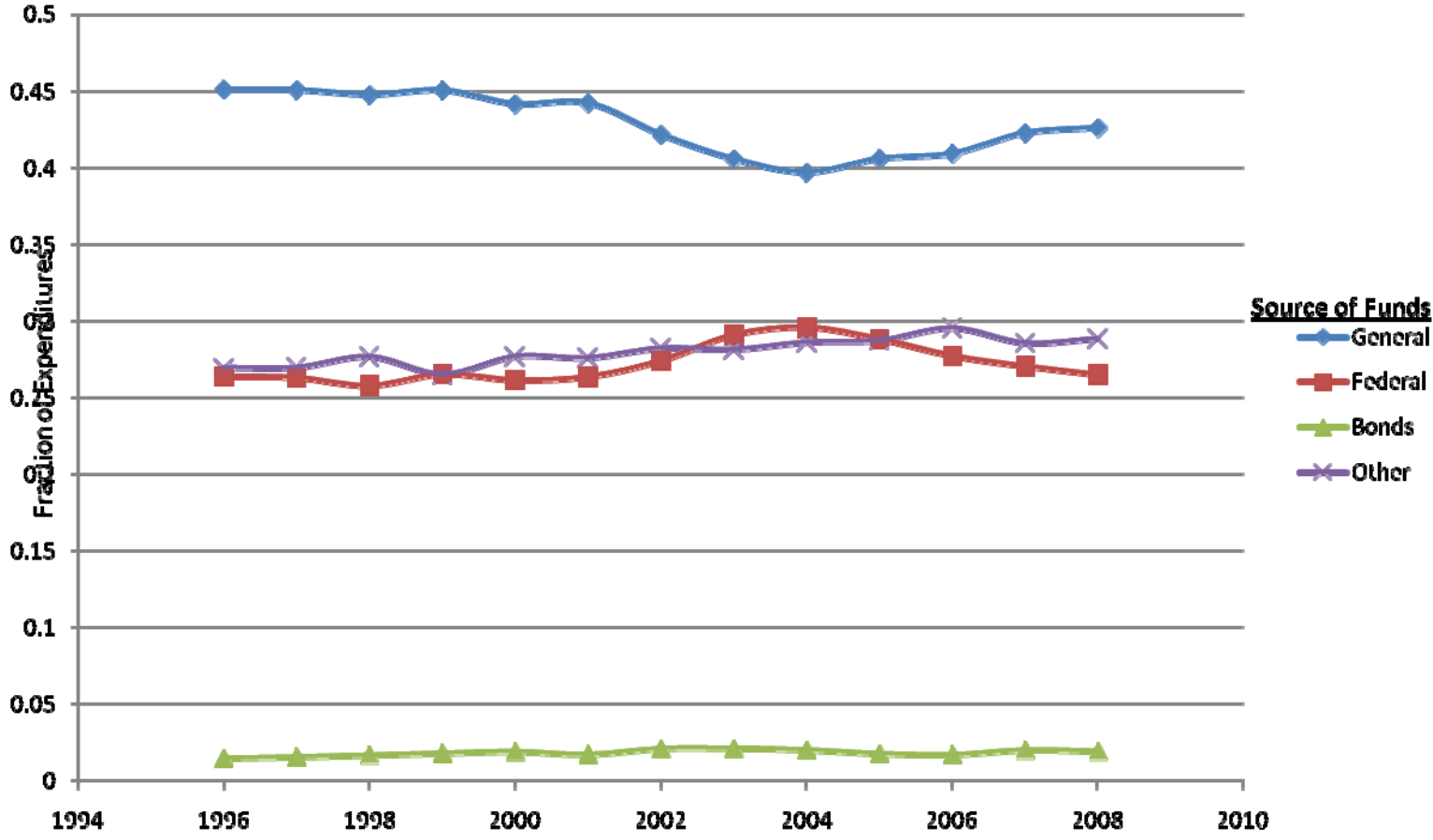
Shares of Higher Education Spending, by Source



Source: Author's Calculations using data from National Association of State Budget Officers, State Expenditure Reports 1996-2009

Preliminary Results:

Shares of State Spending, by Source



Source: Author's Calculations using data from National Association of State Budget Officers, State Expenditure Reports 1996-2009

Preliminary Regression Results

Table 1: Impact of Earmarked Revenue on State General Fund Contribution to Higher Education Expenditure

Dependent Variable: Fraction of Higher Education Expenditure from State General Fund

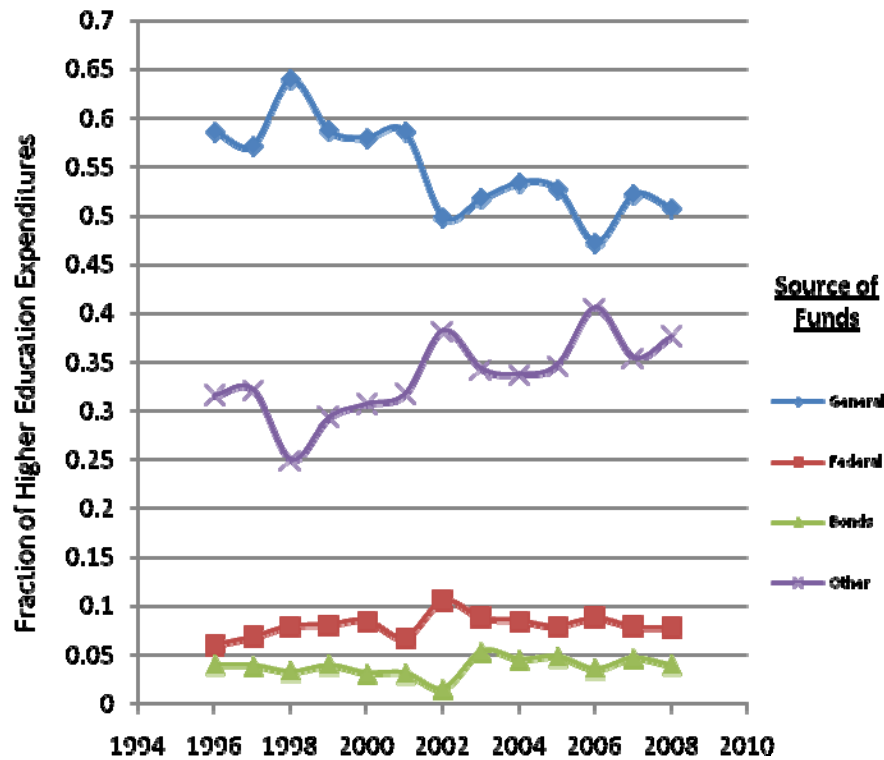
	(1)	(2)	(3)	(4)	(5)
Real Earmarked Revenue Per Capita (thousands of \$'s) (s.e.)	-0.09 (0.021)***	-0.029 (0.014)**	-0.032 (0.015)**	-0.041 (0.015)***	-0.026 (0.019)
All Democrat (s.e.)			-0.041 (0.011)***	-0.042 (0.011)***	-0.029 (0.012)**
All Republican (s.e.)			-0.016 (0.013)	-0.006 (0.013)	-0.003 (0.016)
Election Year (s.e.)			0.004 (0.01)	0.002 (0.009)	0.002 (0.008)
Percent of Population > 65 years old (s.e.)			-0.052 (0.878)	-0.266 (0.868)	-0.284 (0.906)
Percent of Population Kid (s.e.)			-1.024 (0.767)	-1.347 (0.777)*	-1.914 (0.857)**
Unemployment Rate (t-1) (s.e.)				-0.019 (0.006)***	-0.017 (0.007)**
Real State Tax Revenue Per Capita (thousands of \$) (t-1) (s.e.)				0.054 (0.044)	0.035 (0.062)
Real State Non Tax Revenue Per Capita (thousands of \$) (t-1) (s.e.)				-0.058 (0.017)***	-0.038 (0.015)**
State Controls	No	Yes	Yes	Yes	Yes
Year Controls	No	Yes	Yes	Yes	Yes
State Specific Linear Time Trends	No	No	No	No	Yes
N	620	620	620	620	620
Adjusted R squared	0.0261	0.8527	0.8555	0.8607	0.9003

Preliminary Results:

Fungibility during the Business Cycle (Total Revenue Growth)

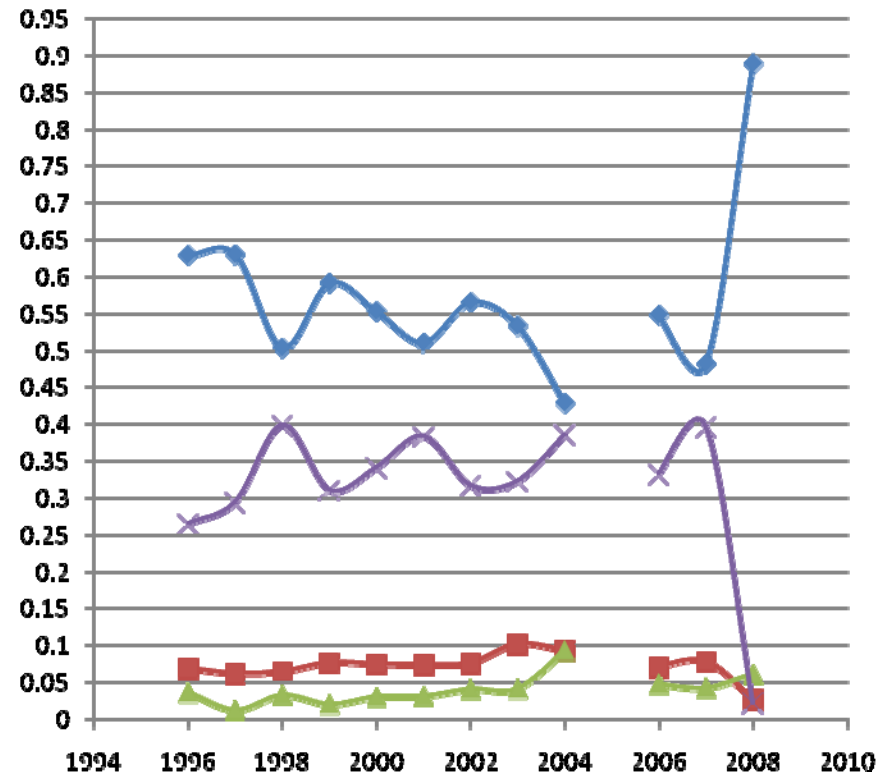
Shares of Higher Education Spending by Source

Expansion



Shares of Higher Education Spending by Source

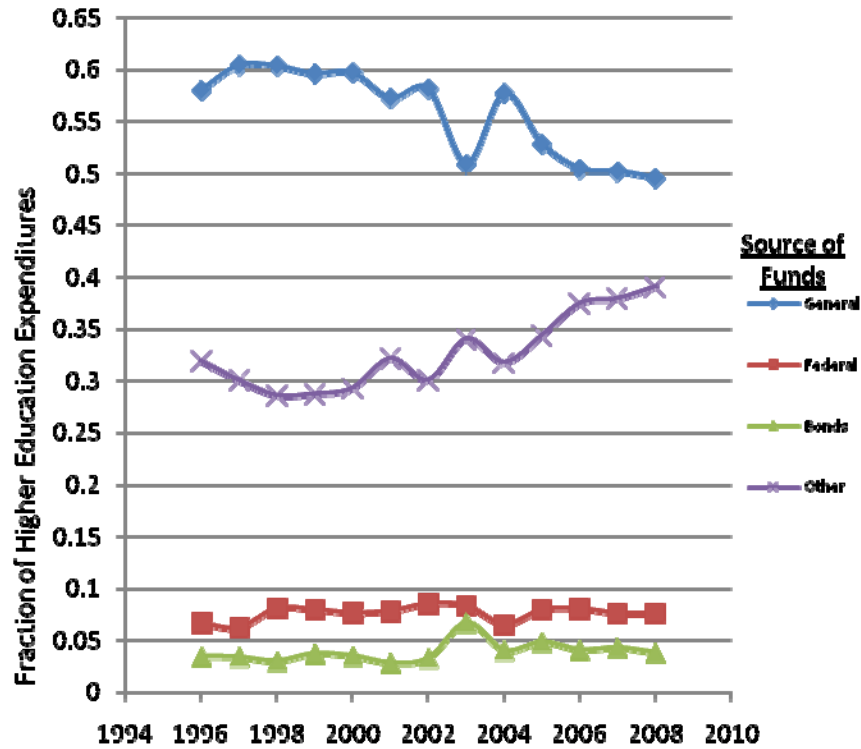
Recession



Preliminary Results: Fungibility during the Business Cycle (Tax Revenue Growth)

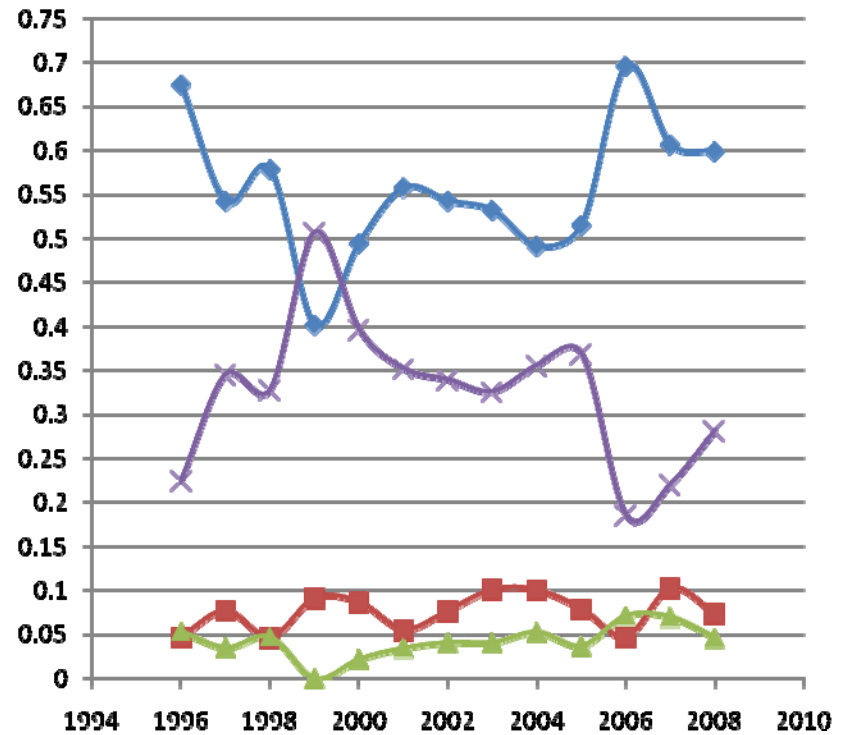
Shares of Higher Education Spending by Source

Expansion



Shares of Higher Education Spending by Source

Recession



Preliminary Regression Results

Table 2: Impact of Earmarked Revenue Across Business Cycle on State General Fund Contribution to Higher Education Expenditure

	Definition 1 (Total Revenue)		Definition 2 (Tax Revenue)	
	(1)	(2)	(3)	(4)
Real Earmarked Revenue Per Capita (thousands of \$'s) (s.e.)	-0.038 (0.015)***	-0.043 (0.016)***	-0.038 (0.015)***	-0.038 (0.016)***
All Democrat (s.e.)	-0.044 (0.011)***	-0.044 (0.011)***	-0.045 (0.011)***	-0.045 (0.011)***
All Republican (s.e.)	-0.01 (0.013)	-0.01 (0.013)	-0.01 (0.013)	-0.01 (0.013)
Election Year (s.e.)	0.003 (0.01)	0.003 (0.01)	0.002 (0.01)	0.002 (0.01)
Percent of Population > 65 years old (s.e.)	-0.389 (0.876)	-0.377 (0.877)	-0.416 (0.875)	-0.415 (0.876)
Percent of Population Kid (s.e.)	-1.188 (0.762)	-1.207 (0.763)	-1.191 (0.761)	-1.19 (0.761)
Unemployment Rate (t-1) (s.e.)	-0.02 (0.006)***	-0.02 (0.006)***	-0.02 (0.006)***	-0.02 (0.006)***
Recession (t-1) (s.e.)	0 (0.009)	-0.007 (0.014)	-0.012 (0.009)	-0.012 (0.015)
Recess * Real Earmarked Revenue Per Capita		0.012 (0.018)		0 (0.018)
State Controls	Yes	Yes	Yes	Yes
Year Controls	Yes	Yes	Yes	Yes
N	620	620	620	620
Adjusted R squared	0.858	0.8578	0.8585	0.8582

Conclusion

- Measured extent of fungibility between revenue sources for higher education spending.
- No evidence that fungibility varies across the business cycle.