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# The Long-Term Decline in Kentucky's General Fund Buoyancy

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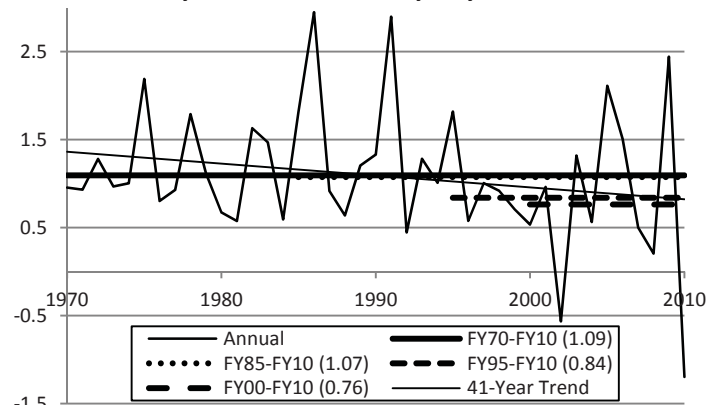
**The Long-Term Decline in Kentucky's General Fund Buoyancy**

By Michael Childress (michael.childress@uky.edu) & William Hoyt (whoht@uky.edu)

*The decline in general fund buoyancy is one reason for Kentucky's budget problems.*

Kentucky's recurring budgetary problems are due, in part, to the long-term decline in general fund revenue buoyancy—a measure of whether revenue is keeping pace with the economy.<sup>1</sup> There are several economic, demographic, and political factors contributing to the gradual reduction in buoyancy.<sup>2</sup> Given the systemic nature of these changes, the long-term decline in general fund revenue buoyancy will likely continue in the absence of tax reform. Here, we do not assess whether government spending is too high or too low, or if the size of government is too big or too small. If policymakers desire government spending to remain approximately proportional to the size of the economy, then general fund buoyancy determines whether sufficient revenue is available to do so without frequent increases in tax rates. This analysis illustrates the long-term decline of Kentucky's general fund buoyancy, compares it to other states, and discusses some of the causes.

**FIGURE 1**  
Kentucky's General Fund Buoyancy, FY70 to FY10



Source: Authors' Calculations

*The growth of revenue is not keeping pace with growth in the economy, especially in the last decade.*

While year-to-year volatility is typical, over the long term revenue should change at approximately the same rate as the economy if the demand for government services and activities is more or less proportional to personal income. A buoyancy of 1.0 indicates that revenue growth is keeping pace with economic growth, while buoyancy less than 1.0 shows revenue is growing slower than the economy. The averages back to 1970 and 1985 are 1.09 and 1.07 respectively, but the averages back to 1995 and 2000 are lower at 0.84 and 0.76 respectively (see Figure 1).<sup>3</sup> The 41-year trend illustrates the downward slope of buoyancy. It is also worth noting that a more buoyant revenue system means that with downturns in the economy contractions in revenue are larger. Thus buoyancy and stability may, at times, be two conflicting goals for a revenue system.

Revenue growth rates are affected by both changes in the revenue base and tax rates. Many states' revenue

**TABLE 1**  
**Personal Income and General Fund Revenue Compound Annual Growth Rates (CAGR), US, Kentucky and Surrounding States, Long-Term and Short-Term CAGR Ratios**

	CAGR 1979 to 1999 (21 years)			CAGR 2000 to 2010 (11 years)		
	Personal Income	General Fund	CAGR Ratio	Personal Income	General Fund	CAGR Ratio
US	7.0%	6.8%	0.97	3.7%	2.5%	0.66
IL	6.1%	5.7%	0.94	2.9%	0.8%	0.29
IN	6.1%	7.5%	1.22	2.8%	2.9%	1.04
<b>KY</b>	<b>6.2%</b>	<b>6.7%</b>	<b>1.08</b>	<b>3.4%</b>	<b>2.4%</b>	<b>0.70</b>
MO	6.4%	6.9%	1.08	3.6%	-0.6%	-0.18
OH	5.9%	7.8%	1.33	2.5%	2.2%	0.88
TN	7.4%	5.0%	0.68	3.9%	3.6%	0.94
VA	7.6%	6.9%	0.91	4.7%	2.6%	0.55
WV	5.0%	4.9%	0.98	4.0%	3.6%	0.90

*Note: The CAGR ratio is the general fund CAGR divided by the personal income CAGR. A ratio over 1.0 indicates that general fund revenue is growing faster than personal income while a ratio less than 1.0 means that the general fund is growing slower than personal income.*  
Source: Author's analysis of data from the U.S. Bureau of Economic Analysis and the National Association of State Budget Officers



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*Since 2000, Kentucky's general fund is growing slower relative to its economy compared to many surrounding states.*

*The individual income tax and the sales and use tax account for most of Kentucky's general fund revenue.*

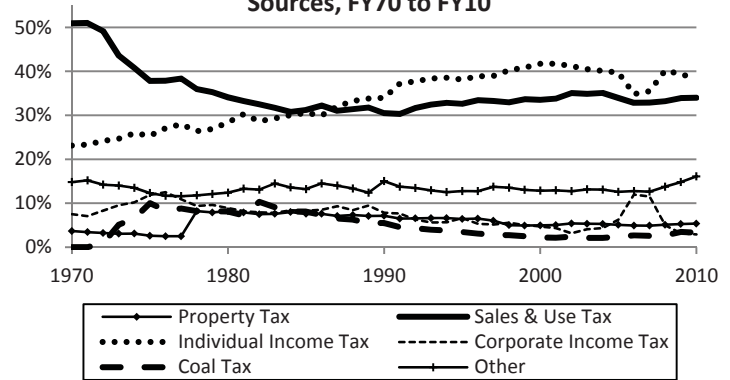
*A multitude of factors are affecting the decline in Kentucky's general fund buoyancy.*

systems have failed to keep pace with overall economic growth during the past decade due to one or both of these factors. Using the ratio between the compound annual growth rates (CAGR) of the general fund and personal income, we compare Kentucky to the U.S. and surrounding states during two time periods—1979 to 1999 and 2000 to 2010.<sup>4</sup> Just like the average buoyancy, a ratio of 1.0 indicates that the general fund is growing at the same rate as the economy. As shown in Table 1, Kentucky's CAGR ratio is 1.08 during the earlier period. Tennessee, with a CAGR ratio of 0.68, is the only surrounding state with a CAGR ratio significantly below 1.0. However, in the more recent era, from 2000 to 2010, four states are well below 1.0—Illinois (0.29), Kentucky (0.70), Missouri (-0.18), and Virginia (0.55).

Figure 2 shows that two sources of revenue—the individual income tax and the sales and use tax—account for nearly three-quarters of Kentucky general fund revenue.<sup>5</sup> Regardless of whether we assess the adequacy of the revenue structure by comparing average buoyancy or the CAGR ratio, Kentucky's main revenue sources are growing slower than its economy (see Table 2). For example, the compound average growth rate of the individual income tax from 2000 to 2010, the largest source of general fund revenue, was slightly less than half of the compound average growth rate of the overall economy—evidenced by a CAGR ratio of 0.45. Likewise, the average buoyancy and CAGR ratios for the sales and use tax have declined to about 0.70 during the last decade. Compared to the three earlier periods—FY70-FY79, FY80-FY90, and FY92-FY99<sup>6</sup>—revenue in the last decade is not keeping pace with the economy.

The decline in buoyancy will likely continue in the absence of fundamental tax reform. A multitude of systemic factors affect these sources of revenue, including the gradual shift in personal income away from taxable sources (e.g., wages, salaries, and proprietors' income) and toward mostly nontaxable sources (e.g., some transfer payments and nontaxable employee benefits); the transition from a goods-producing economy that is taxed to a service-providing economy that is largely untaxed; the rise of "mail order" or remote retail sales, which includes Internet and catalog purchases; an aging population whose spending patterns generate less revenue compared to younger cohorts; and the prevalence of tax exemptions. While not the only factor causing Kentucky's recurring budgetary problems, fixing the decline in general fund buoyancy will go a long way toward solving Kentucky's structural deficit.

**FIGURE 2**  
Kentucky's General Fund Receipts by Major Sources, FY70 to FY10



Source: Authors' Calculations based on data from the Kentucky Finance and Administration Cabinet and the Kentucky Revenue Cabinet

**TABLE 2**  
Kentucky General Fund, Individual Income Tax, & Sales and Use Tax, Average Buoyancy and Compound Annual Growth Rate (CAGR) Ratios

	General Fund		Individual Income Tax		Sales and Use Tax	
	Average Buoyancy	CAGR Ratio	Average Buoyancy	CAGR Ratio	Average Buoyancy	CAGR Ratio
FY70-FY79	1.20	1.19	1.39	1.36	0.84	0.80
FY80-FY90	1.25	1.07	1.55	1.37	1.12	0.90
FY92-FY99	0.97	1.01	1.19	1.24	1.23	1.19
FY00-FY10	0.76	0.70	0.78	0.45	0.65	0.74

Note: The average buoyancy is calculated by dividing the annual percentage change in general fund, individual income tax, or sales and use tax by the annual percentage change in personal income.

Source: Authors' analysis of data from the U.S. Bureau of Economic Analysis, Kentucky Finance and Administration Cabinet and the Kentucky Revenue Cabinet

<sup>1</sup>General fund buoyancy and elasticity are related concepts. Both are defined as the annual percentage change in general fund revenue divided by the annual percentage change in personal income. However, while actual general fund and personal income numbers are used to calculate buoyancy, adjustments are made when calculating elasticity to reflect any changes to the tax code that affect rates or the base.

<sup>2</sup>Refer to *Tax Expenditure Analysis*, Governor's Office of the State Budget Director, Commonwealth of Kentucky, various years, and "The Impetus for Tax Modernization: Economic, Demographic, and Political Change," *Financing State and Local Government: Future Challenges and Opportunities*, ed. David Wildasin, et al. (Kentucky Long-Term Policy Research Center, 2001): 103-121.

<sup>3</sup>The data are from the Kentucky OSBD, Kentucky Revenue Cabinet and the U.S. Bureau of Economic Analysis.

<sup>4</sup>The data used to calculate the compound annual growth rate for the general fund are from "The Fiscal Survey of States," National Association of State Budget Officers, Fall, various years, available at <<http://www.nasbo.org>>.

<sup>5</sup>Kentucky Revenue Cabinet, *Annual Report 2010-2011*, 1 Dec. 2011, 3 January 2012 <<http://revenue.ky.gov/>>.

<sup>6</sup>We exclude FY91 because there were significant changes made to the tax code in FY90 that skew the data for FY91.