Where Our City and County Governments Spend Their Money

WHERE OUR CITY AND COUNTY GOVERNMENTS SPEND THEIR MONEY

During his first successful run for the presidency, Ronald Reagan proposed that the federal government take over responsibility for Medicaid, while passing on responsibility to the states for means-tested income transfers such as food stamps, temporary aid to needy families and the like. After Reagan was elected, his proposal never made much headway in Congress, not the least because many states were opposed to it.

Ironically, virtually every state today would leap to accept such a bargain because Medicaid expenditures are devouring their budgets. Currently, in Virginia, one out of every six dollars of general fund expenditures goes to Medicaid. If there is a lesson here, then it is that times change. And, when times change, governments alter their spending patterns.

Where do the city and county governments in Hampton Roads spend their revenues today? Have their spending patterns changed over time? We know our governmental units have had to cope with rapidly changing circumstances. Foremost has been the need to deal with the effects of the deepest economic downturn since the Great Depression. This has strangled government revenue growth even while it has increased the demand for certain kinds of expenditures that reflect higher rates of unemployment. Add to this stagnant or declining defense expenditures, transportation challenges that include the possibility of extending Norfolk's light rail system and the widespread imposition of tolls, the decline of the Historic Triangle as a tourist destination amidst a general decline in hotel revenue earned per available room in the region, underfunded pension systems, reduced state support for many city activities and continuing pressures to fund K-12 education. Elected officials could easily add other significant items to this list. Suffice it to say that our cities and counties face the classic economic problem – how to allocate their limited resources when faced with almost unlimited demands.

How have our localities reacted to this changing environment? In this chapter we examine the spending patterns of the cities and counties that make up the Hampton Roads region.

Contrasting Local Government Spending To That Of Others

Local government spending is quite different from the other tiers of government. Entitlements, national defense, health care and debt repayment dominate the federal budget. Medicaid, entitlements and education (including higher education) dominate state budget allocations. Meanwhile, at the local level, K-12 education accounts for approximately 40 percent of all local government spending, followed by police protection at about 10 percent.

In Virginia, the relationship between city and state government is distinctive. In most other states, cities reside within counties and city dwellers simultaneously are governed by a city government and a county government. The city of Chicago and Cook County, Ill., provide an excellent example of such joint jurisdiction.

Virginia cities, however, are "independent cities," and take the place of county governments within their city boundaries. Indeed, 39 of the 42 independent cities in the United States are in Virginia (the other three are Baltimore, St. Louis and Carson City, Nev.). Therefore, in our analysis, we will treat counties and cities identically in terms of their local spending.

GOVERNMENT SPENDING PATTERNS IN HAMPTON ROADS

Table 1 presents data on per capita spending for the cities and counties in Hampton Roads for the fiscal year ending in June 2010. Per capita spending is the appropriate statistic to investigate when looking at spending patterns because this measure adjusts the data for the size of the community. Per capita spending levels probably best demonstrate the commitment (or lack thereof) of local governments to selected activities.

The following spending definitions apply:

General Government: General costs of running government such as legislative spending (mayor and city/county staff, etc.), and office of Commissioner of the Revenue

Judicial: Legal system including courts and the office of the Commonwealth's Attorney

Public Safety: Law enforcement and protection, fire and rescue services, detentions and inspections

Public Works: Maintenance of roads and bridges, sanitation and waste removal, and maintenance of public buildings and grounds

Health: Health services spending, mental health and intellectual disability services, and social services

Education: Instruction, administration, transportation of students, maintenance of school buildings and school food services

Parks: Cultural activities, public libraries, and parks and recreation

Community Development: Planning, environmental management, cooperative development and cooperative extension activities.

In Table 1, per capita spending levels coded in blue indicate the highest per capita expenditures in our region and those coded in red reflect the lowest per capita spending levels. One can see that both the blue and red outliers typically are associated with the less-populated municipalities. This tells us that governmental unit size, by itself, is not necessarily the determinant of per capita spending differences. Economies of scale may exist that promote or discourage certain kinds of expenditures (for example, on parks and recreation), but the data in Table 1 tell us that other factors, such as the character of a community, may be even more important in determining spending patterns.

TABLE 1

2010 LOCAL GOVERNMENT SPENDING DATA PER CAPITA: HAMPTON ROADS CITIES AND COUNTIES

Locality	General Government	Judicial	Public Safety	Public Works	Health	Education	Parks	Community Development
Chesapeake	$142	$80	$503	$279	$232	$1,890	$73	$64
Franklin	**$245**	$27	**$856**	**$509**	**$555**	$1,933	$119	$178
Hampton	$171	$49	$540	$261	$465	$1,638	$193	$150
Newport News	$143	$55	$611	$211	$431	$1,789	157	$163
Norfolk	$105	$63	$715	$377	$480	**$1,555**	**$200**	$121
Poquoson	$150	$29	$452	$188	$201	$1,672	$109	$54
Portsmouth	$112	$70	$832	$296	$409	$1,627	$137	$210
Suffolk	$105	$88	$589	$377	$324	$1,757	$96	$101
Virginia Beach	$118	$34	$422	$228	$304	$1,696	$159	$174
Williamsburg	$181	**$25**	$690	$227	$274	$1,754	$163	**$351**
Gloucester	$129	$53	$268	**$51**	$258	$1,588	$51	$273
Isle of Wight	$124	$42	**$247**	$170	$306	$1,559	$79	$49
James City	$99	$88	$405	$97	**$200**	$1,754	$159	$175
Southampton	**$78**	$85	$334	$159	$323	$1,558	**$24**	**$33**
Surry	$201	**$89**	$328	$127	$487	**$2,250**	$83	$78
York	$120	$53	$470	$177	$206	$1,909	$80	$127
Median (M)	$126.50	$54	$486.50	$219	$314.50	$1,725	$114	$138.50
Variance (V)	1,834	534	35,342	13,501	13,247	33,596	2,648	7,342
Ratio (V/M)	13.20	9.18	68.44	57.85	38.85	19.25	22.51	51.05

Source: "Comparative Report on Local Government Revenues and Expenditures for the Fiscal Year Ended June 30, 2010," Auditor of Public Accounts, Commonwealth of Virginia

Some small-population jurisdictions spend lots of money per capita on functions such as general government (Franklin, at $245 per person, leads the region); however, other small jurisdictions can be found at the opposite end of the distribution (Southampton County, at $78 per capita, brings up the rear).

When dealing with any set of data similar to that in Table 1, extreme values may push the average (mean) value of a variable up or down substantially. Hence, averages may provide a somewhat deceptive reading of what actually is typical. Therefore, we rely upon median values for most of our variables. The median value is the 50th percentile value – the one that divides the distribution of numbers into two parts of equal size. Hence, half of all values are above the median and half are below.

Spending levels close to the median indicate spending levels that are typical within Hampton Roads. For example, Isle of Wight County's per capita spending on general government ($124) is very close to the median level ($126.50). Public education spending per person in James City County/ Williamsburg ($1,754) and Suffolk ($1,757) are very close to the median level for the region ($1,725).

One can make the following observations based upon the data in Table 1:

- The most populous city in the region, Virginia Beach, usually expends less per capita on most services than the regional median.
- Older central cities, such as Norfolk and Portsmouth, exhibit large per capita spending on public works. This is casual evidence of a relatively simple proposition: infrastructure wears out.
- Franklin and Portsmouth have by far the largest per capita spending on public safety, while Norfolk spends the most per capita on parks.

The bottom three rows of Table 1 report the median value for each variable, the variance of each variable and the ratio of the variance to the median value. Variance is a measure of how dispersed, or variable, per capita spending is among the communities. The larger the variance, the more spread out the data are, while a smaller variance indicates less dispersion in the data. The bottom row presents the ratio of the variance in per capita spending to its median value, thus providing us with a relative measure of data variability so that we can compare spending in one category to another.

Here are additional observations about spending variables we can make based upon Table 1:

- The highest variability in per capita spending among these governmental units occurs for the functions of public safety, public works and community development, in that descending order.
- The lowest levels of spending variability occur in the judicial category, followed by general government and education.
- With respect to education spending per capita, spending levels across our region are much less variable than many might suspect. This reflects the equalizing fashion in which Virginia distributes state financial support to school districts. The Commonwealth's Composite Index provides larger per student grants to school districts that face fiscal pressures due to large numbers of low-income households, or lower property values.

To make comparisons between governmental units easier, in Table 2 we divide the level of per capita spending by the average of the 16 communities and then multiply by 100 in order to determine the degree to which a given community spends more per capita than the regional average. A ratio greater than 100 indicates higher per capita spending levels than the regional average, while a ratio below 100 indicates the opposite. Thus, Newport News' 118 index number for public safety reveals that it spends 18 percent more per capita on public safety than the typical Hampton Roads city or county.

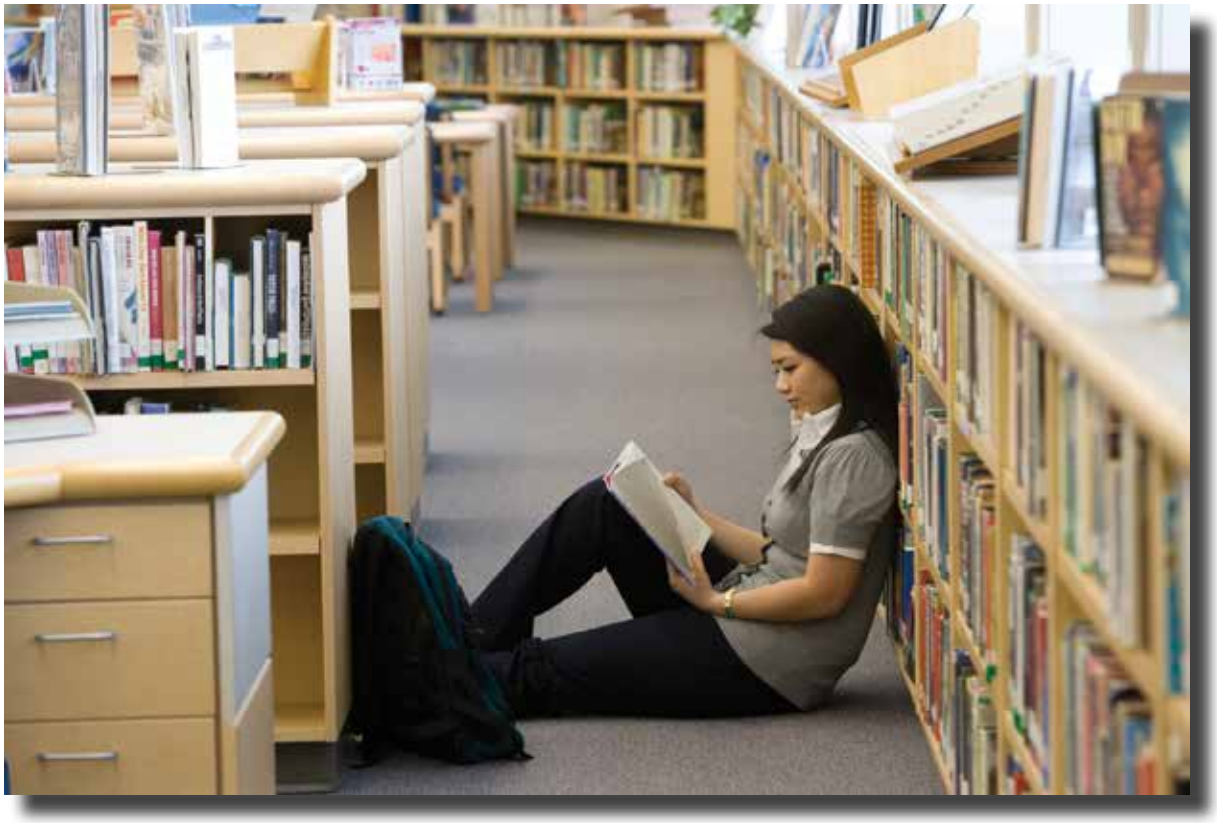
The following patterns emerge from Table 2:

- The fact that the median (50th percentile) value is below 100 for all but one service category indicates that a few jurisdictions spend a great deal on government services, thus pushing up the mean value. Most, however, do not.
- The following jurisdictions are *"higher spending"* units in that they have indexes above the 100 index level in at least five of the eight spending categories: Franklin, Williamsburg, Hampton, Newport News, Norfolk and Portsmouth. Those higher-than-average values are coded in blue in Table 2.

Except for Franklin and Williamsburg, they are older urbanized cities, where the perceived need for government spending is higher. Aging infrastructures and distinctive demographics typically stimulate higher government spending.

- **The following jurisdictions are *"lower spending"* units because they are below the 100 index level in at least five of the eight spending categories: Poquoson, Virginia Beach, Gloucester, Isle of Wight, Southampton and York.** These values are coded in red in Table 2. Except for Virginia Beach, these governmental units are suburban or rural in character (though large portions of Virginia Beach clearly could be classified as either suburban or rural). The perceived need for government services, if not the reality, causes these jurisdictions to spend relatively less on government services than many other jurisdictions in our region.

- **Virginia Beach is an outlier. Despite some citizen complaints about public-sector spending in the resort city, except for education and parks, Virginia Beach's spending indexes are below 100 and in some cases well below that number.** No doubt much of this has to do with the still youthful nature of the city of Virginia Beach, its distinctive demographics and the fact that most of its infrastructure is not old. Even so, Virginia Beach clearly does not belong in the big-spender category among the cities and counties of Hampton Roads. It will be interesting to see if these spending relationships change as the city ages and its demographics evolve.



- Franklin also is an outlier, with its per capita spending above regional averages in seven of eight categories (judicial providing the single exception). Franklin, settled in the 1830s as a railroad stop along the Blackwater River, was incorporated in 1876 and hence actually is an old city. Franklin's demographics also more closely match the region's large urban communities than most of the other rural jurisdictions. Finally, Franklin also has had to battle the closing of the International Paper Co. mill. Together, these influences have generated higher-than-average per capita government spending.

TABLE 2

RATIOS OF EACH JURISDICTION'S PER CAPITA SPENDING TO AVERAGE HAMPTON ROADS VALUES

Locality	General Government	Judicial	Public Safety	Public Works	Health	Education	Parks	Community Development
Chesapeake	102	138	97	120	68	113	62	45
Franklin	176	46	166	218	163	115	101	124
Hampton	123	84	105	112	136	98	164	104
Newport News	103	95	118	90	126	107	133	113
Norfolk	76	108	138	162	141	93	170	84
Poquoson	108	50	88	81	59	100	93	38
Portsmouth	81	120	161	127	120	97	116	146
Suffolk	76	151	114	162	95	105	82	70
Virginia Beach	85	58	82	98	89	101	135	121
Williamsburg	130	43	134	97	80	105	139	244
Gloucester	93	91	52	22	76	95	43	190
Isle of Wight	89	72	48	73	90	93	67	34
James City	71	151	78	42	59	105	135	122
Southampton	56	146	65	68	95	93	20	23
Surry	145	153	64	54	143	134	71	54
York	86	91	91	76	60	114	68	88
Median	91	93	94	93.5	92.5	103	97	96
Variance	946	1579	1320	2483	1140	118	1916	3547

Source: "Comparative Report on Local Government Revenues and Expenditures for the Fiscal Year Ended June 30, 2010," Auditor of Public Accounts, Commonwealth of Virginia

A STATISTICAL ANALYSIS OF SPENDING INFLUENCES

In order to determine the factors that may influence per capita spending in the Hampton Roads municipalities, we performed an analysis using multiple linear regression (a multivariate statistical technique often used by economists) to identify which factors influence spending level choices. In such an analysis, one attempts to explain the movements of a dependent variable such as spending on the basis of factors reasonably thought to affect spending.

We focused on two classes of factors thought to affect spending. The first class of factors attempts to reflect the impact of economic conditions on the spending of the municipality, while the second set concentrates on demographic differences. Things included in the first class of factors are median new housing prices, property tax revenue, median income, the amount of unfunded debt and poverty levels. We would expect, in general, that the first three of these would be positively associated with spending by local governments because they increase the ability of the local governments to provide services. We expect the last two (debt and poverty) to have a negative association because they diminish the ability of governmental units to supply services.

Communities with higher income levels may want more spending on public goods (for example, parks) and may demand more spending on education. Higher income in jurisdictions such as York County and Poquoson may prompt more spending on education. However, as will be discussed below, this is not a uniform relationship. Higher-income communities could prefer less spending on education if their residents wish to send their children to private schools and/or higher proportions of those communities consist of individuals who no longer have children of school age.

The second class of variables includes population density, the percentage of the population with college degrees and the extremes of the age distribution of citizens. A priori, higher population density should stimulate per capita government spending, while the effect of a higher percentage of citizens with college degrees is not so clear. Perhaps a higher educated citizenry may desire more spending on items such as parks and libraries. If a large share of the population in a city is under the age of 18, then we anticipate more spending on education. On the other hand, a larger share of people 65 and older may suggest less money allocated to education.

Sixteen cities and counties (those in Hampton Roads) is a rather small sample to examine and there are predictable statistical problems associated with such a small sample size. Therefore, in order to increase the statistical reliability of the analysis, we examined data from all 134 cities/counties in the Commonwealth of Virginia for 2010. Table 3 presents the results of our statistical work, which should now be understood to reflect what is true in all of Virginia, not simply Hampton Roads.

In Table 3, a blue highlight indicates a statistically significant positive association, while a red highlight indicates a statistically significant negative association. A blank cell indicates that there is no persuasive statistical evidence that the variable affects spending. The results are consistent with other studies that have investigated the determinants of per capita spending by local governments.

In the analysis below we break out public safety into two components: fire and police services.

Statistical significance here refers to whether or not we could expect to obtain the same result if we took a new sample from the same population and executed the same analysis. In the case at hand, we applied a two-tailed test of each coefficient at the .10 level.

We can summarize the statistical results in Table 3:

- **Not surprisingly, the higher the property taxes in a city or county, the more that city or county spends per capita on each of the nine different services identified.**
- **Increased population density drives higher per capita spending on five of the nine services, notably (and again, not unexpected) police and fire.**

- The higher the percentage of the population under the age 18, the higher that city or county's per capita expenditures on education. On the other hand, we find no evidence that a more elderly population (a high proportion of individuals ages 65 and older) stifles per capita expenditures on education.

- Higher median incomes in a city or county are associated with lower expenditures on the following services: judicial, health/welfare and public works. Plausibly, there is not as much demand for expenditures upon the judiciary when a city or county has a population composed of individuals with higher median incomes; the same might be said for per capita expenditures on health/welfare. And, if high-median-income citizens are concentrated in newer jurisdictions, these jurisdictions will not have as many immediate needs for public works expenditures.

A 10 percent increase in the population density of a city or county increases spending on each of the protective categories (fire, police) by about 2.2 percent. The same 10 percent increase in population density increases spending on parks by 3.2 percent.

A 10 percent increase in the population of a city or county holding a bachelor's degree or higher increases spending on parks by 4 percent.

A 10 percent increase in the share of the population under the age of 18 increases spending on education by approximately 8 percent.

Our detailed statistical analysis enables us to consider how changes in several of the explanatory variables in our model affect per capita spending in a city or county. The single variable that is associated with an across-the-board increase in spending in all categories is property tax revenue. When cities and counties have more money available to spend, they spend it. **A 10 percent increase in a city or county's property tax revenue per capita stimulates an 8.6 percent increase in spending on parks and 7.5 percent increases in both fire services and public works spending. The area of spending that benefits the least amount from a property tax increase is education, where the impact of the hypothetical 10 percent increase will stimulate education spending by only 4 percent.** (To obtain the regression equation that is the basis for these estimates, send an email to jkoch@odu.edu.)

TABLE 3

STATISTICALLY SIGNIFICANT ESTIMATES: LEAST-SQUARES REGRESSION RESULTS

Spending Variable	Education	General Government.	Judicial	Police	Fire	Health/ Welfare	Public Works	Parks	Community Development
Housing Prices	–			–				–	
Property Taxes	+	+	+	+	+	+	+	+	+
Median Income			–			–	–		
Unfunded Debt	–								
Poverty							+		
Population Density		+		+	+			+	+
Percent College Graduates								+	
Percent Population Less than 18	+	–							
Percent Population Greater than 65									

Ordinary least-squares regression models estimate using N-Logit statistical software. All highlighted variables are statistically significant at least 10 percent. The model was estimated in log linear form causing coefficients to represent elasticities.

EXAMINING EDUCATION EXPENDITURES IN GREATER DETAIL

In Table 4, we highlight overall education expenditures per pupil made by the cities and counties of Hampton Roads spanning a 10-year period. The data are from the 2001-02 and 2011-12 academic years, and come from the Superintendent's Annual Reports, www.doe.virginia.gov.

One can see that the weighted (by the number of pupils) average educational expenditure per pupil increased in our region from $5,206 in 2001 to $7,958 in 2011. This is an annual 4.5 percent increase, compounded. Since the Consumer Price Index rose 2.3 percent annually during this time, this means the real (inflation-adjusted) spending per pupil rose 2.2 percent annually over this decade.

A closer look at available data, however, reveals that declining school enrollments more than accounted for all of the increase in per pupil support. **Table 5 discloses that between 2001-02 and 2011-12, end-of-year average daily attendance (ADA) fell almost exactly 6 percent in the seven largest cities; in cities such as Newport News, Norfolk and Portsmouth, ADA fell more than 10 percent. Hence, if pupil enrollments in the seven cities had remained constant, then per pupil funding would have plunged. This casts a different light on the generosity of the cities with respect to their support of K-12 public education.**

Even so, the citizens of Hampton Roads did increase their real per pupil financial commitment to K-12 education during this time period, and this increased support was almost double the rate of price inflation. (Interestingly, quite the opposite was true for the Commonwealth's per pupil support of its public colleges and universities.)

Given that the cities and counties have had more inflation-adjusted dollars per pupil to spend, how did they use those funds? It is beyond the scope of this report to examine specific expenditures, district by district. Nevertheless, one of the critical resource allocation decisions made by schools relates to how much money they devote to instruction versus administration/overhead. Holding other things constant, lean administrative structures are preferred.

Table 4 also reports on the proportion of each city or county's educational expenditures that are made on instruction. Instructional expenditures include teachers' salaries and benefits, supplies such as textbooks and any instructional services that the city/county contracts out, but do not include capital improvements, interest payments or any payments made to charter schools.

Columns 1 through 3 of Table 4 present education expenditure data for 2001, while columns 4 through 6 present expenditure data for 2011. One can see in column 6 the percentage of each educational budget expended on instruction in 2011 and that those 2011 numbers varied from a low of 67.81 percent in Surry to a high of 80.52 percent in Franklin. Among the region's seven largest cities, the percentages ranged from a low of 75.70 percent in Newport News to a high of 78.77 percent in Norfolk.

Of greater interest is the trend in instructional expenditures. Column 7 reports that the percentage of the educational budget devoted to instruction fell by 7.58 percent in Surry, 3.55 percent in Newport News and 1.99 percent in Virginia Beach. **Overall, the weighted average proportions of budgets devoted to instruction declined 1.28 percent within Hampton Roads. Prima facie, this is not a desirable trend. While skillful administrators are an essential part of K-12 education, face-to-face instructional contact is an even more important engine**

TABLE 4

SCHOOL DISTRICT SPENDING PER STUDENT ON INSTRUCTION, CITIES AND COUNTIES OF HAMPTON ROADS, 2001 AND 2011

District	Spending Per Pupil 2001	Spending on Instruction Per Pupil 2001	Percent Spent on Instruction 2001	Spending Per Pupil 2011	Spending on Instruction Per Pupil 2011	Percent Spent on Instruction 2011	Percent Change 2001-2011
Chesapeake	$6,576.06	$5,277.49	80.25%	$10,502.07	$8,395.79	79.94%	-0.31%
Franklin	$8,192.70	$6,537.69	79.80%	$11,945.80	$9,619.30	80.52%	+0.73%
Hampton	$6,386.38	$5,053.92	79.14%	$10,082.04	$7,816.92	77.53%	-1.60%
Newport News	$6,515.63	$5,163.64	79.25%	$10,597.76	$8,022.51	75.70%	-3.55%
Norfolk	$7,135.94	$5,743.75	80.49%	$10,142.09	$7,988.84	78.77%	-1.72%
Poquoson	$5,919.83	$4,624.75	78.12%	$9,231.71	$7,392.67	80.08%	+1.96%
Portsmouth	$6,180.17	$4,769.15	77.17%	$10,305.39	$7,883.14	76.50%	-0.67%
Suffolk	$6,162.10	$4,793.64	77.79%	$9,346.47	$7,267.88	77.76%	-0.03%
Virginia Beach	$6,506.72	$5,209.54	80.06%	$10,339.96	$8,072.31	78.07%	-1.99%
Williamsburg/ James City	$7,437.63	$5,636.54	75.78%	$10,492.20	$7,952.91	75.80%	+0.01%
Gloucester	$6,315.28	$4,819.13	76.31%	$8,918.55	$6,816.32	76.43%	+0.12%
Isle of Wight	$6,480.34	$5,163.69	79.68%	$9,651.38	$7,735.18	80.15%	+0.46%
Northampton	$7,034.45	$5,549.18	78.89%	$11,296.00	$8,554.74	75.73%	-3.15%
Southampton	$6,789.99	$4,959.04	73.03%	$10,117.55	$7,144.04	70.61%	-2.42%
Surry	$9,533.72	$7,187.45	75.39%	$17,198.85	$11,662.72	67.81%	-7.58%
York County	$5,931.49	$4,536.47	76.48%	$9,370.79	$7,253.23	77.40%	+0.92%
Weighted Averages	$6,573.13	$5,206.26	79.21%	$10,231.25	$7,958.81	77.79%	-1.28%

Sources: Superintendent's Annual Reports, 2001-2002 and 2011-2012, Virginia Department of Education, http://www.doe.virginia.gov/statistics_reports/supts_annual_report/2001_02/index.shtml

TABLE 5

END-OF-YEAR AVERAGE DAILY ATTENDANCE (ADA) FOR THE SEVEN LARGEST CITIES IN HAMPTON ROADS, 2001-2002 AND 2011-2012

City	ADA 2001-2002	ADA 2011-2012	Percent Change
Chesapeake	36,132	37,271	+3.2%
Hampton	21,708	19,662	-9.4%
Newport News	29,412	26,371	-10.3%
Norfolk	32,510	28,895	-11.1%
Portsmouth	15,858	13,537	-14.6%
Suffolk	11,508	13,310	+15.7%
Virginia Beach	71,504	66,528	-7.0%
Totals	218,632	205,574	-6.0%

Source: Superintendent's Annual Reports, www.doe.virginia

for increased student achievement. In the region's seven largest cities, the proportion of education expenditures devoted to instruction declined in every municipality, though the declines were very small in Chesapeake, Portsmouth and Suffolk.

Some of the changes between 2001 and 2011 revealed in Table 4 may be related to patterns of Commonwealth K-12 funding. Over the 10-year period, there was a tendency for cities and counties to devote a lower percentage of their education budgets to instruction if the proportion of their budgets coming from the Commonwealth also declined. **In a nutshell, school districts tended to defend administrative expenditures at the expense of instruction when state support tapered off.**

When we examine K-12 education funding in Hampton Roads, several conclusions are in order. First, despite the tendency of the Commonwealth to shift the responsibility for some K-12 expenditures to the cities and counties, per student funding of K-12 education rose even after price inflation was taken into account.

Final Thoughts

Given the diversity of the cities and counties in Hampton Roads, perhaps we should not be surprised that it is difficult to find many common spending patterns among them. Yes, the cities and counties that raise more revenue spend more than others. And, our urban cities spend more on items such as law enforcement than other governmental units. However, it is difficult to detect strong patterns in terms of other governmental functions such as parks and recreation.

All of the cities and counties are spending more per student on education, even after accounting for price inflation, than they did 10 years ago. A very important reason for this, however, is declining student enrollment. Further, there has been a tendency for most of the school districts to reduce their proportionate expenditures on instruction and to increase their proportionate expenditures on administration. On the face of it, this is not a desirable trend.