NEW YORK STATE EDUCATION DEPARTMENT
FISCAL ANALYSIS & RESEARCH UNIT
89 WASHINGTON AVE * ROOM 301EB * ALBANY, NY 12234

RESEARCH NOTE

JUNE 2005

Estimating School District Health, Retirement and Energy Expenditures in New York State

MAJOR FINDINGS

- Spending by New York school districts on the health benefits of its employees grew on average 7.6 percent annually from school years 1994-'95 to 2002-'03; during this same period, inflation as measured by the Consumer Price Index grew just 2.6 percent on average.
- This growth in health benefit spending correlated very strongly with national prescription drug utilization (Table 1), which during this period, grew by 13.7 percent per year on average.
- In view of these trends, we predict that during the 2004-'05 school year schools statewide will spend roughly $3.185 billion on employee health care costs, or more than double the amount spent ($1.495 billion) only ten years prior.
- Less aggressive growth assumptions, based on the average increase of national health care spending during the last 35 years and the high

managed-care penetration characteristic of the mid-to-late 1990s would yield growth in this cost center of 10.1 and 4.3 percent annually, respectively.

- During the mid-to-late 1990s, annual contributions to the teachers' retirement system were declining – due largely to bullish stock market growth. Due to the enormous drop in the asset value of the stock market after 1999, the combined contributions of the New York City and New York State Teacher Retirement Systems increased by more than a quarter (26.4 percent), annually on average for the three years from 1999 to 2002.

- If we assume that the 2000-2003 period experience of a slight decline in stock prices (2.4 percent) will continue, then in the 2005-'06 school year, schools statewide will need to contribute $605 million for employee retirement. However, if the stock market should return to it's long-term equilibrium of a 12.8 percent annual yield then in 2005-'06, schools will need to contribute just $347 million.

- Energy expenditures by school districts during the ten-year period from school year 1992-'93 to 2002-'03 increased 4.4 percent annually and were $797 million in 2002-'03, the most recent year for which data are available.

- However this series does not capture the most recent period when oil prices have climbed to more than $50 a barrel. If oil prices alone are driving this growth, then we estimate that in the 2005-'06 school year, statewide total energy spending by schools will surpass $1 (1.06) billion.

- Average total energy prices which include gas, electricity and other sources in addition to oil, actually predict school energy spending better than do oil prices, alone, as do fall student enrollments (r = .84 and .78, respectively). Estimates of spending on energy, based on average energy prices for school year 2005-'06 are just over $900 ($906) million. Furthermore, if energy spending is being driven by enrollments, then we estimate it will total $719 million statewide in 2005-'06.

POLICY IMPLICATIONS

- Barring collective bargaining agreements that would require teachers to shoulder a greater share of the cost of their health benefits, changes regarding teacher retirement contributions or energy prices (and conservation behavior by schools), these categories of expenditure can not easily be controlled by school districts.

- This spending growth comes at an inopportune time due to parallel developments in the Campaign for Fiscal Equity case which may require the State to spend an additional $23 billion over five years to ensure an adequate, sound basic education for New York City schoolchildren.

- Therefore, assuming no significant increases in state revenues, the growth of these three non-instructional expenditures threatens to weaken the ability of the state to target spending on instruction and capital to close the achievement gap.

Abstract

This paper describes recent spending increases in three fast-growing categories of expenditure in New York State school districts: employee health and retirement and energy. Spending by New York schools on the health benefits of its employees grew 7.6 percent annually from school year 1994-'95 through 2002-'03. In contrast, the consumer price index averaged growth of just 2.6 percent annually during the same period. These growth trends in health and retirement spending were predicted very robustly by national prescription drug utilization and a measure of US stock prices, respectively, utilizing simple, bivariate regression analysis of data from the mid-1990s to the present. Due to the volatility of these independent variables, alternative forecasts of spending in these categories were provided in order to reflect low, middle and high growth scenarios. Less robust, although still statistically significant, models of energy spending were also fit. Moreover, oil prices, which experienced dramatic growth during 2004, were not as strong a predictor of total energy spending by schools over the last ten years, as were total energy prices, which include electricity, gas and other sources in addition to oil, and student enrollments. The growth of expenditures for health, retirement and energy, which are not easily controlled by districts, are factors that school district business officials need to consider in their budget planning.

Estimating School District Health, Retirement and Energy Expenditures in New York State

Background

The genesis of this project is contained in a prior analysis of school district finances conducted by the Fiscal Analysis and Research Unit (FARU) of the New York State Education Department. That paper, "Reversal of Fortune: The Growth of Fringe Benefit Expenditures in New York State School Districts, 1993-94 to 2001-02", highlighted significant increases in retirement and health benefit spending by school districts.[1]

Accordingly, the purpose of this paper is to: determine if we can specify with some precision models based upon key, uncontrolled "drivers" of growth in school district health, retirement, and energy expenditures; forecast their future values; and simulate the effects of alternative growth rate scenarios on total school district expenditures. This purpose is significant in light of the referee panel's recommendations in the Campaign for Fiscal Equity (CFE) case. Judge DeGrasse's recent order upheld the findings of the referees, mandating the provision of an influx of *new* spending on instruction and capital of $23 billion over five years to ensure an adequate sound, basic education for New York City's schoolchildren. [2]

Energy, health and retirement expenditures can be viewed as non-discretionary, since they are essential to school operations and are not easily controlled by districts. The balance of school district spending, which includes expenditures made for instructional purposes and capital, are discretionary.[3] Paralleling the current federal budgetary picture, runaway growth in non-discretionary spending items threatens to shrink the discretionary part of the budget. Thus, getting a "handle on" and predicting these volatile areas of non-discretionary growth is essential.

Note that in the following analysis we generally present simple bivariate regression models. That is, we assume that one independent variable is causing the growth in each of these three dependent variables: the health, energy and retirement spending of schools. The underlying causal model is no doubt considerably more complicated. For example, the aging of the teacher workforce is no doubt a common cause of both retirement and health costs. Similarly, increased energy costs (reflected in global oil price growth) may be due not only to increased demand by the rapidly industrializing economies of India and China[4] but by uncertainty over known reserves. However, we

[1] Located at: http://www.oms.nysed.gov/faru/Articles/Fringe%20Benefits_files/Fringe%20Benefits.htm

[2] Final Order of Judge Leland DeGrasse in the case *Campaign for Fiscal Equity, Inc. vs. the State of New York*, http://www.cfequity.org/compliance/degrassefinalorder031505.pdf

[3] This typology is a bit misleading however: the level of instructional support ordered by Judge DeGrasse is a mandate essentially and not an amount that is discretionary.

[4] International Energy Agency, as reported in the International Herald Tribune, October 12, 2004.

chose this approach because the few observations in our data set (i.e., complete statewide data on these expenditure categories are only available for the series ten years ago to the present) preclude regression models with more than one independent variable.

Health Expenditures Among School Districts

Since the late 1960s, health economists have been concerned with the accelerated growth of national health care expenditures. During the past 35 years, annual health care cost inflation – in real rather than nominal terms – has often been in the double digits, while over the same period, overall inflation as measured by the Consumer Price Index (CPI) has averaged 5 percent.[5]

Table 1:
Recent Trends in U.S. Prescription Drug and New York State Teacher Health Spending

School Year	Total U.S. Prescription Spending (in $ Billions)	Annual Percentage Change in US Prescription Drug Expenditures	Statewide Teacher Health Spending (in $ Billions)	Annual Percentage Change in NYS Teacher Health Expenditures
94-95	$54.6	6.4%	$1.495	3.1%
95-96	$60.8	11.4%	$1.535	2.6%
96-97	$67.2	10.5%	$1.590	3.6%
97-98	$75.7	12.6%	$1.676	5.4%
98-99	$87.3	15.3%	$1.792	7.0%
99-00	$104.4	19.6%	$1.986	10.8%
00-01	$121.5	16.4%	$2.204	11.0%
01-02	$140.8	15.9%	$2.478	12.4%
02-03	$162.4	15.3%	$2.780	12.2%
Average		13.7%		7.6%

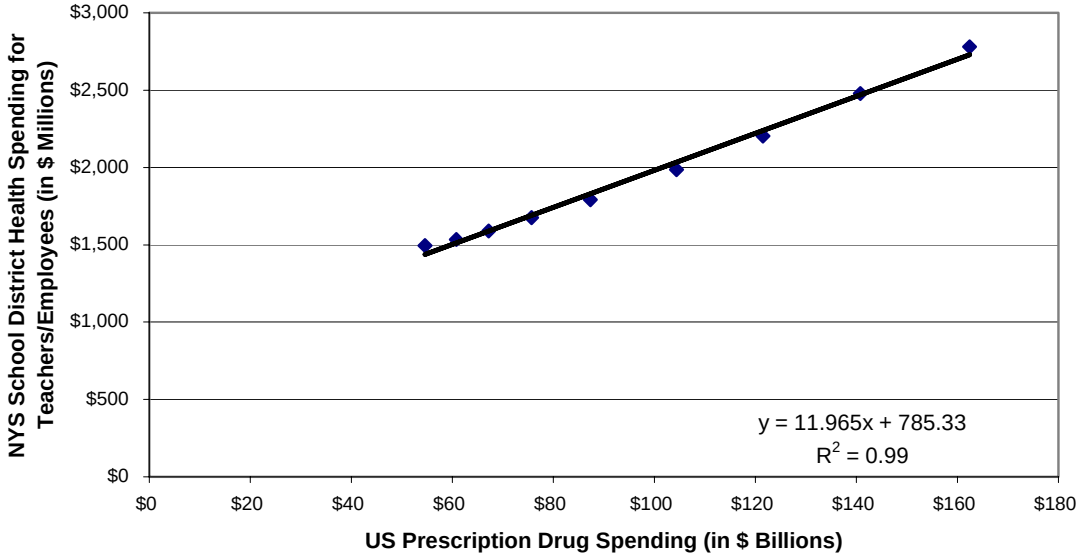
Sources: U.S. Centers for Medicaid and Medicare Services, Office of the Actuary and
ST-3 Annual Financial Report of NYS School Districts

Most analysts conclude that the recent very sharp growth in health spending nationwide has been fueled by growth in one sub-sector alone: prescription drug utilization. This recent trend, along with New York school health care spending (as reported in the ST-3 School District Annual Financial Report) is displayed in Table 1. As the table makes clear, the growth rate in prescription drug spending has been roughly twice the growth rate in New York school district health costs, on average, over the nine-year period.

[5] During the 33 years from 1969 to 2002, nationwide growth in total health spending increased 10.1 percent annually and exceeded or was equal to 10 percent in 20 of those 33 years. U.S. Department of Health and Human Services, National Health Accounts, at: http://www.cms.hhs.gov/statistics/nhe/#download. Consumer Price Index- All Urban Consumers (CPI-U) located at: ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt

However in recent years the school health costs have grown faster than at the beginning of the period.

Chart 1:
Relationship between US Prescription Drug Spending and New York School District Health Spending, School Years 1994-'95 to 2002-'03



As Chart 1 makes apparent, prescription pharmaceutical growth explains well the overall growth in health care costs of New York state school districts over this period. The high R-Squared statistic (.99) indicates that 99 percent of the variation in school spending on the health insurance benefits of its staff, is explained by the variance in the independent variable – total U.S. prescription drug utilization. Moreover, the regression equation allows us to predict with strong certainty the value of future teacher health spending statewide, based on values of prescription drug utilization nationwide.

Table 2:
Forecasted Total US Prescription Drug Spending and Estimated New York School District Spending on Employee Health Benefits, 2004-'05 School Year

School Year	Estimated US Spending on Prescription Drugs (in $ Billions)	Regression Estimates of NYS School (in $ Millions)	Percent Change in School Health Spending over Prior Year
2003-'04	$179 [1]	$2,929	5.3%
2004-'05	$201 [2]	$3,184	8.7%

[1] Actual [2] Projected

Source: U.S. Centers for Medicaid and Medicare Services, Office of the Actuary

The model that we fit in Chart 1 contains data points through the 2002-'03 school year – the most recently available financial data from schools. However, two additional, more current years (see Table 2) of drug-spending data nationwide (one actual and one projected) exist. By incorporating these additional data points within the previously developed regression equation, we can generate estimates of New York school district health care spending for two more years.

Since this particular forecast of the projected growth in health care spending is a volatile one, we provide two alternative health-spending scenarios in Table 3 (one a low side scenario and the other, a high-side scenario). An important legislative development that will no doubt affect these scenarios, is The Medicare Modernization Act signed into law by President Bush in 2004. This legislation will provide a prescription drug benefit as part of the Medicare program beginning in 2006 and should enable seniors to obtain discount cards to purchase drugs more cheaply before this date.

Table 3:
Alternative Growth-in-Health Spending Scenarios

Annual Percentage Increase	Growth Scenario	Assumptions
13.7%	High	Implicit in regression model is 13.7 % average annual growth: model assumes that growth of recent history driven by prescription drug utilization shall continue
10.1%	Medium	This forecast exrapolates the average annual growth rate in **all** health care spending, of the period 1969-2002, not merely prescription drugs
4.3%	Low	Uses the experience of the mid to late 1990s, when overall US health care spending growth was slowed by high managed care penetration

At first glance the effect of this legislation would appear highly inflationary. It has been estimated by the Administration to cost $724 billion over ten years although Its true cost is not known: last year, during the development of the legislation, the Administration insisted it's cost would be only $400 billion while the bipartisan Congressional Budget office valued the bill at a cost of $525 billion.

Conceivably, this legislation may have other intra-health sector effects that might in the longer term, *reduce* the growth of health care spending. For example, a body of literature is developing which has shown that increasing drug expenditures are lowering spending on long-term and nursing home care, much more expensive settings.[6] In order to pay for the increased costs to fulfill the new Medicare law the federal government may be forced to "squeeze" savings elsewhere out of the system. These

[6] See Adams, A.S., Soumerai, S.B & Ross-Degnan D. (2001). The Case for a Medicare Drug Coverage Benefit: A Critical review of the Empirical Evidence, Annual Review of Public Health 2001.

effects may resemble the period of the mid-to-late 1990s, when managed care penetration peaked and the greatest savings were squeezed out of the acute-care hospital sector. Another likely scenario is that after some period of adjustment, health care spending may return to its long-term average over the last roughly 35 years of 10 percent annual growth nationwide. There is some evidence for this last scenario: most of the literature on the growth of health care spending places most of the blame on inexorable factors beyond the control of government: technology, increased consumer demands and demographic factors such as the aging of the population. These competing scenarios are listed in Table 3.

Retirement Spending by School Districts

Next we focus our attention upon the effects of school district retirements upon school district spending. As Table 4 indicates, in the mid-to-late 1990s, aggregate statewide contributions for teacher retirement declined precipitously, ostensibly due to the bull market in United States stock portfolios.

Table 4:
Contributions by School Districts to the NYC and NYS Teacher Retirement Systems, 1995-2002, Benchmarked to the Performance of the Russell 3000 (Stock) Index

Year	Year-Ending Russell 3000 Index Value	Russell 3000 Percentage Change over Prior Year	Total State Contributions of Districts to the TRS [1] (in $ Millions)	TRS Contributions' Percentage Change over Prior Year
1995	1,219		$1,002	
1996	1,485	21.8%	$859	-14.3%
1997	1,957	31.8%	$709	-17.5%
1998	2,429	24.1%	$633	-10.7%
1999	2,936	20.9%	$360	-43.1%
2000	2,717	-7.5%	$548	52.2%
2001	2,406	-11.4%	$573	4.6%
2002	1,888	-21.5%	$702	22.5%
Average		8.3%		-0.9%

[1] Reflects a composite figure, representing the actions of two fund managers: the NY City Teachers Retirement Fund and that of the New York State Teachers Retirement System

Source(s): New York State Education Department, *ST-3 Annual Financial Report of School Districts* and Frank Russell Company, *Russell 3000 Index*.

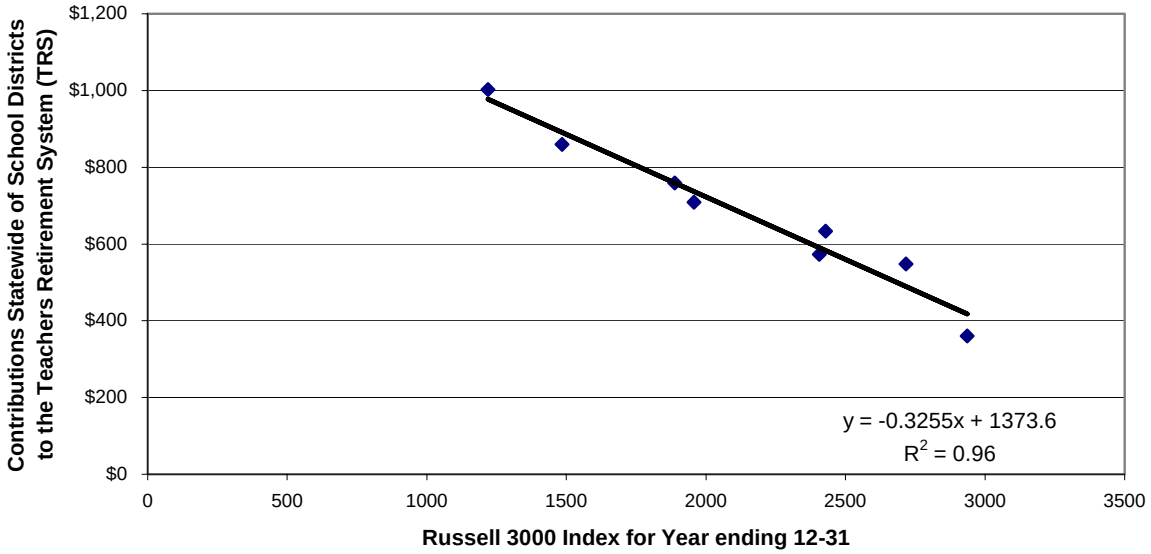
This trend is clearly reflected in the growth of the Russell 3000 stock index,[7] an index considered to be a very broad indicator of domestic United States corporate equity performance. As such it is an indicator that many funds, including the New York State

[7] Russell 3000 Index: http://www.russell.com/US/Indexes/US/3000.asp

Teachers Retirement System (TRS) seek to benchmark against, with an eye toward meeting or exceeding it. [8] You will note that, consistent with expectation, as the U.S. domestic equity market increased dramatically in the years immediately preceding the recession in 2000, teacher retirement contributions were reduced; conversely, as the equity markets lost asset value, contributions to the retirement system once again increased, placing a greater burden on many school systems.

This trend is illustrated in the graphic in Chart 2. As the R^2 statistic demonstrates, this is a very robust model: 96 percent of the variance in statewide total contributions to the teacher retirement system is explained by the variance in the Russell 3000 index.

Chart 2:
Scatterplot of Russell 3000 Index and Total Statewide Contributions to the Teachers' Retirement System, 1995 to 2002



Although a simple linear regression model fits these data points well, this particular model is limited in the time period under consideration. We have less than ten years worth of data on teacher retirement contributions. However, over a longer period of time, the annual average appreciation in stocks is higher than it was during the period under study: 12.8 percent as measured by the Dow Jones Industrial Average for the period from 1983 thru 2004[9]. Moreover, during particularly "bullish" periods of stock market activity, such as the late 1990s, annual percentage increases in the asset value

[8] New York State Teachers Retirement System, http://www.nystrs.org/main/library/invest.pdf

[9] Dow Jones Co., Dow Jones Industrial Average, located at: http://djindexes.com/mdsidx/downloads/xlspages/DJIA_Hist_perf.xls

of stocks rose as much as 25 percent. These competing scenarios and the resulting forecasts (when the differing stock growth percentage increases are applied to the regression model developed earlier) are displayed in Table 5.

Table 5.
Low, Medium and High-Growth Forecasts of Total NYS School District Contributions to the Teachers Retirement System

School Year	Year Ending 12-31 Russell 3000 Value	Percent Change in Russell 3000 over Prior Year	Forecasted Contributions (in $ Millions)
Low Growth Estimate (reflects price increases of US stocks from 1996 to '99)			
2003-'04	2,474		$567
2004-'05	3,083	24.6%	$369
2005-'06	3,841	24.6%	$121
2006-'07	4,786	24.6%	($187)
Medium Growth Estimate (reflects 1983-2004 Dow Jones Ind. Average)			
2003-'04	2,474		$567
2004-'05	2,791	12.8%	$464
2005-'06	3,148	12.8%	$347
2006-'07	3,551	12.8%	$216
High Growth Estimate (Reflects 2000-2003 experience: growth in price of US stocks of -2.4%)			
2003-'04	2,474		$567
2004-'05	2,415	-2.4%	$586
2005-'06	2,357	-2.4%	$605
2006-'07	2,300	-2.4%	$624

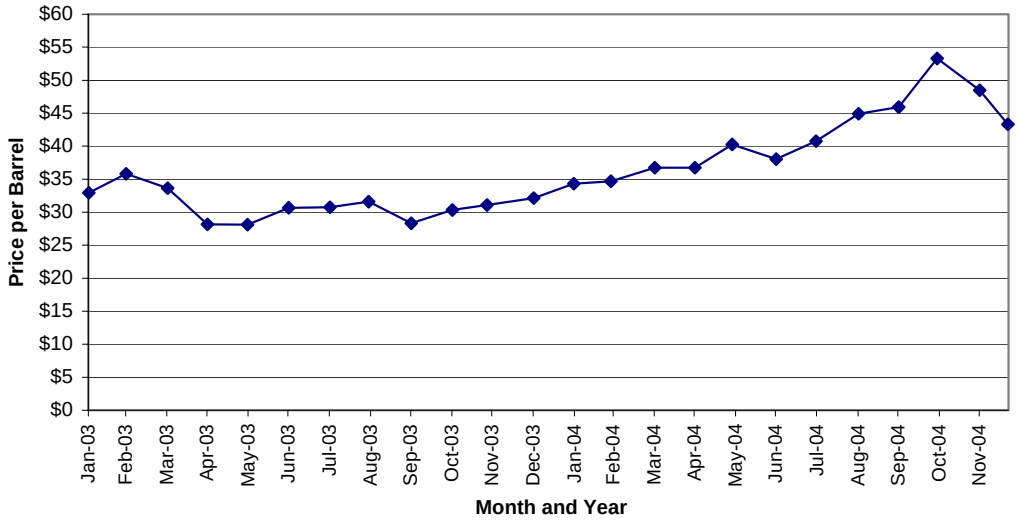
If we merely extrapolate the most recent experience in stock prices of the years from 2000 thru 2003, and apply the resulting regression equation, then school employer retirement contributions will level off at around $600 million annually, roughly what they were in 2001-'02. This retirement-cost estimate scenario would reflect the *high growth* series in Table 5. A more bullish expectation of stock price growth as reflected in the *low growth* series at the top of Table 5, would yield decreases in retirement contributions to $0 by 2006-'07. Finally, if domestic stocks - which dominate the asset allocation base of both the New York City and New York State Teacher Retirement Systems – return to their average over the last 20 years of 12.8 percent annual appreciation (i.e, the *medium growth* scenario), then pension contributions will decline to around $215 million by the 2006-'07 school year.

Energy Spending Growth Among New York School Districts

Recently, worldwide oil prices have risen remarkably. This development has caused oil prices to exceed $50 a barrel nationwide in recent months, after creeping up steadily

throughout the last year, beginning in January 2004 (see Chart 3).[10] However, as the chart also shows, in November and the first three weeks of December 2004, there has been a downward trend. The price swings in this particular school district spending category in recent months make this a very volatile commodity to forecast. Moreover, the potential impact of this spending category on the rest of the economy as a whole dwarfs that of both health spending and retirement contributions.

Chart 3. Average Monthly U.S. Oil Prices (West Texas Intermediate), 2003 and 2004



As Table 6 makes plain, over the last 11 years for which data are available, school districts in New York have spent roughly between $600 and $800 million annually on energy to heat and light facilities, with an average growth of four percent per year.[11] As a careful perusal of Table 6 also makes clear, there have been wide swings from year to year in these energy costs. This raises a question concerning our ability to identify other, leading edge indicators, which capture this "bumpiness" in a fashion that might improve our ability to predict future energy spending.

[10] US Department of Energy, *Short-term Energy Outlook*, located at: http://www.eia.doe.gov/emeu/steo/pub/contents.html

[11] The total energy spending highlighted in Table 7 is an understatement of total energy consumption costs at the district level. That is, two other expenditure functions contained in the ST-3 annual financial report – one for "Pupil Transportation: Contractual and other Expenditures" and another, "Materials and Supplies", are expenditure functions under which some districts may also account for their fuel purchases. However, the former expenditure category would likely include the contracted labor costs in districts that do not run and operate their own bus lines, but rather contract for such services. Moreover, materials and supplies may include fuel costs but other items may be recorded in this cost center as well. Therefore, we chose to be conservative. Still, the expenditures listed here reflect approximately 85 percent of potential energy spending, and the exclusion of these other two account codes does not change markedly the annual growth rates or the results overall.

Table 6.
Energy Expenditures of New York State School Districts, 1992-'93 to 2001-'02 School Years

School Year	Total NYS School Energy Expenditures (in $ Millions)	Total Energy Spending, Percent Change Over Prior Year
1992-'93	$527	N/A
1993-'94	$568	7.7%
1994-'95	$563	-0.8%
1995-'96	$612	8.7%
1996-'97	$636	3.9%
1997-'98	$621	-2.4%
1998-'99	$644	3.7%
1999-'00	$674	4.6%
2000-'01	$782	16.1%
2001-'02	$737	-5.8%
2002-'03	$797	8.2%
Total	$7,159	4.4%

Source: Form ST-3 Annual Financial Report of New York State School Districts

In this vein, one of our first forecasting tasks is to determine if there is a relationship between oil prices and end-user prices for energy costs as a whole. It is necessary we would argue, to first specify this relationship since petroleum consumption itself makes up only a share of the total energy costs incurred by school districts: electricity, natural gas and coal (to a very limited degree), are also in the "energy mix" of schools and if we assume that high oil prices are driving school energy cost increases, we want to see if the former correlates with energy prices, overall. The average end-user energy price index cited here, generated by the United States Department of Energy can be thought of in a rough way as a consumer price index for the energy sector. [12]

The bivariate correlation results of several energy-related variables in Table 7 suggests that there is indeed a strong relationship between oil prices and average end-use or consumer prices across all energy sectors and sources ($R=.83$, $p<.01$). In turn, a strong, statistically significant relationship exists between total New York school district energy spending and average end use prices, as well. Some of the growth in energy spending, of course, is demand-driven and may simply reflect increases in school enrollments. As the third row of the correlation matrix reveals, fall enrollments correlate positively and strongly with school spending on energy ($r=+.78$). So it would appear that as enrollments have risen, (see Chart 4, where the average annual growth rate is

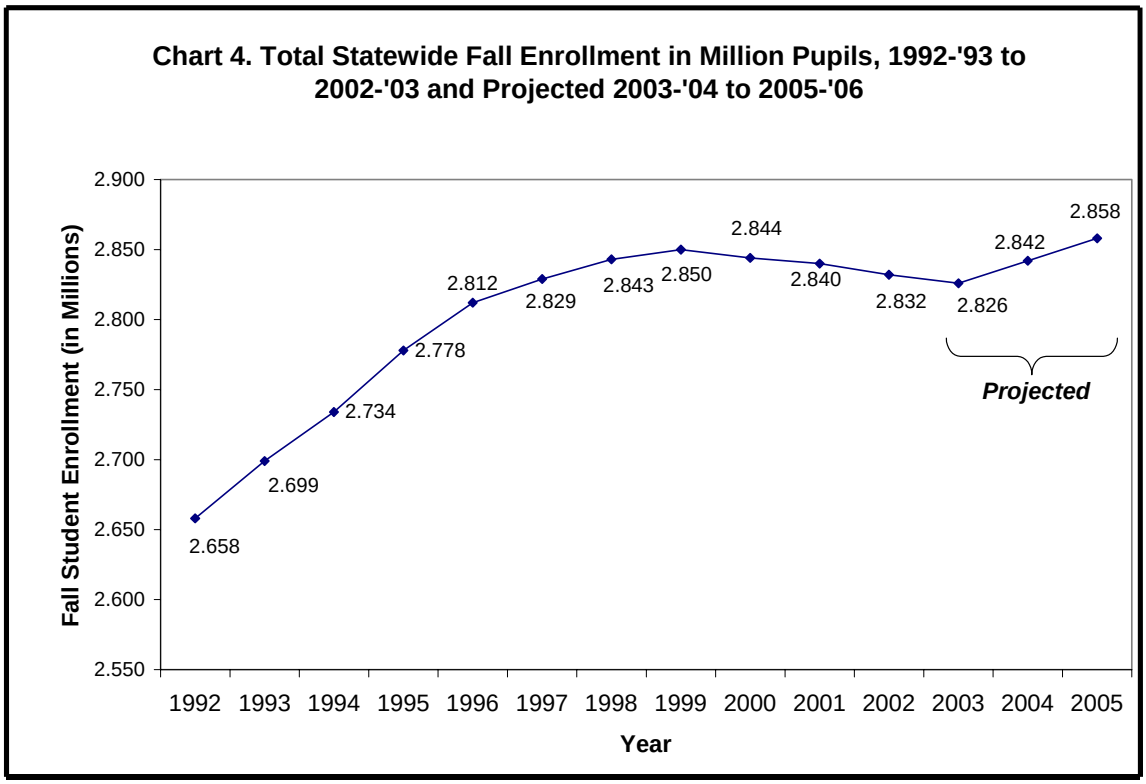
[12] United States Energy Dept. *Annual Energy Review, 2003*, located at: http://www.eia.doe.gov/emeu/aer/txt/stb03.xls

.56 percent), energy consumption has increased as well, evidently in order to accommodate the greater demand for energy occasioned by a new infusion of students.

Table 7.
Bivariate Correlations of Selected Energy Variables

		NYS School District Energy Spending	Crude Oil Prices (W.Texas Intermediate)	NYS Fall Enrolled Students
NYS School District Energy Spending	R			
	Sig.			
Crude Oil Prices (W. Texas Intermed.)	R	.75**		
	Sig.	0.02		
NYS Fall Enrolled Students	R	.78**	.12	
	Sig.	0.01	0.3	
Average End-Use Price for all Energy Sectors	R	.84**	0.83**	.27
	Sig.	0.01	0.01	0.11

* Correlation is significant at the 0.05 level (2 tailed).
** Correlation is significant at the 0.01 level (2-tailed).

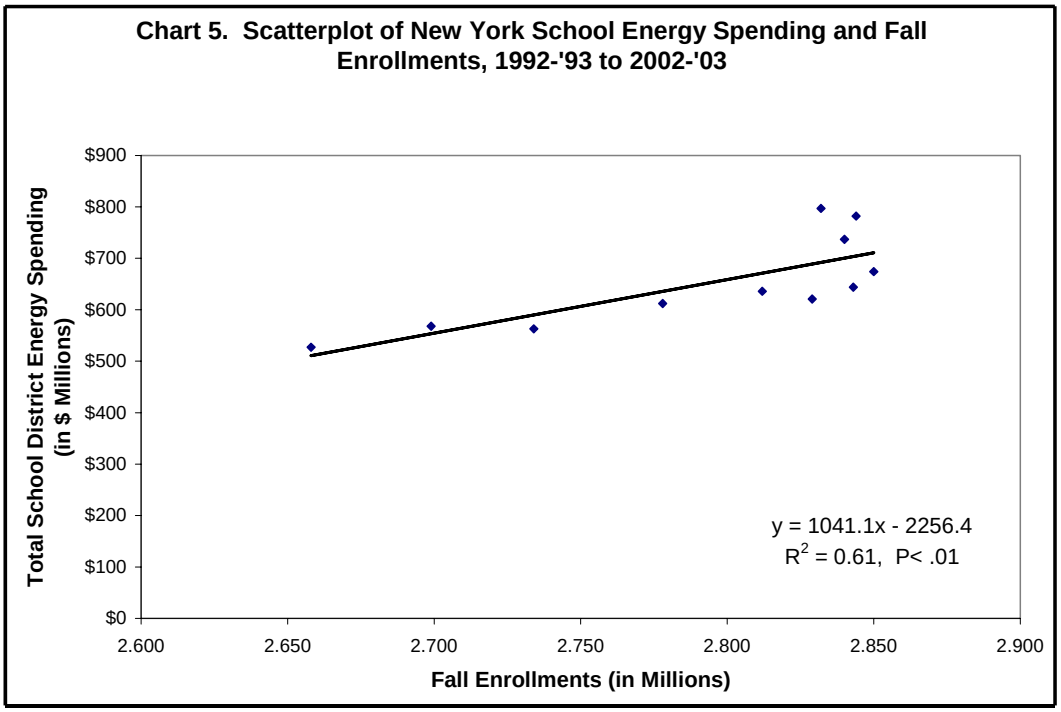


Following our past practice, a series of bivariate regressions were conducted, in which school district energy spending was regressed upon each of the three independent variables arrayed in the correlation matrix in Table 7: fall student enrollments, average

energy prices and prices for oil, only. These relationships are graphically depicted in the scatterplots in Charts 5, 6 and 7 that follow.

The resultant bivariate regression equations, as well as projected future values of the independent variables were then used to forecast school district energy spending.[13] In the case of fall enrollments and average energy prices, future values were forecast using a moving average algorithm, in which the average annual percent change over the eleven years, is projected three years out at a constant rate. This is displayed in the last three data points in Chart 4 on student enrollments, where the rate of annual change is constant, thus yielding a straight line: the regression line through the eleven previous observed data points.

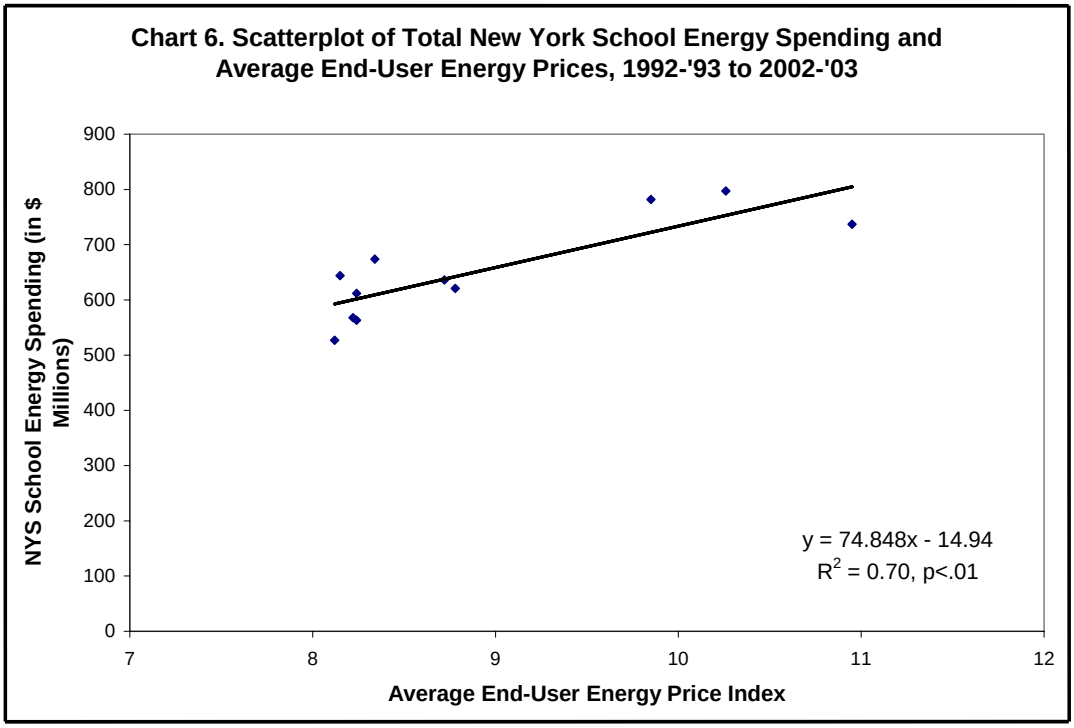
Chart 5. Scatterplot of New York School Energy Spending and Fall Enrollments, 1992-'93 to 2002-'03



The slopes of the two regression lines in Charts 5 and 6 are different with a greater change in energy spending associated with each change in energy prices (relative to enrollment). The standardized beta weights of the two models are .78 and .83, respectively. This indicates that each 1 standard deviation change in end-use energy prices yields a .83 standard deviation change in energy spending. Furthermore, the energy price model is a more highly predictive one (i.e., R^{-2} of .70 for this measure vs. .61 for the enrollment predictor). The oil and average end-use energy price data

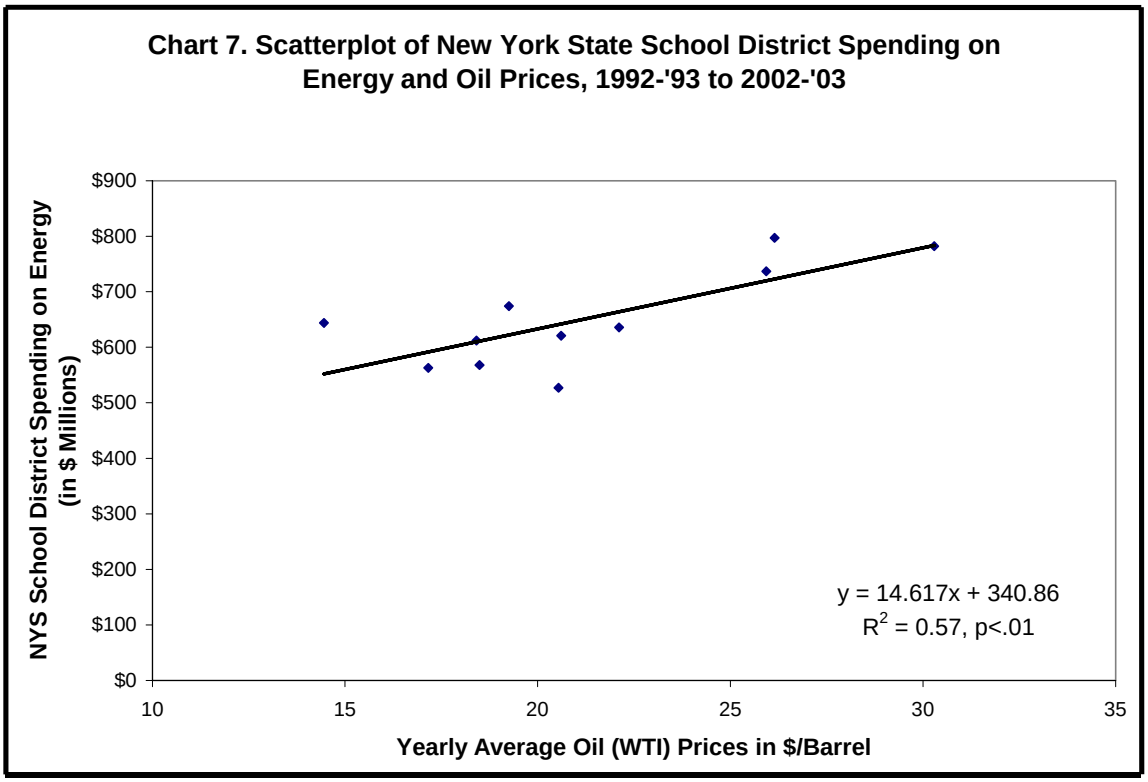
[13] To say that we will be predicting 'future values' is somewhat inaccurate. Because of claim lags from school districts, and processing lags by the SED, the values we will forecast are only in the future, relative to the most current year data available: 2002-'03. Therefore, the forecast will actually be better understood as an estimate of both present and future values.

contained in Charts 6 and 7 comes from actual and forecasted values of the Department of Energy.[14]



Applying the regression equation results of Charts 6 and 7 to predictions of future energy and oil prices, respectively, yields much higher future cost estimates of New York school district energy expenditures than do enrollments. That is, as seen in the two rightmost columns in Table 8, the school district energy-spending forecast based on oil prices and average energy prices are more aggressive in terms of average annual growth in energy spending by schools. Specifically, over the three-year predicted period, the energy and oil price-driven models predict greater spending of $625 and $668 million respectively, more than the model based on enrollment. Moreover, in the 2005-'06 school year, the school spending on energy predicted by oil and energy prices range from roughly $ 900 million to $1billion.

[14] Forecast of average end-use energy prices from US Department of Energy, 'Annual Energy Outlook, 2005', located at: http://www.eia.doe.gov/oiaf/aeo/excel/aeotab_3.xls; Oil price forecast from US Department of Energy, 'Short Term Energy Outlook, February 2005, located at: http://www.eia.doe.gov/emeu/steo/pub/wk1/4tab.wk1



The estimate based on enrollments is lower than those based on oil and energy prices because the slope of the relationship is less steep: the standardized beta associated with this model is .76 (while the other two models have betas of .78 and .83): so each 1 standard deviation change in enrollments generates a .76 standard deviation change in energy spending by schools statewide. This is due to the slower enrollment growth of the last few years: as Chart 4 illustrated, enrollment has leveled off since the late 1990s after steady growth before this. In the first year forecasted (2003-'04) the oil price based estimate is lower than that driven by energy prices. In this year, oil prices were just $31 per barrel. In the next year, though, the price of oil rose to over $41. This price spike results in the oil price forecast overtaking that based on total energy prices. Nevertheless, the difference in the oil and energy price based forecasts over the three years is negligible: the oil price forecast is just 1.3 percent higher than that driven by energy prices.

Table 8.
NYS School Energy Spending Forecasts, Using Several Different Predictive Variables, in $ Millions, 2003-'04 to 2005-'06

School Year	Forecast Based on Enrollments ***(Low Estimate)***	Forecast Based on Average Energy Prices ***(Middle Estimate)***	Forecast Based on Oil Prices, *Only* ***(High Estimate)***
2003-'04	$686	$846	$795
2004-'05	$702	$921	$947
2005-'06	$719	$906	$1,006
Total	$2,784	$3,409	$3,452

Discussion

New York like many other states in recent years has focused its energies and indeed, its education financial resources on closing the achievement gap. This has primarily meant that greater funding has been targeted on instructional and capital expenditures in the schools of needy pupils: while overall spending grew 6.45% annually on a nominal basis from 1993-'94 to 2002-'03, statewide, spending on instructional expenses including teacher salaries, and capital grew faster, at rates of just under 7 (6.96) and 7.7 percent, respectively. The growth of the three spending categories discussed in this paper – health, retirement and energy - which is relatively difficult for school officials to impede, threatens to undermine this significant instructional investment in education. However, this same threat can also be viewed as an opportunity: the flush times that the state has enjoyed in the last half dozen years in K-12 education spending must now, in a period of greater fiscal restraint, force a search for those actions and behaviors that are most cost-effective in generating continued achievement gains.