

Tax Dollar Performance in Nevada

**A Quantitative Analysis of the Effectiveness of
Government Spending in the Silver State**

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Key Findings

- The current state budget shortfall in Nevada has sparked a debate over whether to increase taxes. However, few attempts have been made to measure the effectiveness with which tax dollars are being spent in Nevada.
- Quantitative analyses performed in this study provide empirical evidence suggesting that tax dollars are being spent quite ineffectively in Nevada. Indeed, across a range of performance measures, the quality of services may have deteriorated as tax rates have increased in Nevada.
- There is at least limited evidence to suggest that for every additional \$100 in per-capita tax revenues:
 - Graduation rates decline by 0.37 percent while SAT scores improve by 0.81 points.
 - The quality of healthcare deteriorates—to the tune of an additional 16.6 years lost to premature death per 100,000 in population.
 - The crime rate increases by 0.64 percent over the national average.
 - Nevada’s national ranking of highway system performance falls by 0.5 places.
- The ineffectiveness of state and local government to translate higher tax revenues into improved performance is likely due to structural deficiencies that fail to encourage efficiency.
- The average quality of life in Nevada may improve if structural reforms are implemented to expose government agencies and their workers to market forces that encourage greater efficiency and effectiveness.

All dollar figures are adjusted for inflation and reported in 2008 values.

Introduction

Public debate in Nevada has recently focused on whether state government should restructure its financing mechanisms to increase taxes on Nevada's citizens. This debate has come in response to a revenue "shortfall" in the 2007-2009 biennial budget, leading state policymakers to offer cuts in planned spending and to borrow money to prop up the General Fund. While some observers have characterized budget cuts as deplorable, few attempts, if any, have been made to analyze the effectiveness with which tax dollars are spent in Nevada.

Tax dollars are allocated to purchase goods such as educational achievement, public safety, public health and road construction and maintenance. How effective, however, have these public expenditures been? Answering this question is critical to understanding whether or to what extent Nevada state government should increase its tax base. How effectively each of these goals has been met should give policymakers a better idea of how to more efficiently allocate expenditures across each category.

This study attempts to answer these questions by comparing performance in each of these areas with the tax dollars spent to achieve that performance. To do so, the study selects various performance indicators to serve as a gauge for the annual performance level in each area. Then, statistical and other quantitative analyses are applied, to evaluate the effectiveness of the marginal tax dollars in meeting Nevada's major public policy goals.

The results are highly suggestive, indicating that tax dollars have been spent very ineffectively in Nevada, and that higher tax rates have largely failed to produce improvement in the quality of services provided. In fact, for many of the performance measures examined, the data suggests that *higher tax rates may have a negative impact on the quality of government services*. The study concludes by providing possible explanations as to why these trends exist.

Trends in the Tax Burden

Recent history in Nevada provides a valuable opportunity to examine the impact of an increase in tax collections on the quality of government services. This is because state as well as local tax collections in Nevada, both in the aggregate and in per-capita terms, have increased over time. Assuming that greater tax collections translate into an improved government ability to provide public services, one should find that the quality of public services in Nevada has improved in more or less direct proportion to the increase in tax revenue.

As shown in Table 1, the total amount of state tax collections has increased by 133 percent over the 16-year period between FY92 and FY07. Much of this increase has been due to an extremely high population growth rate. However, even state per-capita tax collections have increased by 23 percent over this time period. To ensure consistency in

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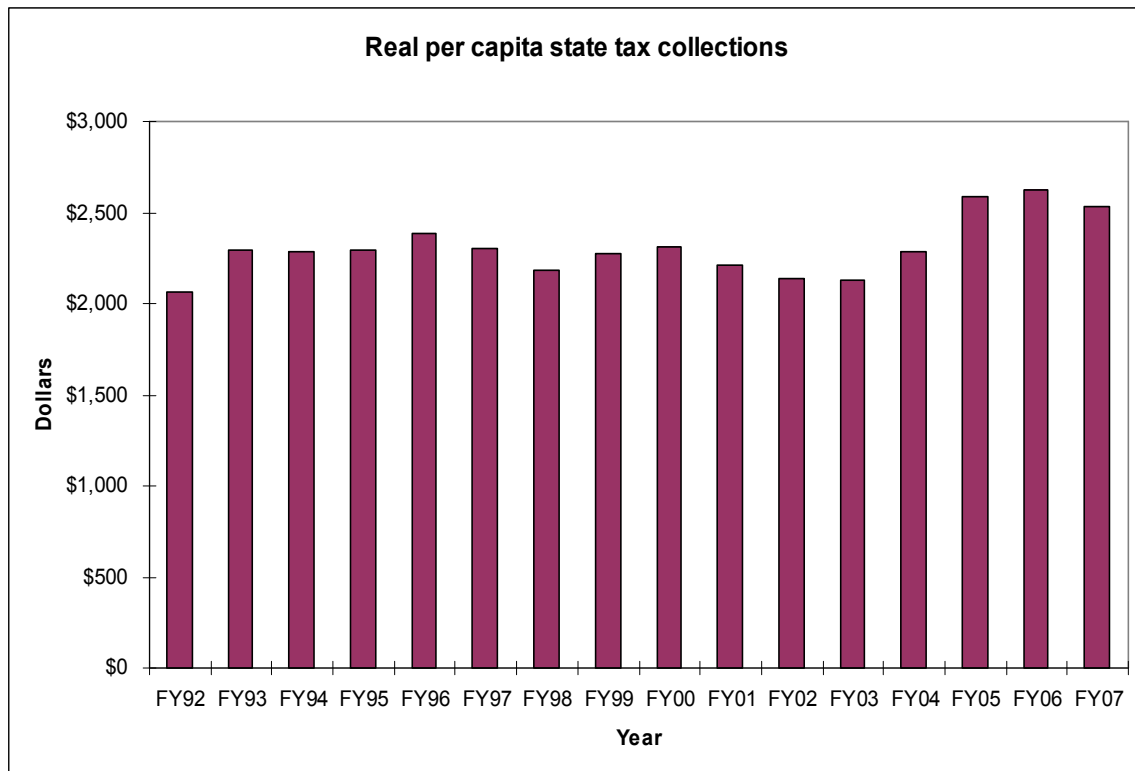
the analysis, all dollar figures in this report have been adjusted for inflation and are reported in 2008 dollar values.

Table 1

<i>State tax collections, FY92-FY07</i>			
Year	Tax Collections	Population	Per Capita Tax Collections
FY92	\$2,783,780,153	1,351,367	\$2,060
FY93	\$3,231,022,222	1,411,215	\$2,290
FY94	\$3,420,558,908	1,499,298	\$2,281
FY95	\$3,816,609,618	1,666,320	\$2,290
FY96	\$3,977,123,626	1,666,320	\$2,387
FY97	\$4,059,397,333	1,764,104	\$2,301
FY98	\$4,053,385,417	1,853,191	\$2,187
FY99	\$4,397,444,872	1,934,718	\$2,273
FY00	\$4,658,214,286	2,018,456	\$2,308
FY01	\$4,639,500,000	2,095,820	\$2,214
FY02	\$4,641,563,529	2,169,202	\$2,140
FY03	\$4,779,093,750	2,241,127	\$2,132
FY04	\$5,335,588,235	2,332,484	\$2,288
FY05	\$6,237,809,681	2,412,301	\$2,586
FY06	\$6,538,767,269	2,492,427	\$2,623
FY07	\$6,486,371,399	2,565,382	\$2,528

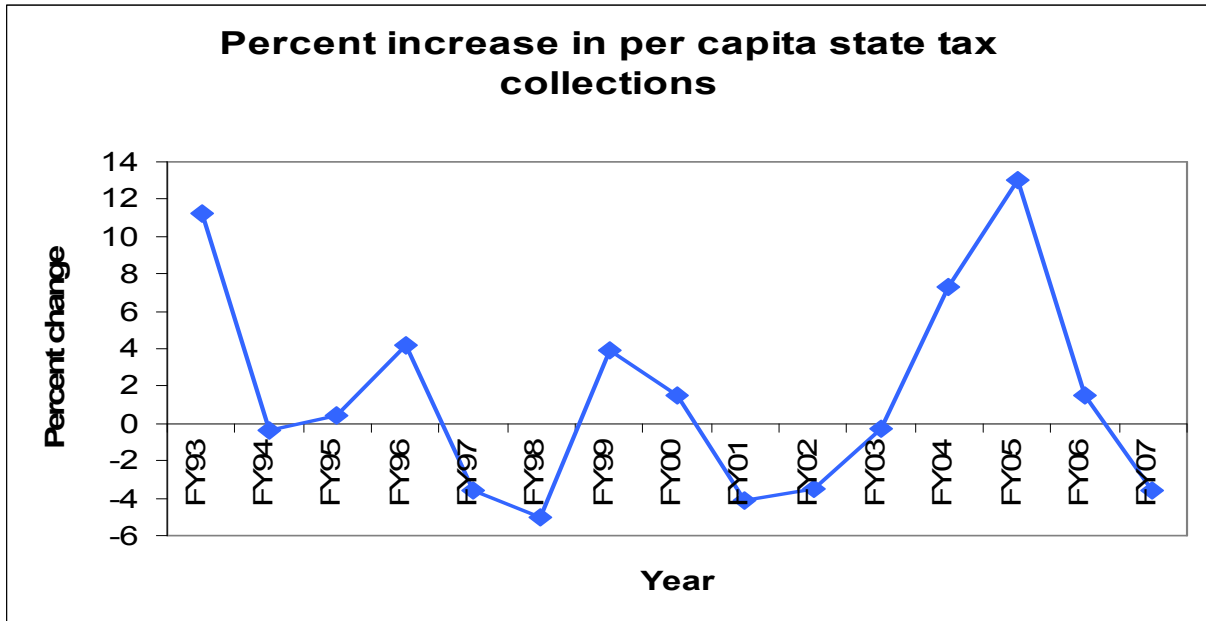
Source: US Census Bureau¹

Chart 1



All dollar figures are adjusted for inflation and reported in 2008 values.

Chart 2



In addition, local tax collections have increased substantially over this time period, both in absolute and in per-capita terms. As shown in Table 2, the tax collections for local governments in Nevada increased 133 percent between FY92 and FY06 while the per-capita tax for local governments increased 26 percent. (Data for FY07 is not yet available.)

Table 2

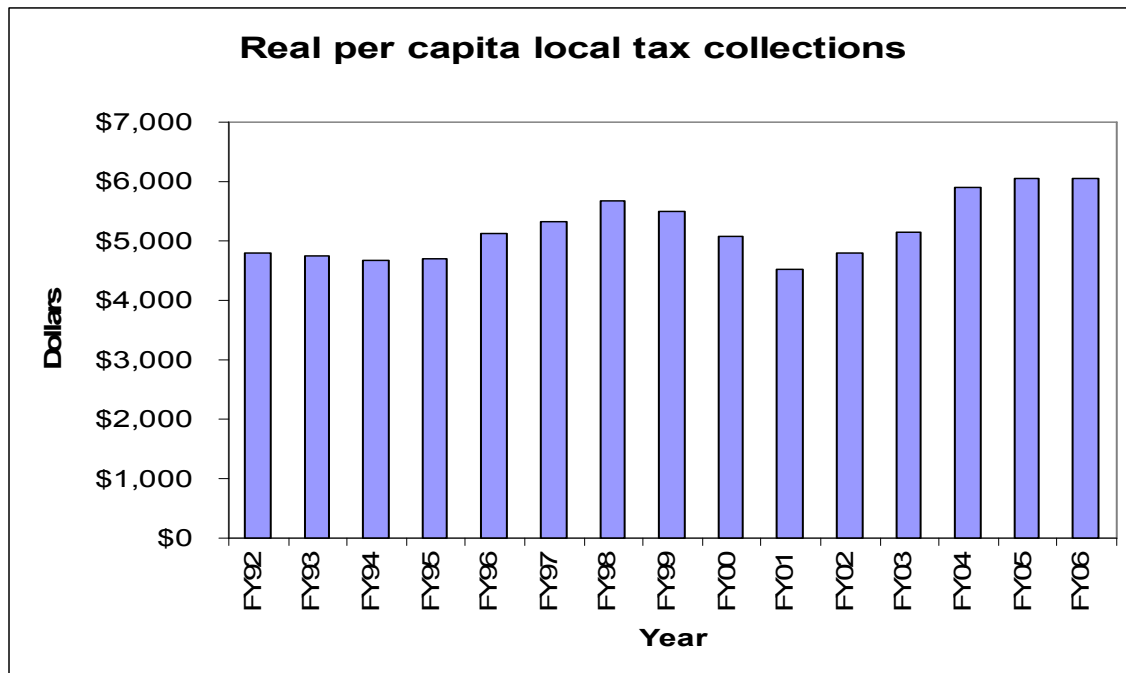
Year	Tax Collections	Population	Per Capita Tax Collections
FY92	\$6,475,283,969	1,351,367	\$4,792
FY93	\$6,701,475,556	1,411,215	\$4,749
FY94	\$6,993,216,954	1,499,298	\$4,664
FY95	\$7,832,353,607	1,666,320	\$4,700
FY96	\$8,556,006,868	1,666,320	\$5,135
FY97	\$9,414,597,333	1,764,104	\$5,337
FY98	\$10,500,981,771	1,853,191	\$5,666
FY99	\$10,629,293,590	1,934,718	\$5,494
FY00	\$10,235,359,649	2,018,456	\$5,071
FY01	\$9,466,897,094	2,095,820	\$4,517
FY02	\$10,428,274,118	2,169,202	\$4,807
FY03	\$11,515,118,056	2,241,127	\$5,138
FY04	\$13,768,218,326	2,332,484	\$5,903
FY05	\$14,612,774,477	2,412,301	\$6,058
FY06	\$15,101,377,258	2,492,427	\$6,059

Source: US Census Bureau²

Note: Census surveys were not conducted in all jurisdictions for FY01 and FY03. As a result, the numbers shown here are somewhat smaller than the actual numbers.

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Chart 3



Although much of recent public debate in Nevada has focused on the state’s General Fund, it is worth pointing out that the General Fund is a relatively small source of government spending in Nevada. General Fund revenues represent only a fraction of state government revenues, with much of the state’s revenues going into other accounts such as the Federal Fund, the Highway Fund and a variety of other funds. Furthermore, because state tax collections are overwhelmed by local tax collections in terms of size, the proportion of General Fund revenues to total government revenues in Nevada is reduced even further. Table 3 demonstrates the proportion of General Fund revenues to total government revenues, and how that proportion has changed over time.

Table 3

<i>General fund revenues as a percentage of total government revenues</i>			
Year	State and Local Tax Collections	General Fund Revenue	Proportion GF Revenues to Total Government Revenues
FY96	\$12,533,130,495	\$1,773,745,853	14.2%
FY97	\$13,473,994,667	\$1,803,451,404	13.4%
FY98	\$14,554,367,188	\$1,839,034,296	12.6%
FY99	\$15,026,738,462	\$1,956,355,018	13.0%
FY00	\$14,893,573,935	\$2,063,688,396	13.9%
FY01	\$14,106,397,094	\$2,099,414,663	14.9%
FY02	\$15,069,837,647	\$2,061,127,020	13.7%
FY03	\$16,294,211,806	\$2,112,675,979	13.0%
FY04	\$19,103,806,561	\$2,719,463,751	14.2%
FY05	\$20,850,584,158	\$3,017,233,246	14.5%
FY06	\$21,640,144,527	\$3,250,588,160	15.0%

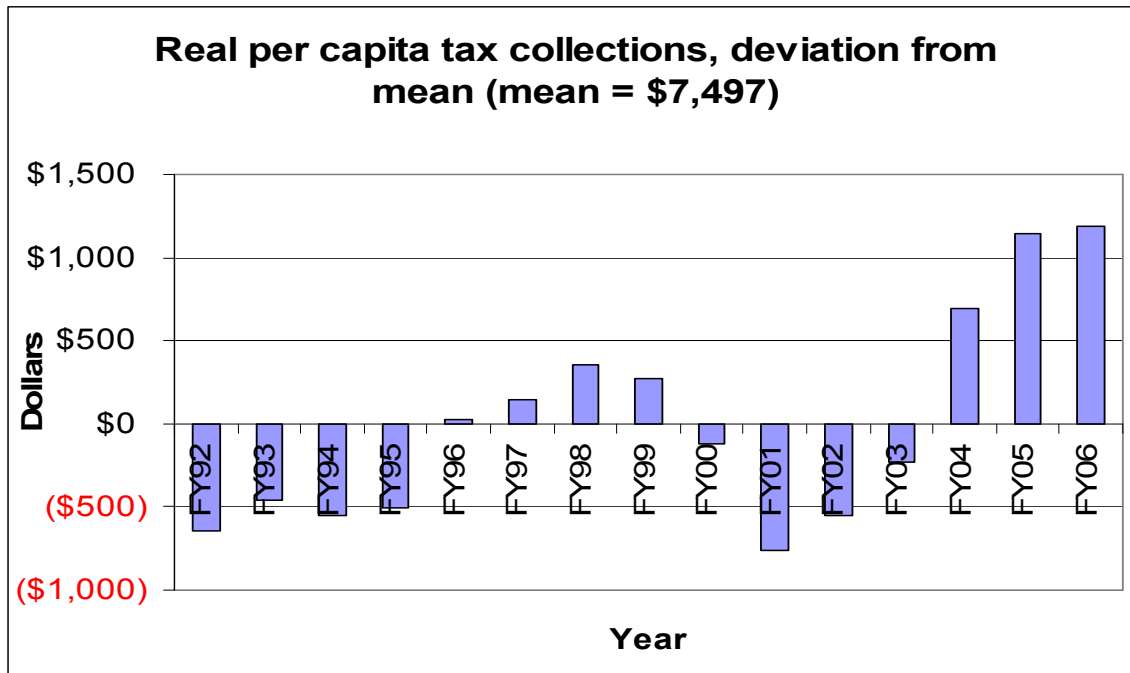
Source: US Census Bureau and Nevada Economic Forum⁵

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Methodology

To attempt to gauge the impact that marginal tax dollars have on quality of government services, this study uses a standard that differentiates relatively high tax years from relatively low tax years as a measure for comparison. This standard will be the deviation from the mean per-capita tax rate over the 15-year period from FY92 to FY06.

Chart 4



This approach allows us to visualize which years are associated with relatively higher tax rates. Readers comparing the above chart with charts representing the quality of performance within each area of government services will gain an intuitive sense of how well higher tax revenues have correlated with higher levels of performance.

This visual analysis is supplemented with formal regression analyses that determine the statistical correlation, significance and strength of the relationships. If tax dollars in Nevada are spent effectively, then the regression analyses will show a statistically significant relationship indicating that higher tax rates have improved the quality of services provided. If such a relationship cannot be found, then one should logically conclude that tax dollars in Nevada have been spent ineffectively.

It should be noted that the extent to which data is available varies for each of the performance measures used in this analysis. As such, the range of years examined for each measure varies accordingly. The data contained in Chart 4 has been modified in each case to reflect the range of years for which data is available on the respective measure and to facilitate the reader's visual comparison.

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Performance measures for which there are fewer data points available necessarily have a less reliable statistical correlation. That is, one is less able to declare with a reasonable degree of confidence that the demonstrated relationship is actually representative of the true relationship. The analysis therefore highlights, for each measure, the extent to which confidence can be placed in the findings.

This analysis examines performance measures that are used as proxies to determine the quality of services for the largest areas of expenditure by state and local government in Nevada. As Table 4 illustrates, these include expenditures on (1) education, (2) social services, (3) public safety and (4) transportation. In each case, the selected performance measures are chosen based on how accurately the measures represent the quality of services provided in each category and on how extensive the available data set is.

Table 4

<i>Category</i>	<i>2006 Expenditures</i>	<i>Ranking</i>
Education	\$5,129,329,000	1
Social Services	\$2,906,698,000	2
Public Safety	\$2,021,483,000	3
Transportation	\$1,930,262,000	4
Utility purchases	\$1,649,264,000	5
Environment and housing	\$1,267,625,000	6
Governmental administration	\$1,221,129,000	7
Insurance trust	\$1,063,851,000	8
Interest on General Debt	\$703,755,000	9

It should further be noted that the regression analyses presented here are simple linear regressions and, as such, they do not include all possible explanatory variables impacting performance. Due to this limitation, the analyses are only useful for making predictions based upon correlation. The analyses are unable to reliably demonstrate causal relationships.

This means that the predictions made by these regression analyses should not be interpreted as conclusive evidence that a future increase or decrease in per-capita tax collections will necessarily lead to a corresponding increase or decrease in performance as predicted by the regressions. The results of the regressions simply show the relationship that has existed between per-capita tax collections and performance in the respective areas over the range of available data.

It is entirely possible that factors outside of these simple models have exerted a significant impact on performance. For instance, one of the regression analyses shows that higher tax rates have had a positive correlation with higher SAT scores. However, other factors such as changes in the way the test is administered, changes in the makeup of test takers, and/or changes in the level of personal preparation are likely to have exerted a significant influence on this result.

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Performance Measures

Education

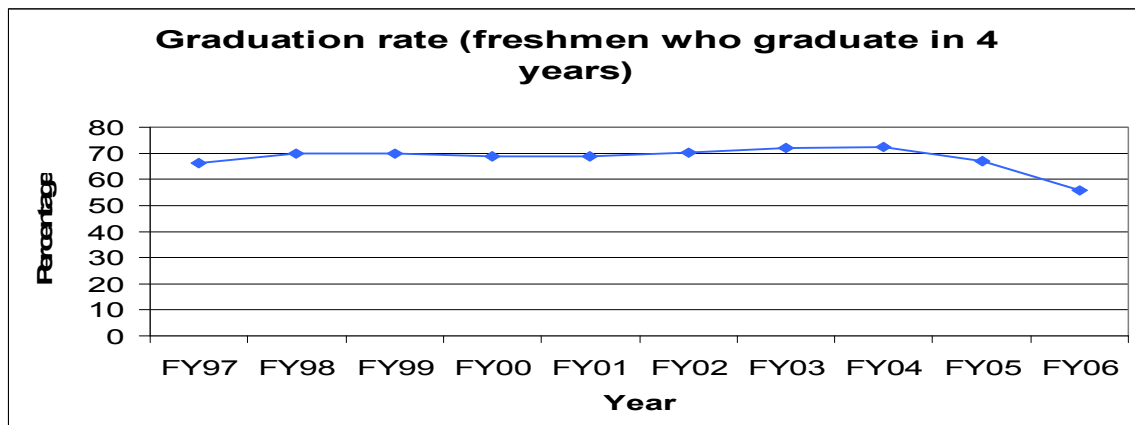
In Nevada, as elsewhere, spending at state and local levels is dominated by education. For example, in the 2007-09 biennial state budget, spending on K-12 education amounted to 34.6 percent of approved General Fund spending. The Nevada System of Higher Education took an additional 19.3 percent of the General Fund. In all, education spending comprised more than half of all General Fund spending at 54.4 percent. As a fraction of *total* state and local government spending in Nevada, 27.3 percent went to education in FY06—by far the largest share for any purpose. Due to its prominence in the budget, educational performance is a chief indicator of overall tax dollar performance.

Measurement of educational performance has been of significant interest in recent years. As a result, many indices and testing devices have been developed in an attempt to measure educational attainment. Many of these measurements remain relatively new, however, and this limits their practicality for statistical analysis as there yet remains a limited supply of data.

This analysis will utilize two measurements of educational performance for which the supply of data is plentiful. These are: graduation rates⁴ (defined as the percentage of high school students who graduate within four years) and SAT scores.⁵ Because data for these two measurements are available over a longer time frame, the analysis of tax dollar performance with regard to education will yield results that can be accepted with greater confidence levels.

Graduation rate. Chart 5 plots the graduation rate over the 10-year period from FY97 to FY06. Over this period, the mean (average) rate is 68.1 percent. Chart 6 shows the extent to which each year is above or below the mean. For visual comparison, Chart 7 shows the extent to which each year is above or below the mean for the per-capita tax collections in Nevada. Finally, Chart 8 uses a standard regression analysis to model the correlation between higher per-capita tax collections and the graduation rate in Nevada.

Chart 5



All dollar figures are adjusted for inflation and reported in 2008 values.

Chart 6

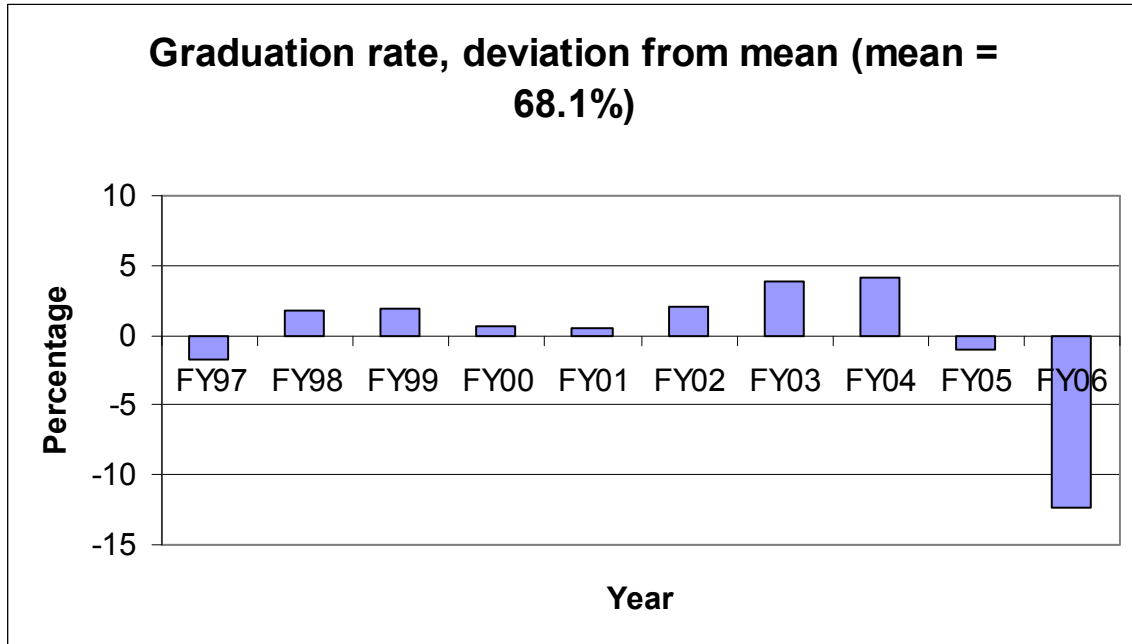
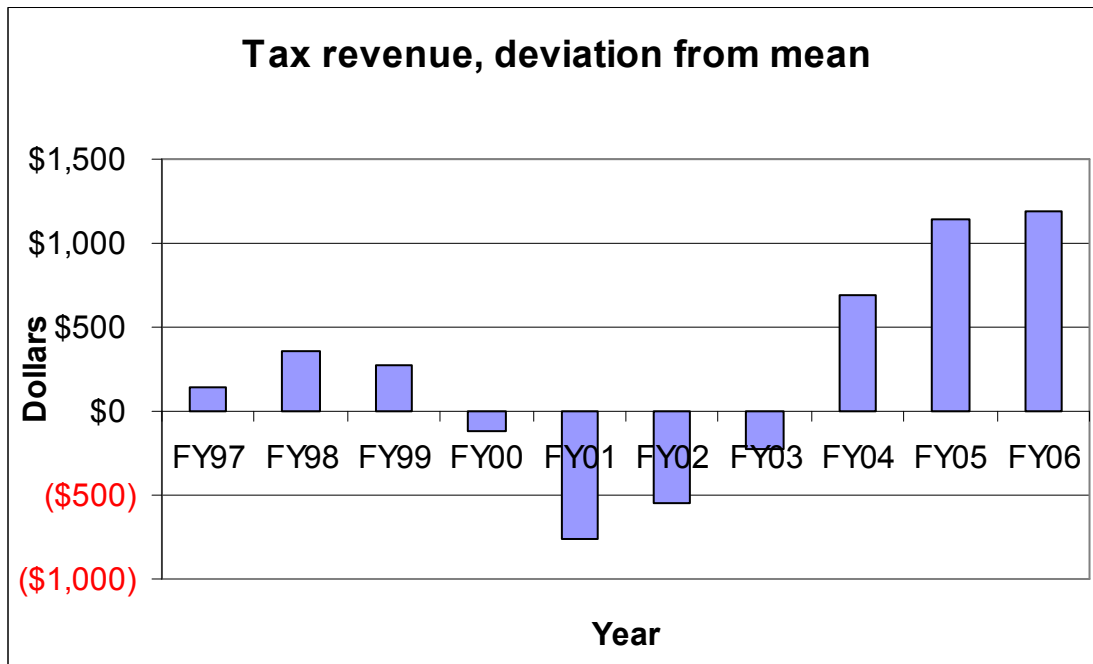
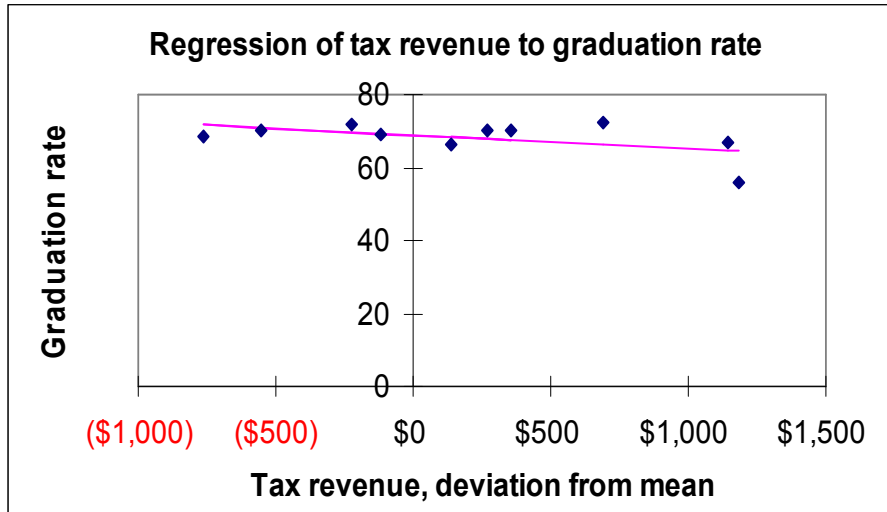


Chart7



All dollar figures are adjusted for inflation and reported in 2008 values.

Chart 8



Regression Statistics	
Multiple R	0.517575
R Square	0.267884
Adjusted R Square	0.176369
Standard Error	4.272506
Observations	10

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	68.87701	1.427243	48.25877	3.76E-11	65.58578	72.16823
Slope	-0.00369	0.002158	-1.71091	0.125462	-0.00867	0.001284

What the regression analysis shows is that higher per-capita tax collections are associated with lower graduation rates in the state. In fact, for every additional \$100 in per-capita tax collections, the graduation rate should be expected to decline by 0.37 percent, according to this analysis. However, the limited amount of available data limits the confidence that can be placed in these results. At best, one can say with 87 percent certainty that these results reflect the actual relationship (1.0 – (P-value) 0.125).

The fact that the available data suggest that higher taxes may actually have a *negative* impact on high school graduation rates, however, is important: It indicates that tax dollars are being used *extremely* ineffectively. Not only have higher per-capita tax rates failed to produce improvement in educational performance, as indicated by the graduation rate, but they appear to have actually *damaged* performance.

SAT scores. Educational performance can be measured in multiple ways, and graduation rates may not clearly indicate the actual effectiveness of tax increases vis-à-vis educational performance. A decline in graduation rates, for example, might simply result from a tightening of graduation requirements. Performing an analysis of SAT scores should help mitigate any such effect by indicating the quality of education that graduates have achieved.

As in the prior example, Chart 9 plots the average SAT scores of Nevada’s students over the 15-year period from FY92 to FY06. The mean score over this range is 1016. Chart 10 shows the extent to which each year is above or below the mean. For visual comparison, Chart 11 shows the extent to which each year is above or below the mean for the per-capita tax collections in Nevada. Finally, Chart 12 uses a standard regression analysis to

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model the correlation between higher per-capita tax collections and average SAT scores in Nevada.

Chart 9

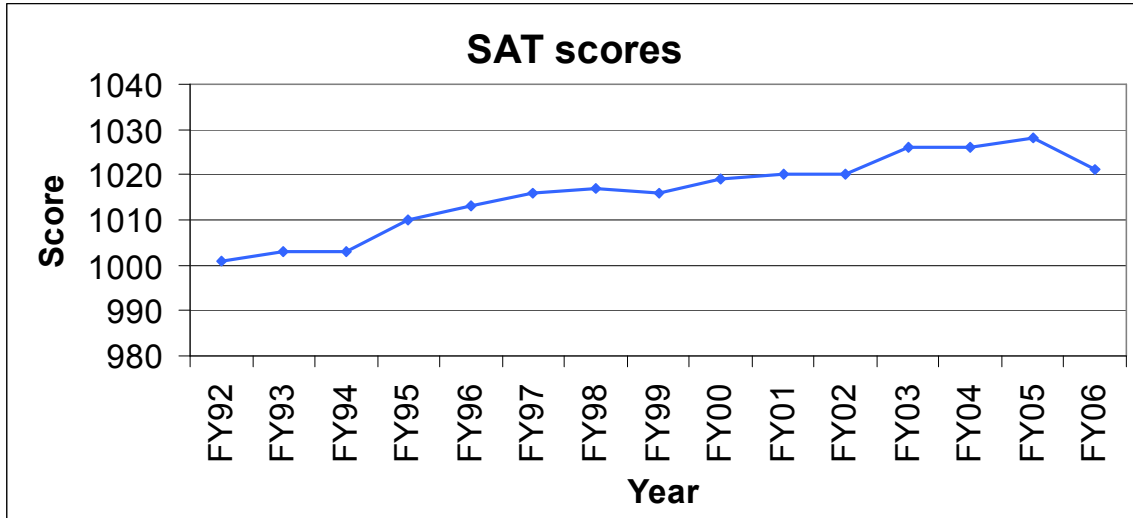
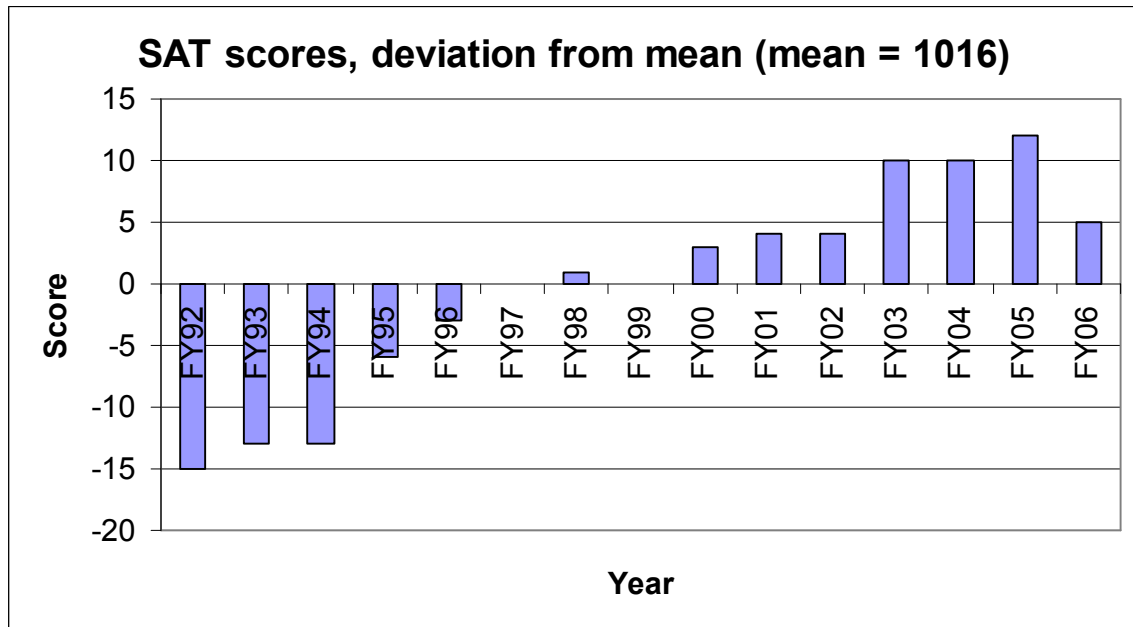


Chart 10



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Chart 11

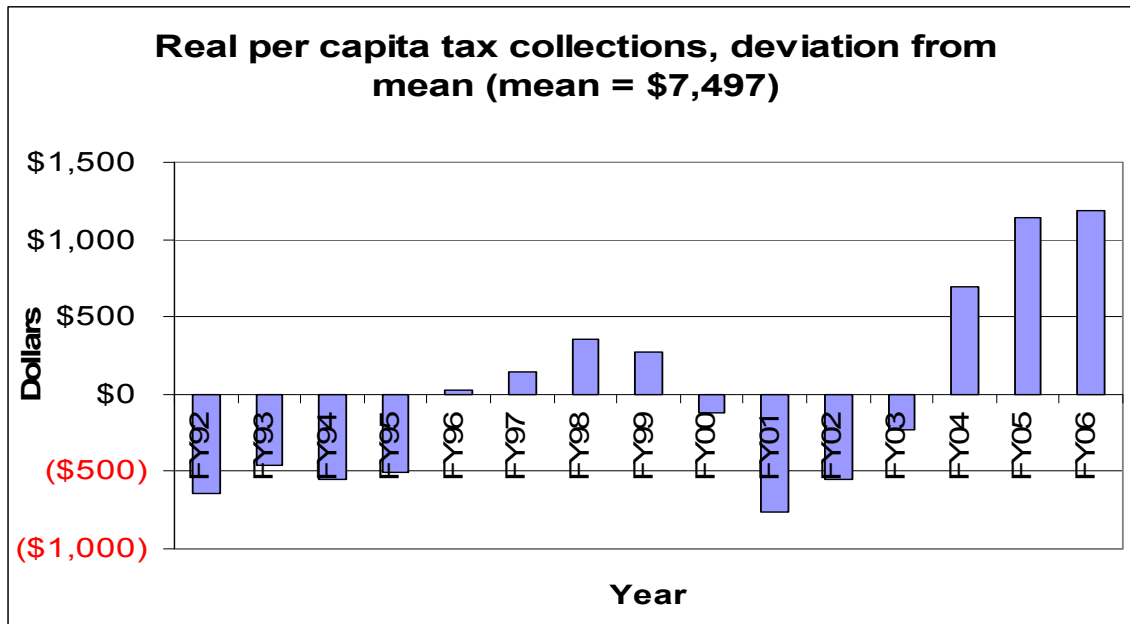
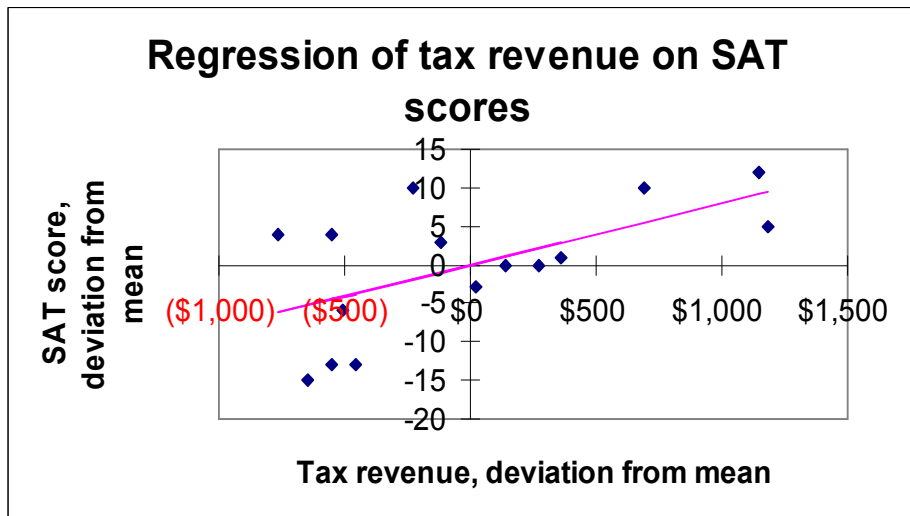


Chart 12



Regression Statistics	
Multiple R	0.595927
R Square	0.355129
Adjusted R Square	0.305523
Standard Error	7.109478
Observations	15

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.06379	1.83566	-0.03475	0.972808	-4.02949	3.901915
Slope	0.008066	0.003014	2.675643	0.019058	0.001553	0.014578

The regression analysis shows that higher per-capita tax collections tend to be associated with higher SAT scores in Nevada. For each additional \$100 in per-capita tax collections, the average SAT score should be expected to improve by 0.81 points (slope) according to this analysis. Moreover, there is a 98 percent confidence level that this data set accurately reflects the overall relationship and is not merely due to chance. (1 – (P-value) 0.019).

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This relationship suggests that, with regard to SAT scores, there is an increase in educational performance due to higher per-capita tax rates. This is generally the result that should be expected if tax dollars are being used effectively to improve the quality of government services.

This analysis shows that higher per-capita tax rates have been associated with a (1) lower graduation rate and (2) higher SAT scores in Nevada. This suggests that there is at best an ambiguous impact of higher taxes on educational performance. Once again, it should be emphasized that while these relationships provide a useful indication of tax dollar performance in Nevada, there are a host of inputs other than the level of funding that could impact these relationships. Indeed, these findings are weakened somewhat by a large body of evidence demonstrating that there is no significant relationship between spending levels on education and test score performance.⁶

Social Services

Social services, as a category of expenditure, receive the second largest amount of taxpayer funding in Nevada. In the 2007-09 biennial state budget, spending on social services amounted to 28.3 percent of approved General Fund spending. In addition, spending on social services amounted to 15.4 percent of *all* spending by state and local government combined in FY06.

Social services spending goes mainly into two categories: healthcare and public welfare. Due to the difficulty of quantifying the quality of public welfare services, however, this analysis uses the quality of healthcare as a proxy for the quality of social services in Nevada. To do this, the analysis utilizes a measurement of the rate of premature deaths that have been calculated by the U.S. Department of Health and Human Services.⁷ This measurement estimates the number of years lost per 100,000 in population due to deaths from preventable diseases.

Again, if additional tax dollars have been spent effectively in Nevada, quality of healthcare should improve. As a result, one would expect that the number of years lost from premature deaths would decline as tax collections increase. In this example an inverse relationship (producing a negative slope) would imply that tax dollars have been spent effectively, with the degree of the slope indicating the degree of effectiveness.

Chart 13 plots the number of years lost from premature deaths over the 10 years from FY96 to FY05. Over this period, the mean (average) number of years lost is 8,523. Chart 14 shows the extent to which each year is above or below the mean. Chart 15 shows the extent to which each year is above or below the mean for per-capita tax collections in Nevada. Finally, Chart 16 uses a standard regression analysis to model the correlation between higher per-capita tax collections and the number of years lost from premature deaths.

All dollar figures are adjusted for inflation and reported in 2008 values.

Chart 13

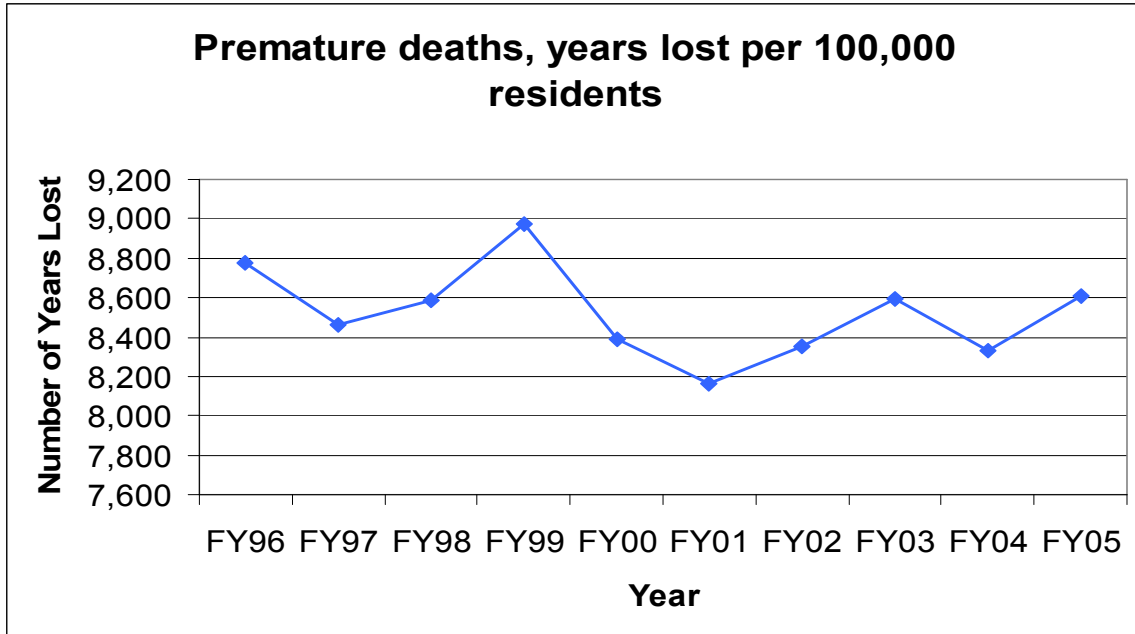
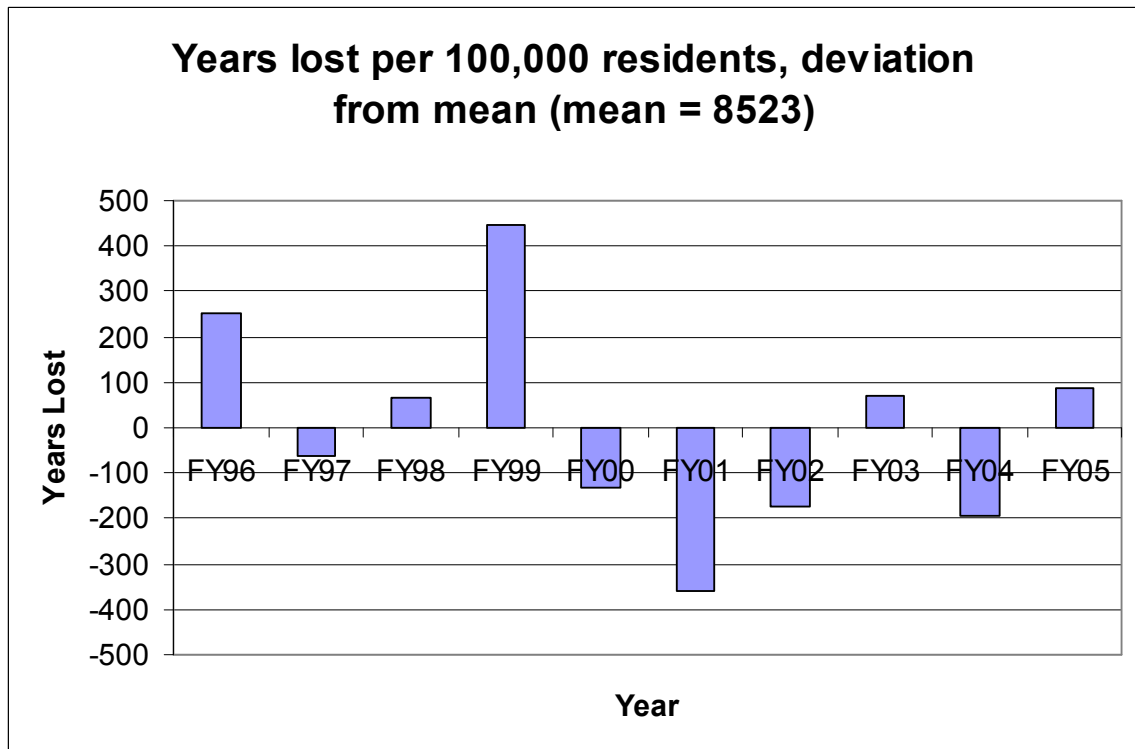


Chart 14



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Chart 15

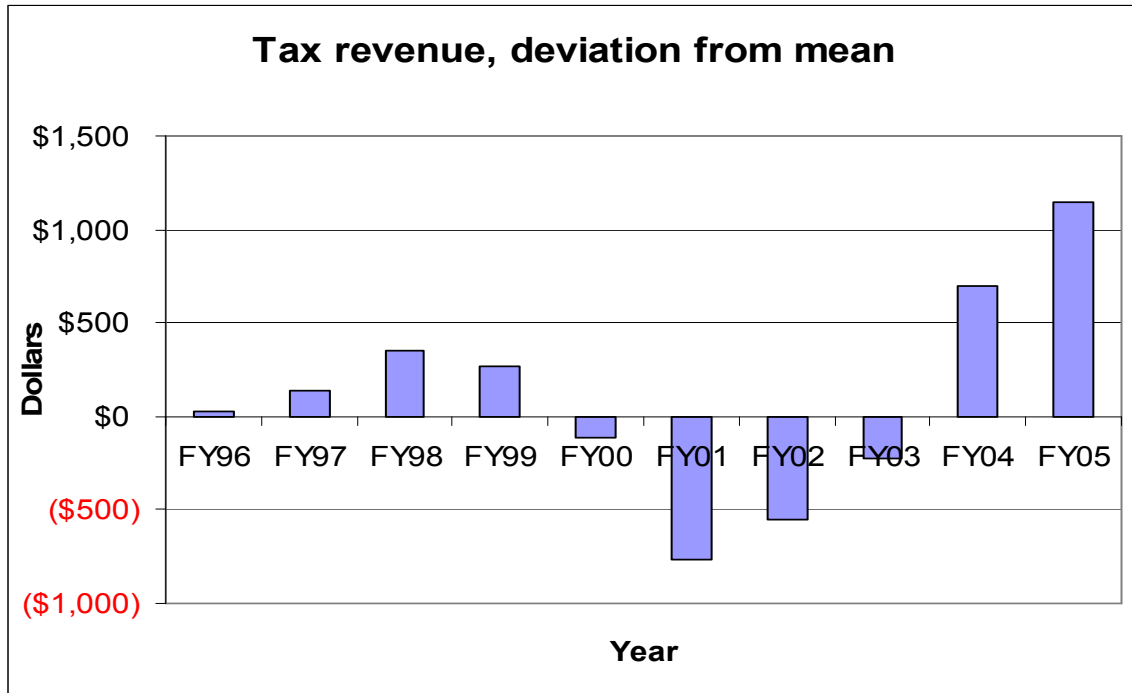
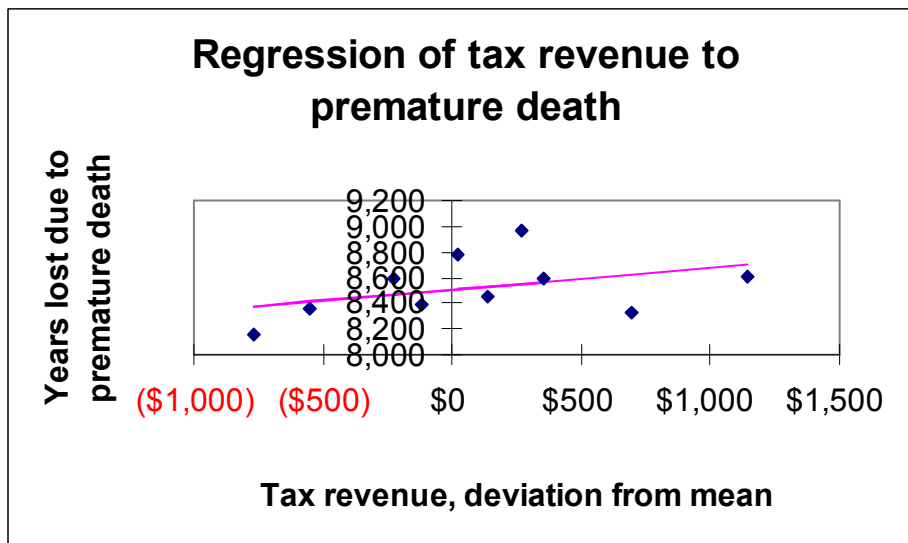


Chart 16



Regression Statistics	
Multiple R	0.398578
R Square	0.158865
Adjusted R Square	0.053723
Standard Error	229.19
Observations	10

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	8506.873	73.65416	115.4975	3.53E-14	8337.026	8676.72
Slope	0.166121	0.135144	1.229208	0.253919	-0.14552	0.477764

The regression analysis shows that higher per-capita tax collections are generally associated with an *increase* in the number of years lost from premature deaths in Nevada.

All dollar figures are adjusted for inflation and reported in 2008 values.

For every additional \$100 in per-capita tax collections, the analysis predicts that there will be an additional 16.6 years lost to premature death (slope) per 100,000 in population. However, the limited supply of available data restricts the confidence level that can be placed in these results. At best, one can be 75 percent confident that this model accurately reflects the overall relationship (1 – (P-value) 0.254).

That this analysis indicates the quality of healthcare in Nevada may actually deteriorate as per-capita taxes increase suggests that, with regard to healthcare, large numbers of tax dollars are being spent ineffectively in Nevada. Not only have higher per-capita tax rates failed to result in an improvement in the performance of social services expenditures, as indicated by the number of years lost from premature deaths, but may have actually led to a *decline* in performance.

Public Safety

Expenditures on public safety are the third largest public expense in Nevada. Public safety expenditures amounted to 9.8 percent of General Fund spending in the 2007-09 biennial state budget and 10.7 percent of *all* state and local government spending in FY06.

Public safety expenditures include spending on police protection, fire protection, corrections (prisons) and protective inspections and regulations. This analysis examines the crime rate as an indicator of tax dollar performance with regard to public safety spending. While this measure will not capture the performance of tax dollars spent on fire protection or building safety inspections, the bulk of public safety spending is allocated toward police protection and corrections. As such, the crime rate is a good indicator of performance.

The data for this measure is taken from the FBI's Disaster Center⁸ but has been modified for this analysis. Crime rates across all the states have been in continual decline since peaking in the late 1970s. Hence, there would be little value in modeling the correlation between high/low crime years and high/low tax years. However, the crime rate in Nevada has consistently remained higher than the national average. In some years this disparity has grown larger while in other years it has contracted. Moreover, there is obvious correlation between this trend and the level of per-capita taxation. Hence, this analysis examines the Nevada crime rate as a percentage of the national average and models the changes in this percentage against changes in the per-capita tax rate.

If tax dollars have been spent effectively on public safety, one should expect an inverse relationship (a negative slope) to exist between per-capita tax rates and the crime rate as a percentage of the national average. This would indicate that an increase in available funds has led to more effective policing.

Chart 17 plots the percentage by which the Nevada crime rate exceeded the national average over the 15-year range from FY92 to FY06. Over this period, the mean (average)

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percentage by which the Nevada crime rate exceeded the national average was 16.6. Chart 18 shows the extent to which the percentage for each year is greater or less than the mean. Chart 19 shows the extent to which each year is above or below the mean for per-capita tax collections in Nevada. Finally, Chart 20 uses a standard regression analysis to model the correlation between higher per-capita tax collections and the percentage by which the Nevada crime rate exceeds the national average.

Chart 17

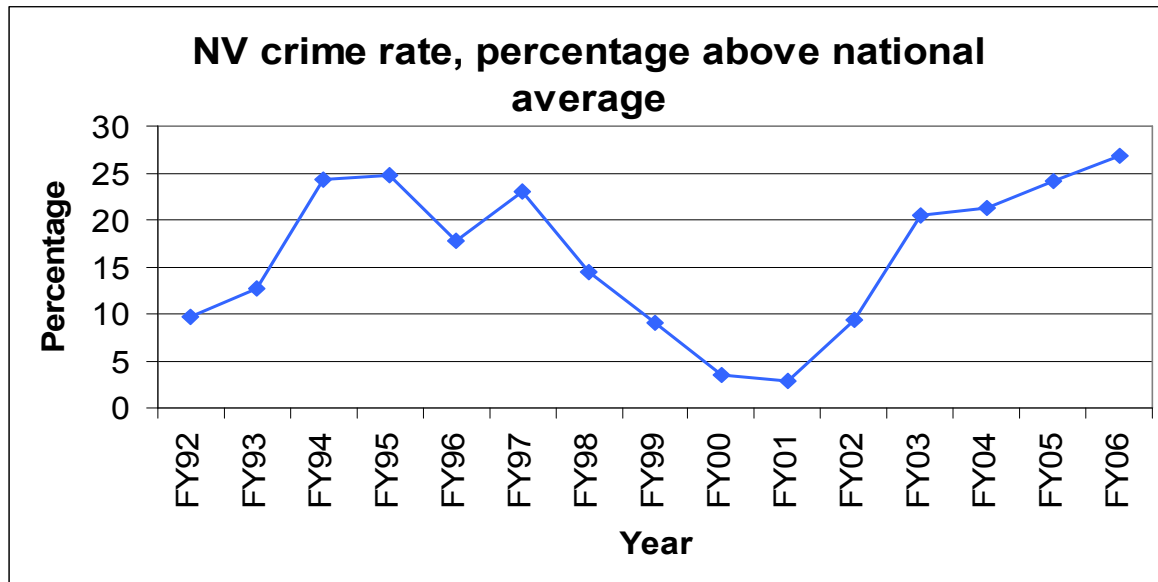
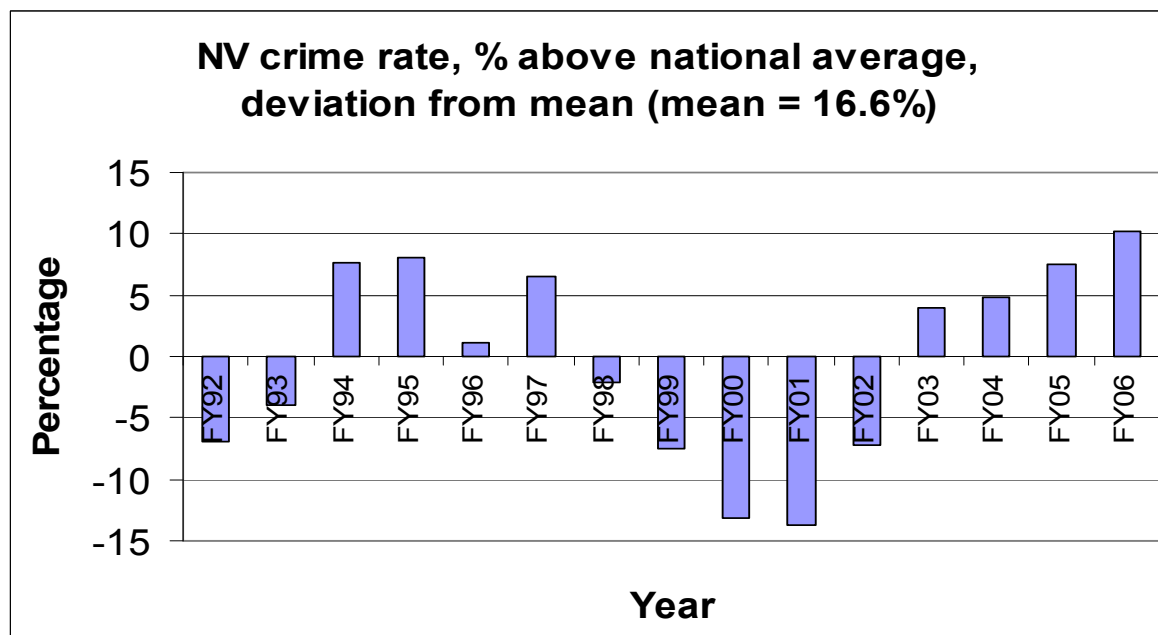


Chart 18



All dollar figures are adjusted for inflation and reported in 2008 values.

Chart 19

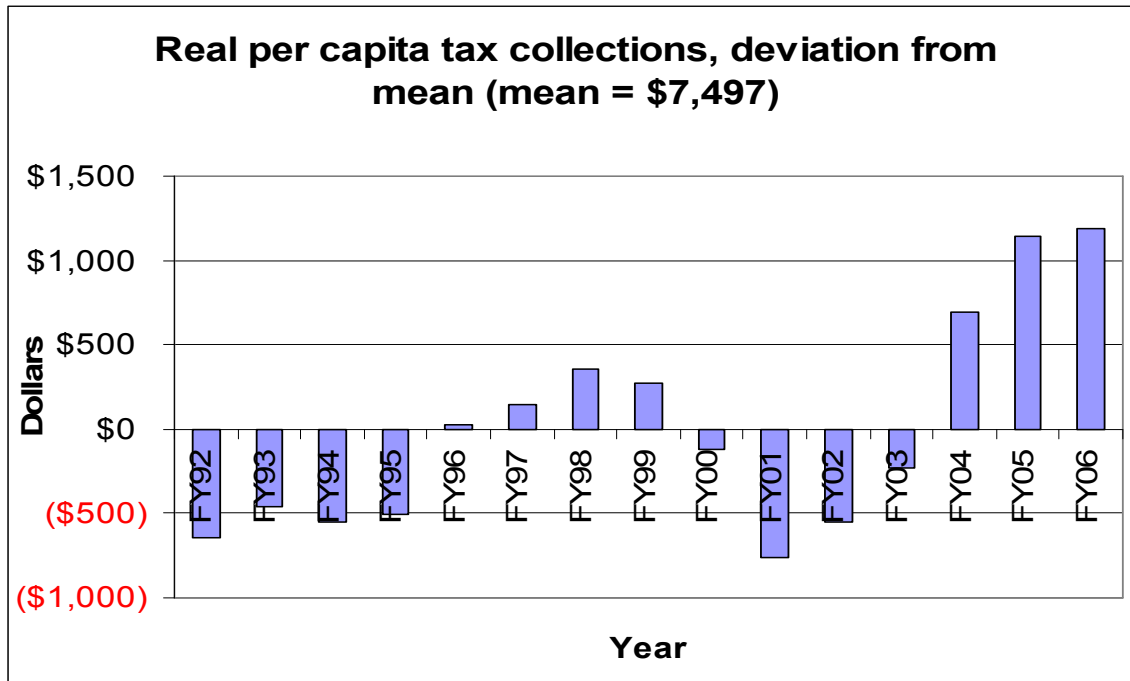
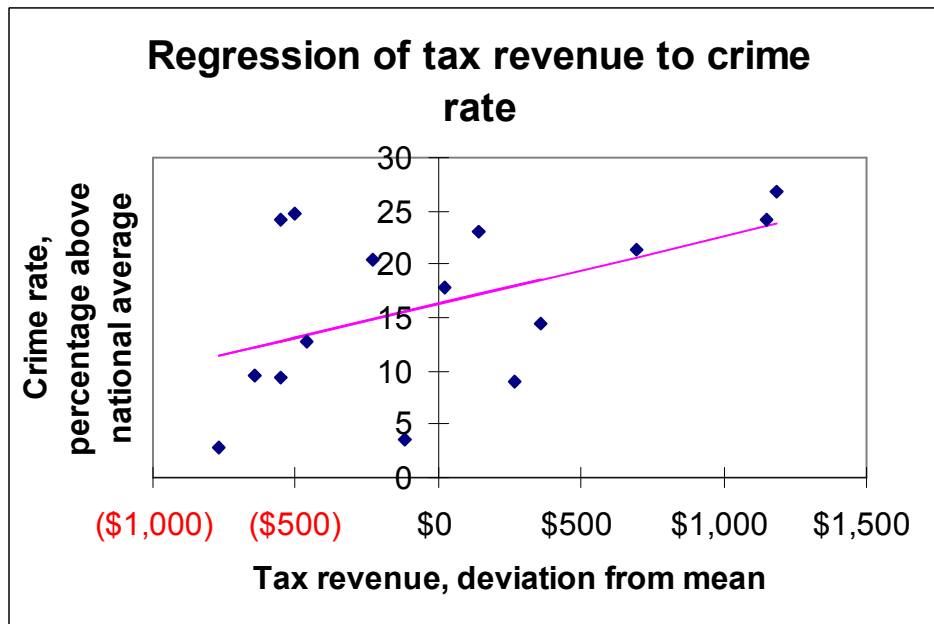


Chart 20



Regression Statistics	
Multiple R	0.498432
R Square	0.248434
Adjusted R Square	0.190621
Standard Error	7.235187
Observations	15

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	16.28238	1.868117	8.71593	8.64E-07	12.24656	20.3182
Slope	0.006359	0.003068	2.072973	0.058614	-0.00027	0.012987

All dollar figures are adjusted for inflation and reported in 2008 values.

The regression analysis shows that higher per-capita tax collections are associated with an *increase* in the crime rate as a percentage of the national average. For every additional \$100 in per-capita tax collections, the analysis predicts that there will be a 0.64 percent increase in the relative crime rate (slope). Moreover, a relatively high degree of confidence can be placed in these results. There is a 94 percent certainty that this model accurately reflects the true relationship and is not merely due to chance (1 – (P-value) 0.059).

Once again, the fact that higher tax rates are associated with an increase in the relative crime rate means that tax dollars are being spent quite ineffectively in Nevada. Not only have higher per-capita tax rates failed to result in an improvement in public safety performance, as indicated by the crime rate, but they appear to actually have led to a *decline* in performance.

Transportation

Transportation spending is the fourth largest public expense in Nevada. At the state level, transportation spending takes place outside of the General Fund, as the state maintains a dedicated Highway Fund. Transportation spending amounted to 10.3 percent of all spending by state and local governments in Nevada in FY06.

Transportation spending in Nevada has mainly included spending on highway construction, airports, and parking facilities. The bulk of this spending has been on highway construction. In FY06, 75.9 percent of all transportation spending by state and local governments was dedicated to highway construction and maintenance. As such, an intuitive measure of tax dollar performance in this area should be one that measures changes in the quality of Nevada's highways.

An authoritative annual quantitative analysis comparing the quality of state highway systems across a host of variables is performed by David Hartgen and Ravi Karanam of the Reason Foundation.⁹ Hartgen and Karanam use the results of their analysis to rank the states against each other in terms of highway system performance. While Nevada has consistently remained in the top half of states for highway performance according to these rankings, the state's rank has fluctuated from year to year.

This analysis will correlate changes in the state's highway system performance ranking with changes in per-capita state and local tax collections. If tax dollars have been spent effectively, then one should expect the state's highway system performance ranking to improve as per-capita tax collections increase. As the highest possible rank is number one, this means that higher tax rates should be associated with a *lower* numerical ranking and, hence, there should be an inverse relationship between the highway system performance ranking and per-capita tax collections.

As with previous performance measures, Chart 21 plots the highway system performance rankings over the seven-year range from FY00 to FY06. Over this period, the mean (average) ranking is 12.9. Chart 22 shows the extent to which the ranking for each year is greater or less than the mean. Chart 23 shows the extent to which each year is above or below the mean for per-capita tax collections in Nevada. Finally, Chart 24 uses a standard regression analysis to model the correlation between per-capita tax collections and state highway system performance rankings.

Chart 21

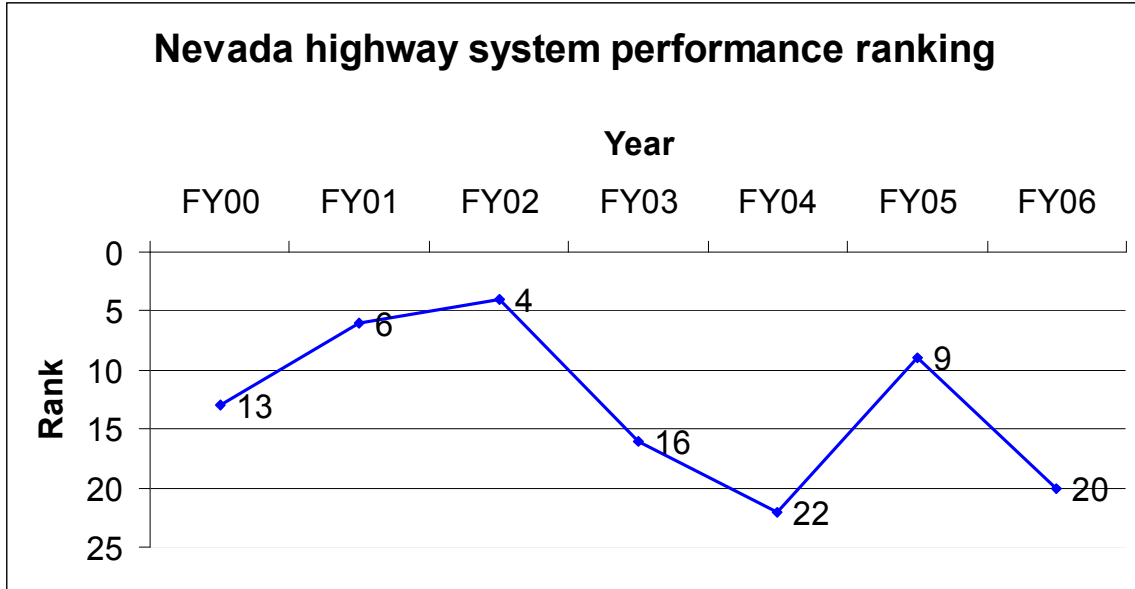
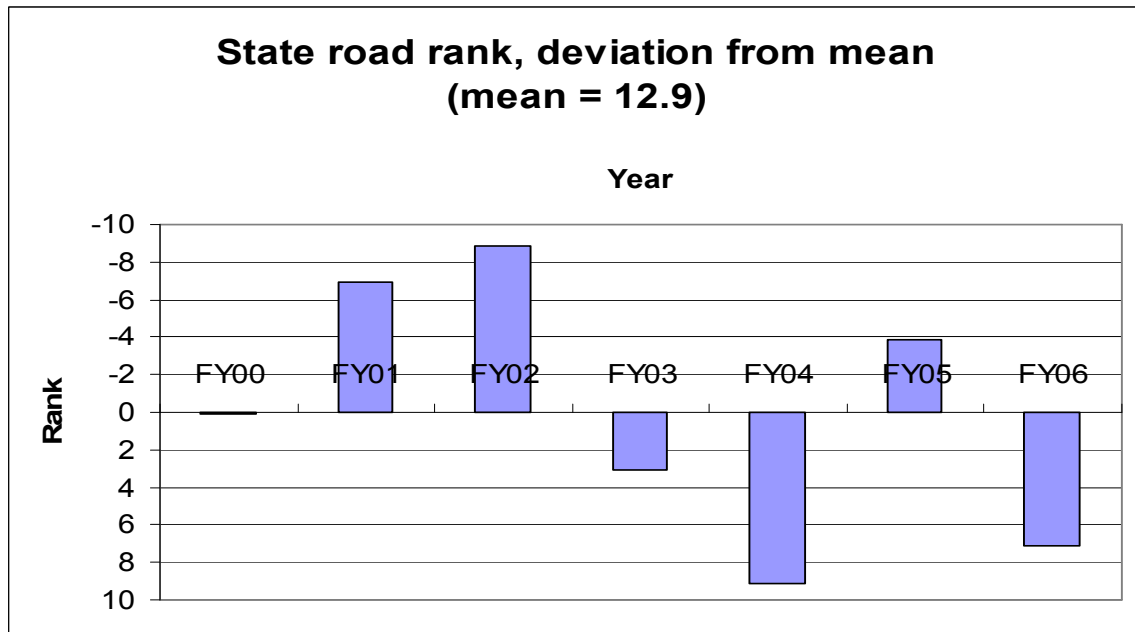


Chart 22



All dollar figures are adjusted for inflation and reported in 2008 values.

Chart 23

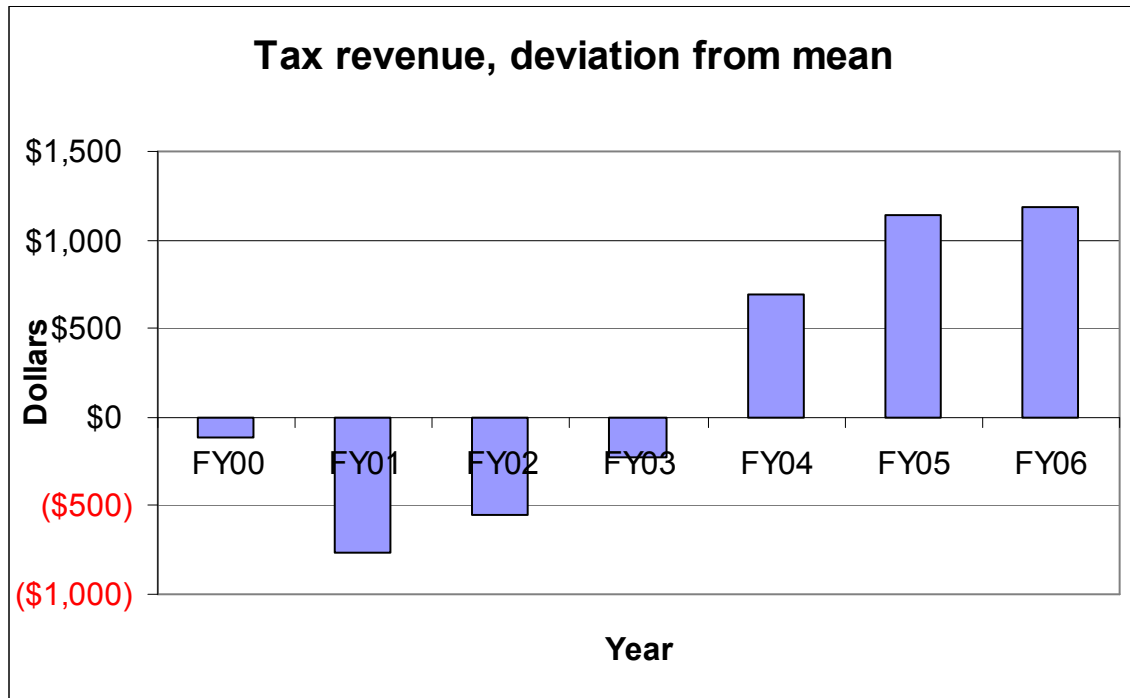
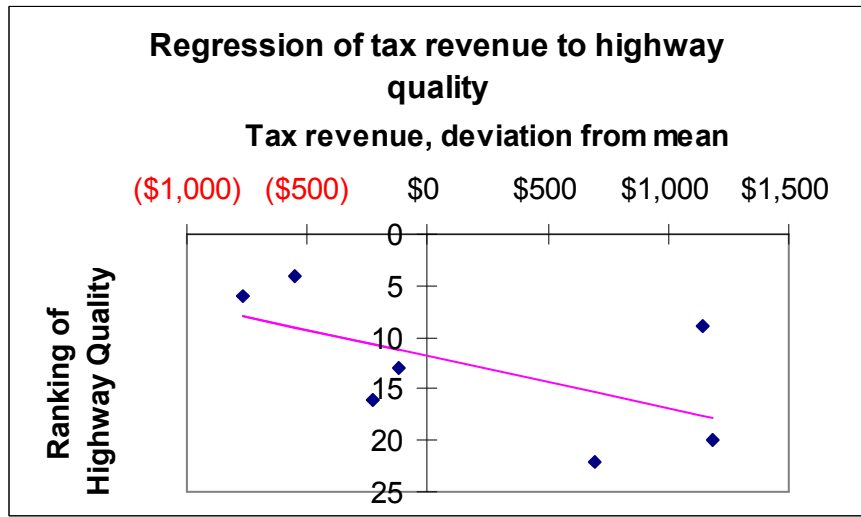


Chart 24



Regression Statistics	
Multiple R	0.594271
R Square	0.353158
Adjusted R Square	0.223789
Standard Error	6.070546
Observations	7

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	11.86589	2.371591	5.003345	0.004093	5.769519	17.96226
Slope	0.005086	0.003078	1.652229	0.159397	-0.00283	0.012999

The regression analysis shows that higher per-capita tax collections are associated with an *increase* in the numerical value of the state’s highway system performance ranking.

All dollar figures are adjusted for inflation and reported in 2008 values.

To be clear, this implies a deterioration of the state's ranking as tax rates increase. For each additional \$100 in per-capita tax collections, Nevada's highway system performance ranking can be expected to deteriorate by 0.5 points (slope) according to this analysis. However, the degree of confidence that can be placed in these results is limited by the lack of available data. There is only an 86 percent certainty that this model accurately reflects the true relationship and is not merely due to chance ($1 - (P\text{-value}) 0.159$).

Once again, to the extent that confidence is placed in these results, this analysis indicates that higher tax rates are correlated with a deterioration in relative highway system performance. This means that tax dollars are being spent *extremely* ineffectively in Nevada. Not only have higher per-capita tax rates failed to result in an improvement in transportation performance, as indicated by the highway system performance ranking, but they appear to actually have led to a *decline* in performance.

Conclusion

The analyses presented here collectively demonstrate a need for policymakers in Nevada to question the way they spend public money. Across a range of performance measures, there is empirical evidence to support the notion that tax dollars are being spent ineffectively. Not only have increases in per-capita tax collections failed to produce an increase in the quality of services provided, but there is now some evidence to suggest that per-capita tax increases are, in many cases, associated with a decline in the quality of services provided.

These results may be an indication of the fact that some services are better provided by the private sector than by government. As a result, tax increases that expand the government's role in providing a service, to the exclusion of the private sector, produces a decline in the quality of the service received by Nevada residents. A corollary to this explanation would be that as tax dollars are drawn out of the private sector, private enterprise has fewer resources with which to respond to consumer demand for services such as private education, healthcare, roadways or security.

Government agencies and their employees face a different incentive structure than does private industry, and this alternate incentive structure often fails to encourage efficiency. Private industry is compelled, through competition, to operate as efficiently as possible so as to keep the cost to the consumer as low as possible and the quality of goods and services provided high. As a result, private enterprise is forced to allocate all available resources toward their most productive use. This includes creating incentives for workers to become more productive by rewarding them based on merit.

The Nevada Policy Research Institute has recently proposed recommendations for state government to incorporate a similar incentive structure into the way it conducts its business.¹⁰ These recommendations introduce an array of ideas that would expose government agencies and their employees to market forces and encourage efficiency. In light of the empirical evidence presented here, it should become imminently clear that these reforms are badly needed. State and local governments in Nevada have been unable

to provide a meaningful increase in the quality of services provided despite substantial increases in real per-capita tax collections. This level of ineffectiveness should not be encouraged by still further tax increases. Instead, policymakers should seriously consider implementing the structural reforms that government in Nevada badly needs.

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¹ Population estimates and data for state tax collections by year are maintained by the U.S. Bureau of the Census. Population estimates are available at <http://www.census.gov/popest/estimates.php> while data for “State Tax Collections” for years 1992-2007 are available at <http://www.census.gov/govs/www/statetax.html>.

² Average per-capita tax collections by local governments are computed from data maintained by the U.S. Bureau of the Census for “State and Local Government Finances.” This data is available at <http://www.census.gov/govs/www/estimate06.html>. To compute the data for average local government tax collections, one must subtract from total revenue the amount of revenue collected by state government. Note that the result will be an *average* of local government tax collections but that the actual amount will vary across constituencies.

³ In addition to the Census data referenced in footnote 2, this table uses data for General Fund revenue that is taken from reports of the Nevada Economic Forum. These reports are available at <http://www.leg.state.nv.us/lcb/fiscal/Economic%20Forum/>.

⁴ State-level data for high school graduation rates is maintained by the National Center for Education Statistics, <http://nces.ed.gov/programs/coe/>. It is also available in the United Health Foundation’s “America’s Health Rankings” reports, available at <http://www.americashealthrankings.org/2008/index.html>.

⁵ The College Board, “2007 College-Bound Seniors: State Profile Report, Nevada,” http://www.collegeboard.com/prod_downloads/about/news_info/cbsenior/yr2007/NV_07.pdf

⁶ See, e.g.: Eric A. Hanushek, Steven G. Rivkin and Lori L. Taylor, “Aggregation and the Estimated Effects of School Resources,” *The Review of Economics and Statistics*, v. 78, no. 4 (November 1996), p. 626; Stephen Childs and Charol Shakeshaft, “A Meta-Analysis of Research on the Relationship Between Educational Expenditures and Student Achievement,” *Journal of Education Finance*, vol. 12, no. 3 (1986): 260; Eric A. Hanushek, “The Economics of Schooling: Production and Efficiency in Public Schools,” *Journal of Economic Literature*, v. 24 (September 1986), pp. 1141-1177; Richard Vedder, Joshua Hall, and Michael Melander, “Determinants of Ohio Student Performance,” working paper (Athens, Ohio: Department of Economics, Ohio University, January 15, 1998).

⁷ U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, “Mortality Tables,” available at <http://www.cdc.gov/nchs/datawh/statab/unpubd/mortabs.htm>.

⁸ Federal Bureau of Investigation, The Disaster Center, “United States: Uniform Crime Report – State Statistics from 1960-2007,” available at <http://www.disastercenter.com/crime/>.

⁹ David T. Hartgen and Ravi K. Karanam, “Annual Reports on the Performance of State Highway Systems (1984-2006),” Reason Foundation Policy Studies, available at <http://www.reason.org/>.

¹⁰ Geoffrey Lawrence and Patrick R. Gibbons, “NPRI’s Recommendations for Cost-Cutting and Reform,” Nevada Policy Research Institute Policy Study, available at <http://npri.org/publications/npris-recommendations-for-costcutting-and-reform>.

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