

Memorandum

DATE: May 21, 2004

TO: Interested Individuals and Organizations

FROM: Chris Patterson
Director of Research

SUBJECT: Notation to Publication – Efficient, Effective, Fair

Our recent report entitled *Effective, Efficient, Fair: Paying for Public Education in Texas* evaluated and considered the efficiency of school districts. A table ranking all districts in terms of an efficiency measure is linked to the paper on our website (www.texaspolicy.com).

The authors have advised us that an electronic error occurred in transferring data that resulted in a small number of districts being ranked inaccurately. That table has been corrected.

The error has no impact on the statistical analysis or conclusions reached in the research. The following changes, however, were made in the interest of complete accuracy:

- In Table 2 of the report, four of the 15 districts listed as the most efficient are revised,
- In Table 4, coefficients are recalculated but the changes are without statistical significance, and
- In Table 5, the efficiency measures are revised for some districts.

Please note that the error and resultant changes do not alter or affect conclusions drawn from the research in any way. We are sending you this communication because the integrity of our research is of utmost importance to us and we want to assure you that your confidence in our factual accuracy is well-founded.

The authors express their regrets for the error and for any misunderstanding that could have occurred as a result of the district ranking. Any questions about the report and changes should be directed to the authors:

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Thank you for your interest in the Foundation's research, and I encourage you to contact us if we can be of assistance.

Research Report

FEBRUARY 2004

Effective, Efficient, Fair *Paying For Public Education In Texas*

By
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www.TexasPolicy.com

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ABOUT THE TEXAS PUBLIC POLICY FOUNDATION

The Texas Public Policy Foundation is a 501 (c)(3) non-profit, non-partisan research institute guided by the core principles of limited government, free enterprise, private property rights and individual responsibility.

The Foundation's mission is to improve Texas government by generating academically sound research and data on state issues, and by recommending the findings to opinion leaders, policy makers, the media and general public. The work of the Foundation is conducted by academics across Texas and is funded by hundreds of individuals, foundations and corporations.

The public is demanding a different direction for their government and the Texas Public Policy Foundation is providing the research that enables policymakers to chart that new course.

Executive Summary

Part I evaluates student performance and spending in Texas school districts:

- Despite decades of expensive reform, the educational success of students in Texas public schools is still primarily determined by economic status.
- Student achievement in Texas public schools is generally unaffected by:
 - ▶ teacher education,
 - ▶ teacher pay, or
 - ▶ the number of students per teacher.
- Higher per-student spending has almost no effect on student achievement.
- Student achievement in Texas public schools is highest in districts:
 - ▶ where the adult population has a high degree of college education,
 - ▶ funded primarily by local funds,
 - ▶ where student attendance is high, or
 - ▶ there are more students per teacher.

Based on this analysis and extant research, student achievement in Texas could be improved by:

- focusing on how funds are allocated rather than on the level of funding,
- recognizing there is no scientific way to identify “adequate” funding and no significant relationship between funding and student achievement,
- strengthening the state’s educational accountability system,
- allowing local communities to underwrite a greater share of education, and
- introducing competition – greater inter-school, inter-district choice and vouchers.

Part II evaluates various tax proposals to increase state revenues for public schools:

- the adverse effects of most current tax proposals are very unlikely to be outweighed by increased funding to education,
- a sales tax has less adverse impact than a gross receipts tax, a business activity tax, or taxes on property and personal income,
- a tax on the professional services purchased by business is likely to cause tax pyramiding and create an uneven playing field for businesses,
- increasing the overall tax burden will likely decrease the state’s output, personal income, employment, job creation, capital investment, business start-ups and population growth,
- increasing the state’s share of education funding is likely to reduce achievement,
- if state revenues must be enhanced, expanding the sales tax base would be least economically detrimental as long as business inputs are excluded,
- a revenue neutral sales tax base expansion with a simultaneous reduction in the sales tax rate is likely to enhance the state’s economic growth,
- reducing property taxes and replacing revenues with sales tax to finance public schools would likely have a modestly positive impact on the economy, and
- the current tax system is sufficiently flexible and provides adequate revenue growth for public schools. Education spending and education productivity are the real problems that challenge Texas.

About the Authors

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Richard Vedder is a distinguished professor of Economics at Ohio University in Athens, Ohio, and a Senior Fellow at the Texas Public Policy Foundation. He has written extensively on labor issues, authoring such books as *The American Economy in Historical Perspective* and, with Lowell Gallaway, *Out of Work: Unemployment and Government in Twentieth-Century America*.

Dr. Vedder has written over 100 scholarly papers published in academic journals and books. His work has also appeared in newspapers and magazines such as the *Wall Street Journal*, *Washington Post*, *Investor's Business Daily*, *Christian Science Monitor*, and *USA Today*.

Dr. Vedder worked as an economist with the Joint Economic Committee of Congress, with which he maintains a consulting relationship. He has also served as the John M. Olin Visiting Professor of Labor Economics and Public Policy at the Center for the Study of American Business at Washington University in St. Louis. Dr. Vedder has taught or lectured at many other universities.

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Mr. Hall was a staff economist for the Joint Economic Committee of the U.S. Congress. He received his B.B.A. in business economics and his M.A. in economics at Ohio University. His master's thesis considered the effect of private school attendance on public school student performance.

Mr. Hall's areas of expertise include the economics of education, labor economics, and tax policy. During his time on the Joint Economic Committee, he authored several studies including *Tax Expenditures: A Review and Analysis*, *The Roots of Broadened Stock Ownership*, and *Investment in Education: Private and Public Returns*. He has published in academic journals such as *The Journal of Labor Research* and *The Independent Review*.

Introduction

Should Texas change the way it finances public schools and delivers educational services to students? That question is being debated by leading policymakers and average citizens, not only in the halls of the Capitol in Austin, but by concerned citizens throughout the state.

This report provides some of the information that Texans need to make informed decisions about public school finance. In the first part, the report evaluates student performance and spending in school districts throughout Texas to identify efficient, effective use of taxpayer dollars and determine if additional funds will improve student achievement. The second part evaluates proposals forwarded in Texas to increase state revenues for public schools and proposes a new role for the state to play in the funding and delivering of public education.

Texas schools do not perform exceptionally well in carrying out their mission, and an argument can be made for changing the methods of financing student learning. At the same time, Texas has a reasonably growth-friendly system of taxation that would argue against radical change in order to provide incremental resources to the education system. Given research that questions the wisdom of increasing funds to public schools for the purpose of raising student achievement, this argument holds particular weight.

While changes in the way Texas finances public schools could benefit students, policymakers should be cautious about over-centralizing or over-regulating the funding or operations of the schools.

Given the rapid rise in Texas school costs over time, combined with what are at best modest improvements in learning, attention should be shifted away from putting more resources into the existing system and shifted toward thinking of new, potentially more efficient, ways of providing educational services.

The Goals of Public Education and School Finance Reform

Texas policymakers, business leaders, concerned parents, and citizens are intensely discussing how to reform school finance, and modify the way educational services are delivered. In striving to improve the existing system, however, there is a tendency to ask the wrong questions, and, as a consequence, reach inappropriate conclusions.

Wrong Question: How can we provide adequate resources to poorer school districts?

Right Question: How can we provide equal educational opportunities for all students?

Policymakers generally focus attention on school districts, the *providers* of educational services, instead of the *consumers* (students) whom society wishes to educate. When we focus on equalizing *school district* funding, attention is diverted from providing equal

educational opportunities to all *students*. When *districts* are treated as either “poor” or “rich,” the needs of some students are neglected. In some “poor” school districts, there are typically a few students with adequate financial means and strong parental support who do not need special assistance; similarly in “rich” school districts, there are typically some students who are poor and with limited family support who may need extra help. When attention is on the provider and not the consumer, there is a “one-size-fits-all” approach to education that ignores the individual needs of students to the detriment of student performance.

Moreover, by emphasizing resources, which research shows play a less important, secondary role in learning, attention is diverted from the bigger, more important issues. Even with abundant resources, it makes a good deal of difference how funds are spent. It is worth noting that roughly half the staff and budgets of Texas schools go for non-instructional purposes,¹ despite literature suggesting that spending on certain things – such as administration – has a negative impact on performance.² Even within instructional spending, literature suggests that how money is spent matters. There are strategies used to improve learning, such as class size reduction,³ that research shows are relatively ineffective – and very expensive.

Wrong Question: How can we funnel more resources toward students who do not learn much at the present?

Right Question: How can we get poor learners to perform better academically?

Too often it is *assumed* that giving districts with lots of poor students more resources can eliminate deficiencies in student learning. This assumption ignores three things.

First, resources should be focused on individual students, the end-products of our education mission – not on school districts that are mere means toward achieving educational goals.

Second, there is a huge body of national and international research that shows very little evidence of a positive correlation between learning and the resources provided to schools.⁴ In other words, the research does not generally show that more money increases student achievement. Even where such a correlation does exist in a few instances, the current method of school funding makes it unlikely that improvements in student learning will be as large as is possible given the commitment of resources that taxpayers are willing to make.

Third, sometimes students do poorly because of district mismanagement, such as the pursuit of inappropriate goals; giving money to those districts is rewarding poor performance rather than punishing it.

A more promising approach to funding public schools is to funnel funds to students directly for use in “enriching” their education through private tutoring, after school learning programs and enrollment in private educational institutions. If public and private

education agencies competed for funds, there would be strong incentives for both agencies to provide what the educational consumer wants in more financially efficient ways.⁵

Wrong Question: How can we lower the property tax burden of financing schools?

Right Question: How can we have a tax system that is not costly to administer, is efficient, and is fair – and also is consistent with sound educational principles?

Taxes are typically evaluated on the basis of administrative costs, efficiency (as measured by distortions on resource availability and allocation), fairness, and transparency (being easily “visible” to the taxpayer). Given standard criteria for evaluating taxes, it may be that property tax burdens in Texas are out of line with what is optimal. Certainly, property taxes have risen sharply in Texas over time, growing from \$3.977 billion in fiscal year 1980 to \$19.817 billion in 2000 – or at a very high 8.4 percent rate compounded annually, imposing a rising burden on business and homeowners.⁶

However, the issue is: what are the negative effects of alternative revenue sources if property taxes are reduced? Moreover, the issue of property taxes gets into the area of local versus state funding. There is a sizable literature that suggests the *source* of funding impacts on student learning – higher student performance appears to be correlated with higher levels of local funding.⁷ Consequently, traditional criteria used in evaluating taxes should be supplemented by using the research demonstrating the relationship between type of funding and student performance.

Wrong Question: How can we consolidate smaller school districts into larger ones?

Right Question: Does school district size matter in determining per pupil costs or student performance?

From 1940 to 1975, a large majority of American school districts were eliminated through consolidation, and there is some evidence that some of the consolidation was bad educationally if not financially. There is some research that argues schools, and school districts, on average, are often too large.⁸

The Bill and Melinda Gates Foundation is privately funding efforts to improve student performance by dividing large schools. Texas has more than 1,000 school districts, with nearly 500 having fewer than 500 students.⁹ It is possible some are below optimal size, where optimum is defined in terms of both costs and student performance; other districts, however, may be too large. It may be that from a cost perspective, “middle sized” districts are best.

Despite widely-held assumptions about “economies of scale,” there is no evidence district consolidation improves efficiency or effectiveness – indeed, there is evidence administrative costs rise per pupil with increased district size beyond a certain point.¹⁰

Wrong Question: How much funding per pupil does it take to provide an “adequate” education?

Right Question: What are the features of school communities where performance levels are high in relation to costs?

In many states, school administrators and legislators have sought to define minimum funding levels for an “adequate” education. So-called “experts” from other states come in, identify districts with good performances, and note what is spent on instruction and other things.¹¹ It is implicitly assumed the current delivery system is fine, and that somehow spending and learning are closely related (despite all the evidence to the contrary).

A better approach would be to identify “efficient” or “highly productive” school settings, where average student performance *per dollar of resources expended* is high, and see what the characteristics are in those schools. In many cases, the answer for high performance is frequently correlated with out-of-school factors – particularly family income and two-parent homes.

The standard “adequacy” approach often ignores costs, implicitly assumes resources are infinitely available, ignores the importance of the cost-resource relationship in achieving efficiency, and downplays the significant effect of out-of-school factors in the learning process while dismissing the role of schools in overcoming educational deficits associated with economic disadvantage.

Wrong Question: How much do we need to increase teacher salaries in order to assure an adequate supply of qualified instructors?

Right Question: How should we modify our compensation structures and teacher entry requirements in order to increase the quality of instructional performance per dollar spent?

Teacher unions and education lobbyists, promoting greater financial support for education, argue teachers earn less than other professionals to explain some of the shortage problems that occasionally erupt. The evidence suggests otherwise: average teacher pay, adjusted for fringe benefits and vacation periods, is typical of comparably educated professionals.¹²

However, the current practice of paying teachers *exclusively* on the basis of education and experience makes little sense; the amount a teacher is paid has no impact on student performance.¹³ To attract and retain teachers who improve student performance, pay should vary with market conditions, teacher quality, and working conditions. Math teachers should make more than English teachers, for example. Good teachers should make more than bad ones. Teachers in less desirable school settings perhaps should receive “combat pay” to compensate for bad working conditions.

Opening teaching to more college graduates by easing certification requirements would help ease shortages. Shortages would also be relieved by improving working conditions – giving teachers, principals and parents more control over their school environment, and reducing the power of bureaucrats in Austin or elsewhere to interfere with how schools achieve state goals for student performance.

Wrong Question: Why shouldn't Texas implement an income tax to increase school funding, reduce property taxes, and allow for greater inter-district equity?

Right Question: How should Texas modify its tax and educational systems in ways to promote better schools with the least loss of economic welfare?

Any time a new tax is imposed, it lowers the economic welfare of private individuals. With less disposable income, individuals face what economists call “deadweight losses” associated with the reduction in private economic transactions that provide them satisfaction. Research shows that income taxes are particularly bad from the standpoint of economic efficiency, and tend to lower the rate of economic growth.¹⁴

These adverse effects make it worth repeating that resources are of secondary importance in explaining learning differentials between individuals or school districts. There is questionable value in increasing the resources provided to schools for the purpose of raising student performance.

The questions asked above illustrate major problems with education reform:

- People often ignore research and focus on details of educational change without regard to the validity of the underlying assumptions.
- There is a tendency to focus on institutions rather than on individuals.
- The broader educational problems are frequently neglected - problems that must be attacked if substantive change is to occur.

Effective Schools – What the Literature Tells Us

There is an abundance of literature suggesting American children are not particularly well educated these days. In international comparisons, American students tend to be in the middle, at best, and often near the bottom, despite expending very high amounts of resources per student.¹⁵ Over time, there has been little improvement in student learning and, by certain measures, some decline – despite a steady increase in the amount of resources devoted to educating students.¹⁶

Texas is no exception to this trend. On most standardized measures of performance, Texas does not differ dramatically from national averages. On two recent National Assessment of Educational Progress (NAEP) tests, in reading and mathematics, for example, the average score of Texas students was slightly above the national average.¹⁷ On graduation rates, self-reported to the Federal government for 2001-2002, Texas

ranked slightly below the median of all states, suggesting a somewhat higher proportion of Texans drop out of school before high school graduation than is typical nationally.

Moreover, a recent Education Trust study drew on the research of the Manhattan Institute's Jay Greene to show the reported graduation rates tend to be distorted upward from the true results, and the distortion is particularly large in Texas. Whereas the officially reported data suggest that 17.2 percent of each class fail to graduate, the Education Trust calculates the proportion in Texas is nearly double, at 33 percent – well above the national average.¹⁸

The upward trend in Texas Assessment of Academic Skills (TAAS)¹⁹ scores over the years offers little consolation for those who are concerned about the college-readiness of Texas students.²⁰ The best single indicators of college preparatory strength are the nationally administered SAT and ACT tests, taken by large numbers of college bound students. The SAT and ACT scores of Texas students – students that represent the best educated of public school graduates – are below the national average. Over the past several years college readiness scores of Texas high school graduates have seen little improvement. As scores in other states have risen, the performance of Texas students has fallen to the bottom of the nation.²¹

Looking at all of the various indicators of school performance, the evidence suggests that Texas is, at best, roughly in the middle of all states – no better than other states posting a dismal record of educational performance for the nation.

Texans want better for their children, judging by efforts to improve public schools over the past several decades. Texans want students learning what will prepare them for the world they are to inherit. Texans also want this learning provided at a reasonable cost and want taxpayer dollars invested in classroom instruction. And, finally, they want the financing of education to come with the least pain and welfare loss possible. In order to achieve all of these objectives, it is helpful to understand what research suggests might help bring about these goals. A good place to begin is by asking what the research literature suggests about “effective schooling.”

Below are a few facts that have been supported by research:

- Out-of-school factors like family background are important in explaining learning differentials;²² other things equal, learning is greater for students from two parent intact families, from working (non-welfare) families, from highly educated families (which also tend to be affluent), and from families with strong religious orientations.
- Although out-of-school factors are frequently used to explain and excuse the relatively low performance of economically disadvantaged students, the impact of teachers and schools on student performance should not be dismissed. Indeed, the educational deficits associated with economic disadvantage can be erased and the achievement gap between student groups can be closed when students receive effective instruction.²³

- School resources are a relatively unimportant factor in explaining differences in learning between individuals, schools, or school districts; funding and class size, in particular, are of distinctly secondary importance.²⁴
- However, the distribution of school funds among alternative uses sometimes is found to have a significant impact on student academic performance. In other words, resource allocation is sometimes more important than the level or amount of resources provided to schools.²⁵
- Students tend to learn more where there are clearly articulated goals and standards, and where negative consequences follow from a failure to meet those goals (e.g., as measured on standardized proficiency or graduation tests).²⁶
- There are numerous examples of disadvantaged areas where out-of-school factors work against student achievement, yet the schools are quite successful – suggesting good teachers, supportive administrators and articulated goals can make a big difference.
- Other things equal, students in public schools tend to do better where there is substantial local control over the schools, and local financing of them. A sense of school community helps nurture learning, and might explain why Catholic and other private schools typically outperform public schools.²⁷
- Non-traditional forms of public education – vouchers, charter schools, even home-schooling – seem to produce at least as good a level of educational performance as traditional forms, and often better (especially among minorities), with higher levels of consumer satisfaction.²⁸
- While good teaching makes a difference in student learning and can close the achievement gaps, there is little correlation between teacher compensation and the quality of teaching given the non-merit based nature of salary schedules.²⁹
- Competition among public schools and between public and private schools significantly enhances student performance levels and reduces operating costs.³⁰

All of this, of course, has policy implications. Good policy empowers teachers and staff while reducing the power of central offices and bureaucracies in Austin (or Washington); it forces schools to compete for students; it allows for alternatives to the traditional local public school (e.g., through vouchers); it concentrates more on outcomes than on the inputs (resources) used to get those outcomes; and it keeps a significant portion of funding “close to home.”

A Good Tax (Revenue) System: What the Literature Tells Us

While it is true that increased public subsidies to government schools have only small effects on learning, few people deny that *some* resources are needed to finance public schools. Taxes must be levied. While striving to have high quality and affordable education is an important goal, an equally important goal is to pay for the system in a

way that least encroaches on the welfare of Texans. This generally means finding a tax system that minimizes harm to economic growth.

With this in mind, below are listed some facts regarding public finance and taxation.

- A “good” tax system does not take a large amount of resources to administer, nor does it pose large costs of compliance on the taxpayers.
- A “good” tax system is economically as “neutral” in impact as possible, minimizing the distortion in the allocation of resources. Good taxes increase incentives to work, save, invest, and consume compared with a world without taxation. And good taxes increase economic growth and living standards.
- A “good” tax system is generally perceived as being fair. People of similar economic circumstance are treated similarly (horizontal equity), while there is fairness in the distribution of the burden between different income groups (vertical equity).
- A “good” tax system is transparent, visible for all to see its impact, consistent with democratic principles of government being “of the people, by the people and for the people.”
- Where benefits of government services accrue directly to specific individuals, it is often more appropriate to levy fees or user charges rather than taxes – keeping the “benefit principle” of public finance – and establish prices analogous to those paid for services from private providers.
- Since there is a demonstrated negative correlation between taxes and growth in incomes, employment, and capital (reflecting more efficient use of resources made in the private sector), a good tax system has a relatively low aggregate burden on the taxpayer.

In planning for the future of Texas education, it is important to avoid implementing a tax system that would reduce incentives for Texans to produce, invest, and consume. Any increase in the aggregate tax burden would likely have that adverse impact. Thus good education financial reform should be revenue-neutral or revenue-decreasing.

Violating this rule should happen only if there is clear evidence that incremental tax-financed spending will have almost certain positive effects of a measurable magnitude on student academic performance. It is also important that government – on both the tax and educational spending side – be perceived to be fair in its dealing with the citizenry. Thus both sound educational and fiscal principles need to be addressed in any plan to change the Texas system of education and educational finance.

PART I

Spending and Achievement in Texas School Districts

To develop a rational method to fund public education in Texas, policymakers should have an idea of what policies have a positive impact on student learning and which policies have a negative impact on student learning. Policymakers should also understand which policies are best undertaken at the state level and which policies might be best enacted at the local level.

Characteristics of Texas School Districts

Table 1 provides information about the school district characteristics (variables) that the authors used in this study to analyze the performance of Texas public schools. With the exception of the data on adult education levels within the district taken from the U.S. Census Bureau special school district tabulation, all of the data comes from the Texas Education Agency's Academic Excellence Indicator System's (AEIS) 2002-03 reports.³¹ The table shows:

- The average Texas school district in 2002-2003 had nearly 68 percent of its students in grades 3-11 pass all TAKS (Texas Assessment of Knowledge and Skills) tests taken at the 2002-03 passing standard.³² This average, however, masks considerable variation between school districts. In some districts, the average total passing rate was 30 percent and in others, the rate was 100 percent.³³
- The percentage of a district's adult population (those 25 & older) with a bachelor's degree or higher ranged from zero in several districts to a high of 78.7 percent in Highland Park, with a statewide average of 15.4 percent.
- The average Texas school district spent just over \$8,000 per pupil during the 2002-03 school year.³⁴ The lowest spending school district in the state, the Texhoma school district in Sherman County, spent only \$4,358 per pupil. The highest spending district in the state, Allison Independent School District in Wheeler County, spent over \$72,000 per pupil.
- The average Texas school district spent just over 50 percent of its funding on instruction, according to the Comptroller's Office. Local revenue provided 51.9 percent of school funding.
- There was considerable difference between school districts in the characteristics of teaching staff. Over 30 Texas school districts have no teachers with a master's degree; statewide, 17 percent of teachers have that graduate degree. Base teacher salaries average just over \$37,000 statewide and the average district's average teacher had 12.3 years of experience. Twenty school districts had teacher turnover of zero during the 2002-03 school year, but the average district lost nearly one-fifth of its teaching staff.
- The average Texas school district had over 50 percent of its students categorized as economically disadvantaged, although two districts had

zero economically disadvantaged students and three had 100 percent of the student body so classified. On average, seven percent of the students in a typical district were of limited English proficiency.

- Finally, the average Texas school district had just over 4,000 students and a student-teacher ratio of 12.5 to one. It should be pointed out, however, that the statistical average size represents an over-statement because there are a large number of very small districts with less than 1,000 students, and there are a few very large districts that raise the average. Looking at the median (the middle of all school districts when ranked by size) rather than the average size of a school district provides a different and, in some ways, better measure. The median sized district had only 907 students.

Table 1.

Descriptive Characteristics of Texas' 1,037 School Districts

District Characteristic	Average	Lowest	Highest
Percentage of students passing all tests	67.9%	30.0%	100.0%
Percentage of population with a college degree	15.4%	0.0%	78.7%
Percentage of revenues from the local property tax	43.1%	0.0%	96.0%
Percentage of expenditures spent on instruction	55.3%	18.0%	71.1%
Expenditures per pupil	\$8,081	\$4,358	\$77,861
Attendance rate	96.1%	91.2%	98.7%
Percentage of all teachers having a master's degree	17.0%	0.0%	75.6%
Average years of teachers' teaching experience	12.3	3.2	20.0
Average teacher salary	\$37,015	\$28,204	\$72,393
Student/teacher ratio	12.5	2.6	18.7
Percentage of teachers not returning to teaching in the same district	17.4%	0.0%	60.0%
Percentage of students who are economically disadvantaged	50.1%	0.0%	100.0%
Percentage of students classified Limited English Proficient	7.0%	0.0%	85.7%
Total number of students	4,034	20	211,762

Adequacy and Efficiency

Some states have tried to identify an “adequate” funding level for education by looking at characteristics of districts with average to fairly high academic standards and seeing what these districts spend. This approach, however, does not provide any information about how districts are maximizing student performance *relative to* costs, one of the primary interests of taxpayers.

For example, most taxpayers would not think it would be worthwhile for a district to spend an additional \$5,000 per pupil or for the state to spend an additional \$20 billion dollars annually to increase the passing rate on TAKS by one percent. However, if that

improvement could be obtained for \$100 million (\$25 per pupil), most taxpayers would probably say it would be worthwhile. This example is provided to suggest that public policy should reflect the respective *costs* as well as the benefits of education reform.³⁵

Educational efficiency can be evaluated by examining the amount of tax dollars spent and the number of students who passed state assessments. During the 2002-03 school year, the budgeted expenditures per pupil for Texas public schools slightly exceeded \$8,000 and nearly 68 percent of district students passed all required TAKS tests. Dividing the average district budgeted expenditure by the average number of students passing all required tests gives a statewide average “dollars per student passing” of \$12,270. This number offers a standard measure of efficiency for Texans to compare and evaluate the efficiency of all schools and school districts in 2002-03.

A standard for school efficiency is very useful – education dollars are limited and should be connected to results. School evaluations (such as the Just for the Kids rankings) that compare schools based on performance without addressing costs (even if they address other factors, such as demographics) are incomplete for the purposes of conducting public policy.³⁶ Policymakers must always trade-off spending in one area for spending in another. Consequently, it is important to evaluate schools and school districts based on their performance *relative to expenditures* (i.e., how efficient they are with taxpayer dollars).

The importance of performance in relation to expenditures and a school efficiency standard is provided by the following comparison. Suppose two hypothetical school districts are identical in every way except for spending and test scores. District A has slightly better student performance, with 75 percent of its students passing all sections of the test while District B only has a passage rate of 70 percent. In a ranking like the Just for the Kids rankings, District A would be rated as superior.

However, District B would be rated as superior if evaluated on the basis of performance relative to expenditures. District A averages expenditures of \$10,000 per student while District B only averages \$8,000 per student. Most economists would say that District B is the more efficient school district because District B only spends \$11,429 (\$8000 divided by 0.70) per student passing the required TAKS tests versus the \$13,333 (\$10,000 divided by 0.75) spent by District A.

This example makes clear there is an optimal level of student performance for any given level of expenditure. And it suggests that policymakers should not focus just on the overall level of expenditures or on just the overall passing rates on state assessments – instead policymakers should join the two and redesign the Texas education system to be as efficient per dollar spent as possible.

Identifying districts that produce the highest levels of learning at low costs can help Texas improve school efficiency and effectiveness. Table 2 identifies the 15 districts in the state with the lowest expenditure per student passing all required TAKS exams

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(expenditure per pupil divided by percentage passing all tests), hereafter called the “cost of learning ratio” in this paper.

Table 2.

Fifteen Most "Efficient" Texas School Districts, 2002-2003 School Year

District Name	County	Expenditure Per Student Passing All Tests	Expenditure Per Student	% Passing All Tests	# of Students	% Econ. Dis.	% Lim. Eng. Prof.	% Local Revenue
Texhoma ISD	Sherman	\$4,676	\$4,358	93.2%	277	55.2%	28.5%	87.6%
Red Lick ISD	Bowie	\$5,263	\$4,984	94.7%	331	16.3%	0.3%	48.1%
Wylie ISD	Taylor	\$6,361	\$5,413	85.1%	2762	7.5%	0.3%	57.5%
Walcott ISD	Deaf Smith	\$6,626	\$6,527	98.5%	159	67.9%	6.3%	28.4%
Nursery ISD	Victoria	\$7,006	\$6,172	88.1%	98	43.9%	0.0%	85.8%
Westphalia ISD	Falls	\$7,070	\$6,554	92.7%	129	15.5%	1.6%	15.2%
Friendswood ISD	Galveston	\$7,200	\$6,300	87.5%	5367	2.6%	0.6%	65.5%
Westwood ISD	Anderson	\$7,265	\$5,100	70.2%	1825	43.6%	1.6%	42.5%
Canyon ISD	Randall	\$7,291	\$5,629	77.2%	7628	21.5%	0.4%	59.9%
Winnsboro ISD	Wood	\$7,310	\$5,775	79.0%	1507	39.4%	4.6%	44.7%
North Lamar ISD	Lamar	\$7,343	\$5,500	74.9%	3192	31.0%	0.8%	55.4%
Pine Tree ISD	Gregg	\$7,356	\$5,760	78.3%	4640	34.1%	5.4%	62.5%
Central ISD	Angelina	\$7,432	\$5,418	72.9%	1621	40.4%	2.8%	20.6%
Pleasant Grove ISD	Bowie	\$7,479	\$6,350	84.9%	1910	12.8%	1.2%	60.1%
Morgan Mill ISD	Erath	\$7,498	\$6,816	90.9%	106	48.1%	0.0%	53.8%

Source: Texas Education Agency, "2002-03 AEIS District Reports" and author calculations. Available online at: <http://www.tea.state.tx.us/perfreport/aeis/2003/index.html>

Please note the fifteen most efficient districts vary widely in size (from 98 students to 5,367). They are mostly districts with fewer than 2,000 students and are not districts with large student populations. This analysis is consistent with the research showing “bigger is not necessarily better or cheaper.”

In addition, note that the fifteen most efficient districts do not serve affluent populations. More than half of the districts have at least 20 percent of their students categorized as economically disadvantaged. With respect to the source of funding, all received 15 percent or more from local sources, and the average district received over half of its revenue from local sources. While nearly all districts had very few students with limited English proficiency (LEP), the most “efficient” district in the state – Texhoma ISD in Sherman County – had over one-quarter of its students categorized as LEP.

With only one exception, all districts with high efficiency ratios spent far less than the state average per pupil and the average for the group (\$5,777) was over \$2,000 less per pupil than the state average. All highly efficient districts demonstrated student achievement levels markedly above the state average.

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The evidence is clear: some schools provide more-than-adequate education at costs that are dramatically below the state average.

Some may think the quest for efficiency in education is fueled by efforts to reduce resources spent on educating the next generation of leaders, but that thinking is seriously flawed. Efficient funding would allow Texas youth to learn more for any given amount of resources that policymakers designated for school finance. Moreover, the very amount that the political process is willing to expend on schools might grow if there was demonstrated evidence that new spending was closely associated with increased learning.

Table 3 offers the same data as that provided in Table 2, but for Texas' fifteen largest school districts. Districts in Table 3 enroll well over 1.1 million students – 28 percent of the state's total student population. The districts include big city districts like Houston, Dallas, Fort Worth, Austin and San Antonio, as well as the state's relatively wealthy suburban districts like Plano and Cypress-Fairbanks.

Table 3.
Fifteen Largest Texas School Districts, Descriptive Statistics, 2002-2003 School Year

District Name	County	Expenditure Per Student Passing All Tests	Expenditure Per Student	% Passing All Tests	# of Students	% Economic Disadvantaged	% Limited English Proficient	% Local Revenue
Houston ISD	Harris	\$13,420	\$7,636	56.9%	211,762	80.3%	28.6%	72.8%
Dallas ISD	Dallas	\$13,429	\$7,050	52.5%	162,989	77.6%	32.1%	78.8%
Fort Worth ISD	Tarrant	\$11,539	\$6,889	59.7%	80,989	64.3%	25.6%	48.8%
Austin ISD	Travis	\$11,581	\$7,319	63.2%	78,155	53.0%	20.7%	87.8%
Cypress-Fairbanks ISD	Harris	\$8,562	\$6,952	81.2%	70,985	24.3%	12.2%	62.3%
Northside ISD	Wilbarger	\$10,430	\$7,374	36.2%	68,961	45.0%	6.3%	54.1%
El Paso ISD	El Paso	\$12,451	\$7,371	59.2%	63,048	67.4%	30.5%	33.6%
Arlington ISD	Tarrant	\$9,300	\$6,519	70.1%	61,835	43.3%	15.7%	71.9%
Fort Bend ISD	Fort Bend	\$9,122	\$6,796	74.5%	59,217	23.7%	9.6%	53.4%
San Antonio ISD	Bexar	\$14,297	\$7,506	52.5%	57,076	90.4%	19.0%	29.9%
Aldine ISD	Harris	\$11,104	\$7,473	67.3%	55,263	74.2%	23.5%	39.3%
North East ISD	Bexar	\$9,659	\$7,544	78.1%	54,785	35.6%	4.4%	70.0%
Garland ISD	Dallas	\$8,565	\$6,090	71.1%	53,557	38.6%	20.1%	47.5%
Plano ISD	Collin	\$9,336	\$8,188	87.7%	50,814	13.5%	9.3%	85.8%
Ysleta ISD	El Paso	\$10,813	\$6,780	62.7%	46,668	79.4%	23.8%	19.8%

Source: Texas Education Agency, "2002-03 AEIS District Reports" and author calculations. Available online at: <http://www.tea.state.tx.us/perfreport/aeis/2003/index.html>

The cost of learning ratio was \$13,000 or more for several of the big city districts (Houston, Dallas and San Antonio), a cost well above the state average figure of about \$12,270. This was also true to a lesser extent in El Paso. In some of the wealthy suburban districts, the cost of learning ratio was extremely low. In Plano and Cypress-Fairbanks,

for example, it took less than \$10,000 in expenditures to produce each student passing all their TAKS exams.

The correlation between the proportion of students being disadvantaged and the cost of learning ratio was quite high and positive. Given the way public education is currently funded, it is more costly to impart a given amount of learning to students from disadvantaged homes. This provides a good argument for providing additional resources to disadvantaged children if equal educational opportunity is the state goal and the current system of public education remains fundamentally unchanged. However, providing additional funding for disadvantaged children is an altogether different thing than supporting school districts with a high incidence of disadvantaged children.³⁷ In fact, research done in other states undergoing school finance reform seems to suggest that most poor individuals do not live in poor (i.e., low property wealth) school districts.³⁸

The Relationship Between District Factors and District Performance: Statistical Analysis

The vast quantity of information available on school districts in Texas provides the opportunity to statistically assess the relationships between student performance and resources. The statistical analysis presented here, while extensive, is not comprehensive. Nonetheless, the relationships (or lack thereof) provide an excellent introduction to the economics of education, which has direct bearing on school finance in Texas.

The problem with raw descriptive statistics is that they fail to take into account other, additional factors that impact on learning. For example, a district's students might perform poorly relative to another district because of an unusually high number of economically disadvantaged children that have not been provided the instruction needed to overcome the educational handicaps generally associated with low income. To try to discern the relationship between a number of different explanatory variables and learning, while holding other factors constant, the authors use a relatively sophisticated statistical method: multiple regression. This objective is achieved, to the extent that other relevant factors are included as variables in the regression.

One of the limitations of this analysis is that the measure of student performance may be viewed as somewhat incomplete. To the extent that school districts impart other knowledge besides what is measured by standardized tests, an analysis such as this will be incomplete by definition. At the same time, however, the Texas Assessment of Knowledge and Skills (TAKS) is used to accredit schools and hold districts accountable under the federal No Child Left Behind Act so the assessments should measure a core body of knowledge that is meaningful to Texas schoolchildren.³⁹

Another issue pertains to whether all Texas school districts should be included in the analysis. Because Texas has many small rural districts with fewer than 100 students, many of which only comprise grades K-6, the data for these districts can be very unrepresentative of the rest of the state and could lead to spurious conclusions. After

determining that the inclusion or exclusion of these districts does not dramatically change the results reported below, the authors decided to include these districts in the analysis.

Table 4 (next page) shows the findings of a multiple regression analysis used to relate various factors (independent variables) to the measure of student performance – the passage rate of all of the students in a district on all of the TAKS exams administered during the 2002-03 school year.

The analysis suggests the following:

- *Out-of-school*, socioeconomic factors (such as the percentage of disadvantaged students and the education level of adults in the district), are most strongly related to student performance. The higher the education levels of adults in the district, the better the passage rate and the higher the percentage of economically disadvantaged students in a district the lower the passage rate, other things being equal.⁴⁰
- *In-school* educational factors are generally not related to student performance, at least at the district level. The strongest *in-school* factor related to student performance is the student attendance rate. The higher the attendance rate in a given district, other things equal, the higher the district's passage rate on the TAKS exams.⁴¹
- Expenditures per pupil and the percentage of revenue coming from local sources have a statistically significant effect on student performance.⁴² Student performance rises when districts rely on higher levels of local revenues. However, the potential gains from increasing expenditure per pupil are very modest relative to other policy variables.
- Teacher salary is generally not related to student performance, while teacher experience is possibly a positive in relation to student performance, other things equal.⁴³ Schools with high rates of teacher turnover have lower rates of student performance.
- While the relationship between school district size and student performance is negative (meaning that aggregate test performance declines as school district enrollment increases), the relationship is not sufficiently strong to be described as statistically significant.⁴⁴
- There is a statistically significant *positive* relationship between the student-teacher ratio and student performance. This means that as the number of students per teacher rise, student performance also rises. Since this statistic is closely related to class size, the evidence suggests that smaller classes do not mean better student learning, a finding replicated in other research.⁴⁵

The analysis suggests the importance of family and socioeconomic factors is presently profound in Texas public schools, as shown by the following description of two school districts that are identical in every respect except three.

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Table 4.

The Relationship Between District Performance and District Characteristics^a

District Characteristic	Effect of an Incremental Change in the Characteristic (Coefficient)	Statistical Significance (t-Statistics)	Relationship Between District Characteristic and District Performance
Percentage of district population 25 and older with at least a bachelor's degree	0.206222 ***	5.60	Very likely a positive relationship
Percentage of a district's revenue from local real and personal property taxes	0.039024 ***	3.21	Very likely a positive relationship
Total budgeted expenditures per pupil	0.000217 **	2.26	Likely a positive, but very weak relationship
Percentage of district students in attendance during school year	3.938061 ***	12.33	Very likely a very strong positive relationship
Percentage of district's teachers with a masters degree	0.004843	0.16	No relationship likely
Average years of experience of a district's teachers	0.222601 *	1.78	Possibly a positive relationship
Average actual teacher salaries (regular duties only)	-0.000111	-1.04	No relationship likely
Number of students per teacher	0.232591 ***	1.51	Very likely a positive relationship
Percentage of a district's teachers leaving district employment during 2002-03	-0.156067 ***	-4.79	Very likely a negative relationship
Percentage of the school district's population labeled as "Limited English Proficient"	-0.00467	-0.14	No relationship likely
Total number of students in the district	-0.00001820	-0.78	No relationship likely
Percentage of a district's population labeled economically disadvantaged	-0.246855 ***	-13.07	Very likely a negative relationship
Intercept	-303.6347 ***	-9.60	
R ²	54.03%		
Adjusted R ²	53.49%		
Standard Error	7.64		
F-statistic	100.28		
N	1037		

^a Dependent variable: percentage of district students passing all required TAKS tests.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

District A has 30 percent college educated parents, while District B has 10 percent. District A has an average attendance rate of 97 percent, while District B's is 94 percent, and District A has 50 percent students from disadvantaged families compared with 20 percent in District B. The model and prevailing performance of public schools would indicate that the test passage rate of District B would be well below average (below 50 percent). The passage rate in District A could be predicted to be over 73 percent – well above the state average. Put another way, the failure rate on the state assessments is presently close to 50 percent less in districts with the more favorable out-of-school factors.

Now, looking at two otherwise identical districts with differences with respect to three resource variables, suppose that District A spends \$9000 per pupil, while District B spends \$7000. Suppose District A has relatively small class sizes and a student-teacher ratio of 11 to 1, while District's B ratio is an above average 14 to 1, meaning considerably larger classes. Suppose the average teacher salary in District A is \$45,000, while in District B it is \$35,000. Suppose resource-rich District A has a test passage rate of 65 percent; the predicted passage rate for District B is slightly under 63 percent – a negligible difference. Despite vast differences in resources, performance levels differ only modestly, less than *one-tenth* as much as in the example above where non-resource, socioeconomic variables are different.

These examples show that resources matter, but not *nearly* as much as other factors, indicating the general failure of most schools at present to overcome the educational disadvantage of children from low-income families. The cost of improving performance by adding more resources to schools would be prohibitively high in most cases and would offer small – sometimes negative – results.

Teacher turn-over can also lead to lower student performance, as shown in Table 4. The authors can only speculate on reasons why teacher turnover adversely impacts student learning. It may be that districts with high turnover tend to have less experienced teachers or less satisfied teachers, conditions that could translate to less effective instruction.

The policy implications of Table 4 are numerous and some of these implications contradict conventional wisdom in public schools today, although the findings are consistent with the research literature.

First, of course, the amount of resources that schools have is a secondary determinant of student learning (of secondary importance when compared to other factors). It takes vast increases in per pupil spending to have significant positive learning results given current pedagogical methods. On cost-benefit grounds, this suggests emphasizing costly policy changes is likely to have rather disappointing results. Raising teacher salaries across-the-board as a way of getting better teachers and more learning is not supported by the information in Table 4.

Indeed, the information suggests the way we now determine teacher salaries is not particularly rational and, instead, is inconsistent with the literature cited earlier.⁴⁶ For

example, some school districts furnish extra pay to teachers for receiving a master's degree, but there is no statistically meaningful relationship between teachers having a master's degree and student academic performance. While there is some weak evidence that experience makes a difference, this difference is very modest, not enough to justify huge salary differentials between experienced and new teachers.

Reducing teacher turnover could be a good way to improve student performance in districts where teacher turnover is high. While the research on why teachers leave school districts is somewhat incomplete, analyses of Texas public and private school teachers conducted by John Pisciotta of Baylor University strongly suggests that working conditions serve as the primary stimulus for turnover and dissatisfaction with pay is secondary.⁴⁷ A more complete picture of why districts lose teachers and what can be done about it is being researched by the University of Texas at Dallas Texas Schools Project.

Research by Eric Hanushek, John Kain, and Steven Rivkin from the UTD Texas Schools Project analyzed teachers in Texas elementary schools and found that teacher mobility is more strongly related to student characteristics such as achievement than to any other factor such as salaries.⁴⁸ While salaries apparently play a role in teacher mobility, the lack of more precise information about the relationship between student characteristics and teacher employment makes it difficult to provide policy solutions.⁴⁹

Another policy implication following from the information shown in Table 4 is that students learn more where local funding of schools is greater, *when per pupil spending is held constant*. Moreover, the impact of this factor is quite substantial and demonstrated by the following example.

Compare School District A with 20 percent local funding with School District B with 70 percent local funding. Otherwise, the two districts are identical. Suppose that District A has a 50 percent passage rate on state tests. The predicted passage rate in District B, according to the model above, is over 70 percent, a great deal higher rate. Therefore, *moves to reduce local funding - and not otherwise substantially alter the learning delivery system - are likely to lead to declining academic performance*.

Table 4 offers another interesting finding that relates to English language comprehension. There is abundant evidence that knowledge of English is important for individuals to succeed in the world of work, as is also true for educational success. But, controlling for other factors such as the economic disadvantage of students, this analysis furnishes no evidence that pupils in districts with high levels of English language deficiency perform at lower levels.

While the findings are interesting, the analysis looked at widely disparate school districts, ranging in size from 20 to 211,762 students. Because of this disparity, there is a possibility the findings suffer from a statistical distortion, what econometricians call "aggregation bias." The bias can arise when widely dissimilar things are compared, such as the size of schools in this analysis. Because it makes sense to compare districts that differ less dramatically with respect to size, the districts were divided into two, "the

above median” (over 907 students) and “below median” sized districts (fewer than 907 students); the results of the re-estimation are not reported in Table 4. The major findings were:

- In the above-median sized districts, in which 95 percent of Texas’ public school students were enrolled, *there was no statistically significant relationship between expenditures per pupil and student performance;*
- In the below-median sized (small districts), again *there was no statistically significant relationship between per pupil spending and performance;*
- In the critical larger districts, there was likewise no statistically significant relationship between performance and either class size (as measured by the student-teacher ratio) and teacher salaries;
- With both groups, there was no statistically significant relationship between having a master’s degree and performance, or between the numbers of years of teacher experience and performance;
- As before, out-of-school variables are of major importance for inter-district variations in student performance.
- The statistical results are far more robust for the larger districts than in the findings reported in Table 4 (i.e., far higher explanatory power).

Thus, the impact of resources on student achievement are likely even less than the rather weak findings based on the all-district analysis reported in Table 4. It is even true that the revised results are better interpreted “resources do not matter” than “resources have only a modest impact on learning.”

These findings argue strongly, powerfully *against* enhancing resources in any attempt to improve Texas public education, and argue *for* devoting greater attention on other means of improving student performance in relation to the resources used to teach students. Indeed, the disaggregated findings even suggest that *reducing spending* on schools would *raise* educational productivity, relieving taxpayers of a burden without disadvantaging students. *At the very minimum, policy changes should be made that emphasize changing the way resources are utilized rather than increasing the magnitude of resources.* For example, determining teacher salaries solely on the basis of experience and education seems highly ill-advised.

District Consolidation: Issues and Impacts

There has been considerable debate about the efficacy of having so many school districts in Texas. Simply looking at cost efficiency, it seems to make little sense to have so many small districts spending so much per pupil. The economics literature is clear that some economies of scale do exist in education, but the latest research questions the magnitude of savings and suggests an adverse impact on student performance when district size is increased.

In a very recent study of school district efficiency in Arkansas, for example, economists Marvin Dodson and Thomas Garrett find that consolidation of small rural districts could

save \$40 million at the state level.⁵⁰ The savings gains, however, were perceived to be rather modest in the context of total educational spending – less than two percent. On the heels of this study, the Goldwater Institute published the results of a legislative commission formed to study consolidation that indicates consolidation offers negligible savings and is likely to increase per-pupil costs while worsening student achievement.⁵¹

William Fox surveyed the literature on economies of scale in education and found that, in general, most studies found that school districts face a U-shaped cost curve.⁵² At very low population levels increases in the number of students can lower spending per pupil. At some point, however, diseconomies of scale set in and each additional student increases average cost per pupil. Huge school districts typically are relatively high cost.

A quick look at Texas expenditure data makes it appear there are many districts in the range where consolidation might result in reduced expenditure per pupil. The two highest spending districts in Texas are both small districts. The Allison Independent School District in Wheeler County spent \$77,861 per student during the 2002-03 school year, according to the AEIS report published by the Texas Education Agency. The Grandview-Hopkins Independent School District in Gray County spent \$30,069 per student. Table 5 below shows the fifteen highest spending Texas school districts during the 2002-03 school year.

Table 5.
Fifteen Highest Spending Texas School Districts, 2002-2003 School Year

District Name	County	Expenditure Per Student Passing All Tests	Expenditure Per Student	% Passing All Tests	# of Students	% Economic Disadvantaged	% Limited English Proficient	% Local Revenue
Allison ISD	Wheeler	\$90,117	\$77,861	86.4%	36	38.9%	0.0%	93.7%
Sabine Pass ISD	Jefferson	\$45,421	\$30,069	66.2%	222	41.4%	0.0%	88.6%
San Vicente ISD	Brewster	\$29,273	\$29,273	100.0%	20	50.0%	10.0%	10.5%
Grandview-Hopkins ISD	Gray	\$49,718	\$28,787	57.9%	31	16.1%	0.0%	90.5%
Borden County ISD	Borden	\$29,370	\$25,669	87.4%	167	36.5%	1.2%	78.8%
Jayton-Girard ISD	Kent	\$29,631	\$22,875	77.2%	133	28.6%	1.5%	84.2%
Guthrie CSD	King	\$28,332	\$20,371	71.9%	95	36.8%	8.4%	89.7%
Webb Consolidated ISD	Webb	\$22,791	\$20,193	88.6%	335	59.4%	4.5%	88.6%
McMullen County ISD	McMullen	\$30,196	\$20,020	66.3%	164	50.0%	2.4%	79.0%
Loop ISD	Gaines	\$26,966	\$19,254	71.4%	138	53.6%	11.6%	70.3%
Boys Ranch ISD	Oldham	\$30,557	\$19,159	62.7%	325	76.6%	0.9%	0.0%
Fort Elliot Consolidated ISD	Wheeler	\$25,109	\$17,978	71.6%	112	38.4%	0.0%	90.5%
Darrouzett ISD	Lipscomb	\$19,377	\$17,885	92.3%	59	39.0%	3.4%	90.0%
Wink-Loving ISD	Winkler	\$22,036	\$17,056	77.4%	344	34.9%	1.5%	94.2%
Buena Vista ISD	Pecos	\$25,418	\$16,064	63.2%	107	68.2%	11.2%	93.9%

Source: Texas Education Agency, "2002-03 AEIS District Reports" and author calculations. Available online at: <http://www.tea.state.tx.us/perfreport/aeis/2003/index.html>

There are three interesting things to note in Table 5. First, all these districts have fewer than 350 students. Second, they are all among the most “inefficient” school districts in Texas, with one district spending almost \$100,000 per student passing all TAKS tests! Third, and perhaps most important for state policymakers, except for two notable exceptions the 15 districts in Table 5 raise the majority of their revenue from local taxpayers.

While consolidation would probably reduce the average expenditure per pupil on the students currently residing in these districts, it is unlikely school district consolidation could save the state any significant amount of money, given the rather limited amount of state revenue going to these small districts.⁵³

These small districts often represent unique cases where it is costly to educate students due to the unique nature of the student or geographical isolation. For example, San Vicente Independent School District is comprised of students in grades K-8 who live in Big Bend National Park. All nearby districts are small and geographically isolated as well. In these extreme cases, it is highly unlikely consolidation would result in a significant reduction in spending per pupil.

In fact, economists Fred White and Luther Tweeten estimate the optimal school district size (in terms of cost efficiency) varies considerably between low density and high-density areas, with the optimal size of the low-density district being around 300 pupils and the high-density district being around 1,075.⁵⁴ In the words of William Fox, “[White and Tweeten’s] findings suggest that the more sparsely populated areas are less likely to gain from consolidation than the more densely populated areas.”⁵⁵

Given the relatively small numbers of students involved (all districts in the state with fewer than 500 students enrollment combined have less than five percent of total enrollments), their largely rural character, as well as their primary reliance on local revenues, it seems unlikely consolidation would produce significant savings for the state.

Gary Galles and Robert Sexton go further and argue “the accumulated evidence points to the clear conclusion that, except for consolidations of small districts, there are no economies of scale to local education.”⁵⁶ In fact, if measured in terms of spending per graduate or other measure of performance, smaller school districts may be more efficient than large school districts.⁵⁷

To the extent state funding to small school districts is perceived to be a problem, however, one possible solution is to give local school districts a choice of consolidation or freedom. Provide each school district with the opportunity to become financially and operationally independent from the state. Independent means ending Texas Education Agency and other regulatory strictures on district performance. Each district could then weigh the costs and benefits of state involvement in local education affairs. This is the equivalent of creating “charter school districts” akin to charter schools. Districts rejecting

independence would face consolidation if it were determined doing so would save the state money.

Another possible solution is for the state to encourage small, high-spending school districts to find cost-savings by consolidating some administrative and operational functions, such as payroll services, with other districts.

Part I Conclusions

What role should the state play in public education? The state should provide the basic knowledge base. It should pay for this through traditional means, possibly augmented by co-opting a minority proportion of the local property tax base used to finance local school districts. If local districts wish to augment spending on the knowledge core with local funds, districts should be permitted to do so, possibly up to some limit. Individual students should pay for the supplemental or non-core instruction through tuition fees; that instruction could be obtained at the neighborhood school providing the basic instruction, at another public school, at a traditional not-for-profit private school, at for-profit institutions specializing in offering supplemental instruction, or, in theory, through home schooling.

To promote equal educational opportunity, the state government should provide scholarships (vouchers) to cover all or part of the cost of the supplemental instruction for a large proportion of students. This approach incorporates elements of both the traditional structure of public education along with a student-centered voucher approach.

This approach will improve public education by introducing more competition, and increasing school accountability. It will improve student performance and reduce educational inequities.

How Texas funds public education has a direct and strong impact on educational outcomes. As a new system for funding public education is created, policymakers can increase the effectiveness and efficiency of public schools by considering the following:

Ten Commandments for Reforming Public Education

1. Fund students – not schools or school districts – and avoid centralized funding of public education.
2. Allow local communities to underwrite a greater share of school funding than is provided by state and federal government.
3. Establish incentives for local schools to increase financial efficiency and avoid top-down mandates, such as consolidation, that have not proven effective.
4. Do not try to improve schools by increasing expenditures for schools, instruction or teachers.
5. Recognize there is no way to identify “adequate” levels of school funding.

6. Avoid paying for instructional approaches that have not proven effective, such as class size reduction.
7. Improve student performance by changing resource allocation in public schools. Encourage schools to allocate resources in ways that have proven worthwhile, such as increased funding for academic instruction.
8. Pay teachers on the basis of productivity, not education or experience.
9. Establish accountability for results. Avoid regulating how schools use resources or produce results. Reward good performance and punish poor performance.
10. Introduce competition – promote greater inter-school, inter-district choice and establish vouchers.

These principles are useful in any debate about how schools should be funded. The reason for this debate in Texas at this time is the so-called Robin Hood system of funding public schools. Districts claim they are increasingly limited in their discretionary spending on salaries and programs because of limits the Robin Hood system imposes on how much school districts can spend from local tax revenues. When the local tax base increases, most of the benefit of that increase goes to the state in the form of a decreased need to spend state money on schools. In addition, school district officials in wealthy districts have done a good job of steering attention away from inefficiency as a reason that they need more funds. Instead, they claim, the problem is with funding leaving the district in Robin Hood payments.

In order to reform the funding of schools so as to eliminate Robin Hood, the tax system that supports schools must also be reformed. As long as the tax system primarily relies on local property taxes, there will be expenditure and taxpayer equity issues that will negatively affect some aspects of the Texas economy and will continue, in all likelihood, to be litigated.

PART II

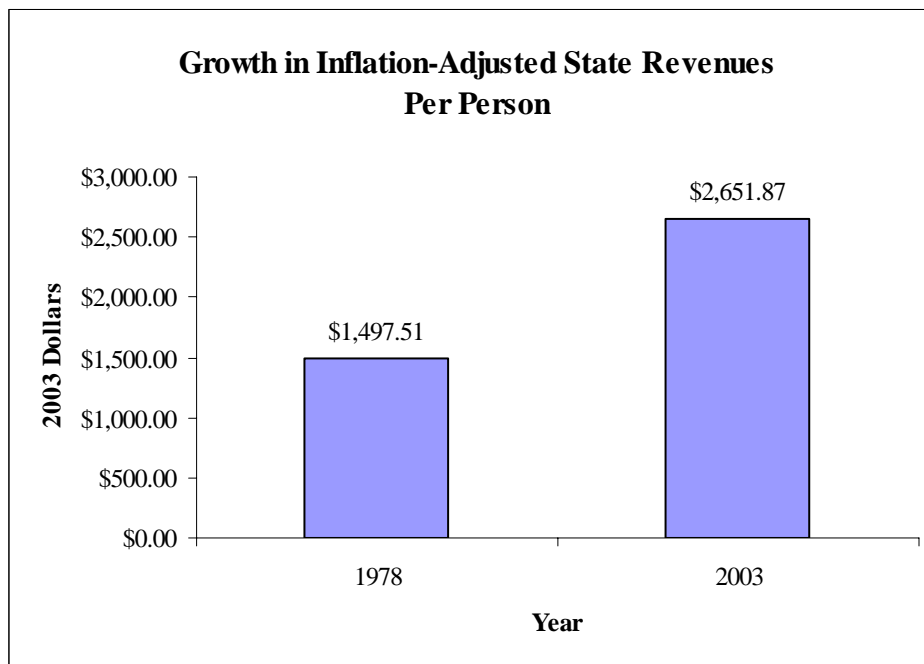
Texas Taxes

Texas' school funding system is intimately tied to the tax system supporting. The main reason this is true is the Robin Hood school funding system. That system exists for legal reasons, a discussion of which is beyond the scope of this paper. However, it is apparent that the state's share of funding, and therefore its share of taxation, for public schools will have to increase. That means that the Texas tax system is likely to change.

Texas Taxes and Non-Tax Sources of Revenue: Correcting Some Myths

Many of those crying for tax reform claim Texas' tax system simply does not raise enough revenue and that it is relatively inflexible while expenditure needs are growing by leaps and bounds. Most of these claims appear to be, at minimum, gross exaggerations but are more often simply untrue.

Figure 1.



In no real sense were tax revenues “static” or “inflexible.” In the quarter of a century from 1978 through 2003, state tax collections in Texas rose from \$5.032 billion to \$26.127 billion, a more than five fold increase.⁵⁸ Adjusting for inflation using the broad-based GDP price deflator of the U.S. Department of Commerce, revenues more than doubled, going from \$12.091 billion to \$26.127 billion in 2003 dollars.⁵⁹ Adjusting for the nearly 65 percent population growth in this period, real per person tax collections in 2003 dollars rose by over 31 percent, from \$906.05 in fiscal year 1978 to \$1188.21 in fiscal year 2003.

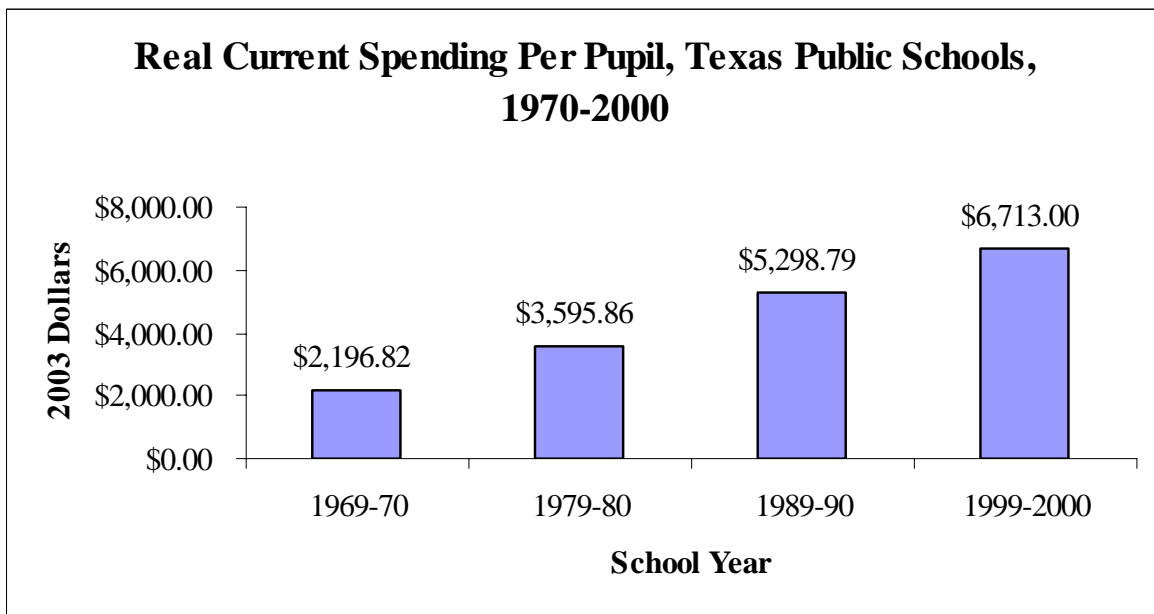
Moreover, these statistics significantly understate revenue growth, particularly as it relates to educational funding. First, non-tax sources of revenue rose more than taxes over time. In fiscal year 1978, over 60.5 percent of the total net revenue of Texas state government came from taxes. By fiscal year 2003, that proportion had declined noticeably, to 44.8 percent. As a consequence, demonstrated by Figure 1 (previous page), total inflation-adjusted state revenues per person rose by over 77 percent, a compounded increase in real revenues per capita of over 2.3 percent a year.

A majority of the non-tax revenues were federal grants, largely in support of the burgeoning human services budget. Nonetheless, even Texas-generated non-tax revenue growth was substantial – fee revenue (including licenses, permits and fines) rose over \$10 billion – a revenue source non-existent a generation ago. Furthermore, the above analysis ignores local funding of education, which has not only also increased over time, but in many years has increased faster than state funding for that purpose.

Critics of current educational funding correctly note that the education share of state expenditures has decreased over time, being “crowded out” by increased human services spending, primarily on Medicaid. In fiscal year 1978, nearly one-half of total spending was on education (including higher education), whereas today the proportion is 35 to 40 percent (depending how one treats employee benefits).⁶⁰ At the same time, health and human service spending has gone from about 24 to about 38 percent of the budget.

Nonetheless, real state assistance per pupil has risen over time, and when local and federal funds are included, total spending per pupil has gone up significantly, as Figure 2 shows. At the beginning of the new century, spending per student was triple the levels just three decades earlier.

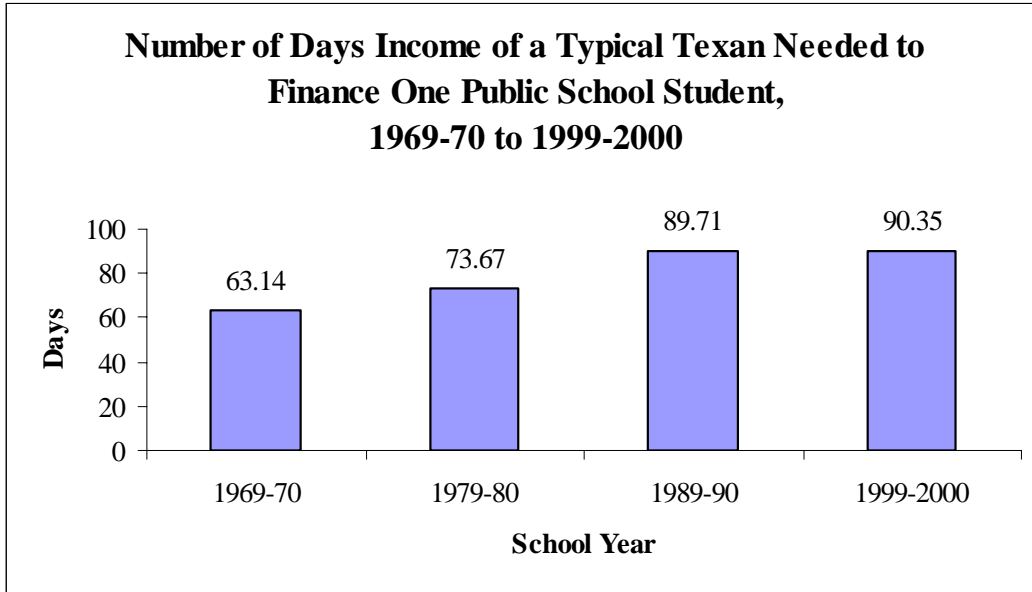
Figure 2.



Source: National Center for Education Statistics, Department of Commerce

The rise in spending per pupil has far exceeded the growth in income per person in the state. As Figure 3 shows, the number of days of income it takes a typical Texan to pay for one student’s public education each year has grown steadily over time – going from 63 days during 1969-1970 to over 90 days by the end of the century.

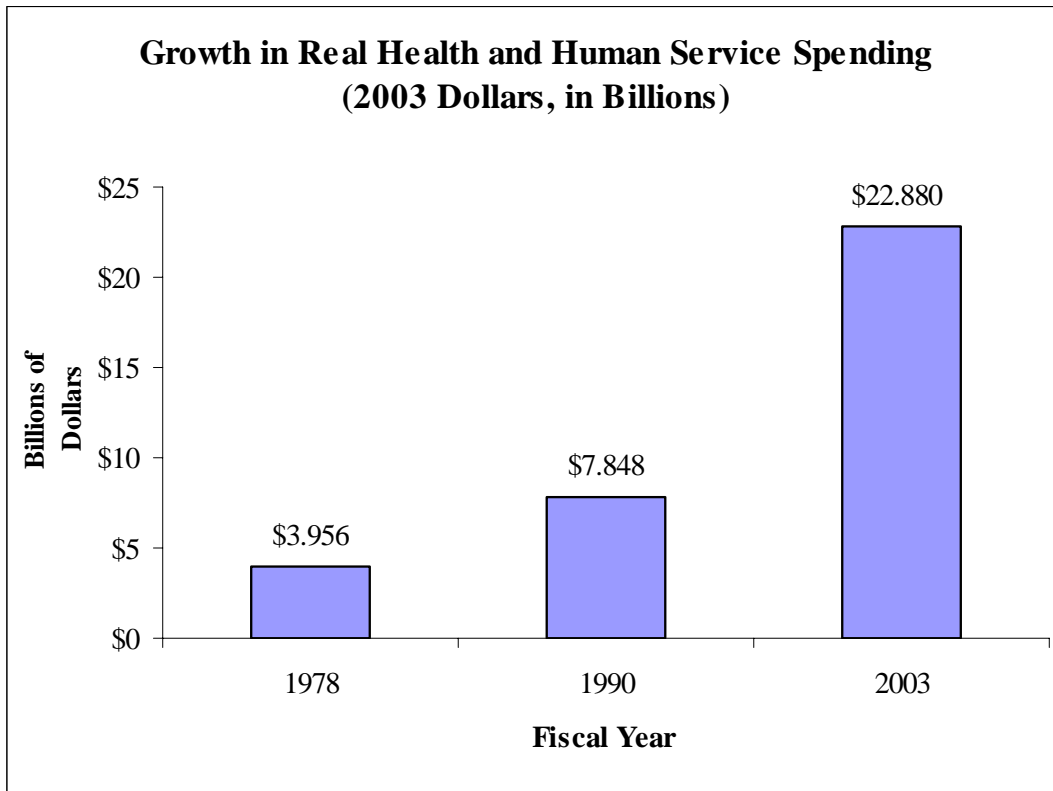
Figure 3.



While the cost of most items has fallen relative to income over time, public education is a conspicuous exception. This reflects a sharp decline in productivity in education, compared with rising productivity in the economy as a whole.⁶¹ In the long run, this trend cannot be sustained – at some point in time most of the resources of Texas would be needed simply to educate students. The slowdown in the growth of this statistic in the 1990s no doubt reflects, in part, a growing concern over the burden that education costs impose on the Texas economy.

To be sure, the sharp increase in education spending is not the only thing driving state spending and pressures to increase taxes – indeed, it is not even the most important thing. As Figure 4 (next page) shows, inflation-adjusted spending for health and human services has exploded over the past quarter century, growing far faster even than education expenditures. After doubling in inflation-adjusted terms from 1978-90, implying an annual compounded rate of inflation-adjusted increase of six percent a year, the rate of increase actually *accelerated* from 1990 to 2003, growing at a truly extraordinary *inflation-adjusted* rate of nearly 8.6 percent per year. This growth is clearly unsustainable for Texas.

Figure 4.



Source: Texas Comptroller of Public Accounts, U.S. Bureau of Economic Analysis, and authors' calculations

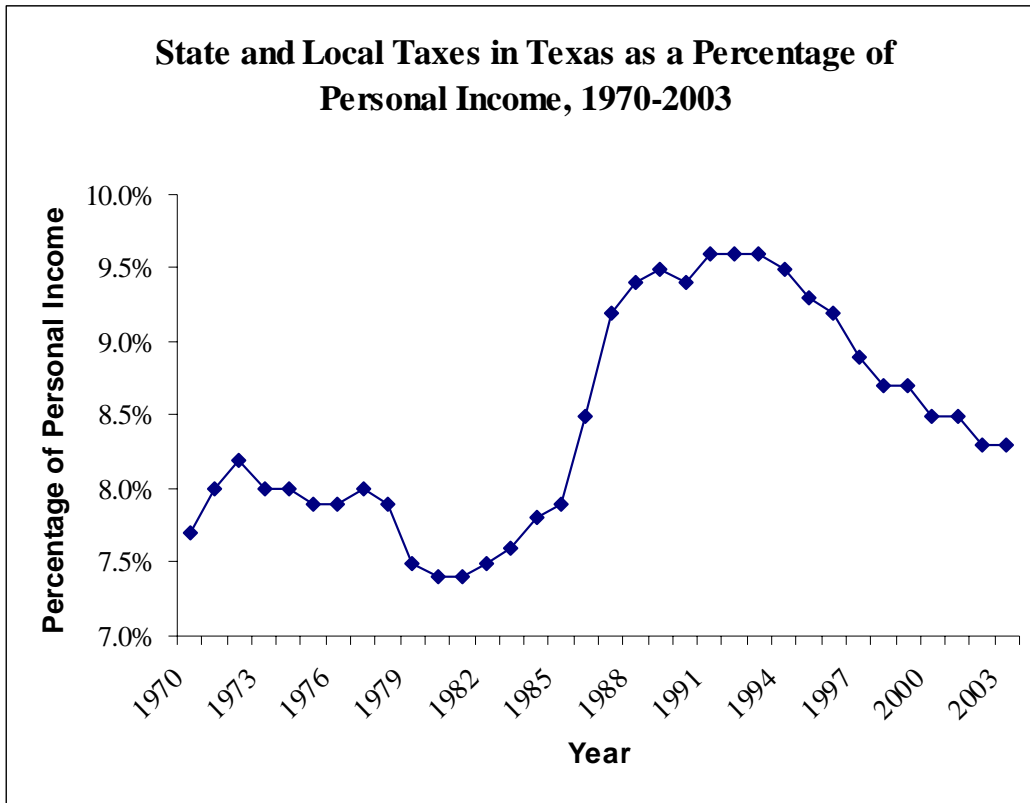
The problem with Texas public finance is clearly a rate of growth of expenditures that is unsustainable given the growth rate in the Texas economy. The solution to Texas' "fiscal problem" is a reform of the nature and scope of the provision of public services, particularly in the health care/human service area. The Texas legislature would be better served to work with federal officials to "fix Medicaid" and other rapidly growing programs than to make expensive but minimally effective changes in the system of financing public education.

A final criticism of the current tax system is that revenues have not risen as fast as personal income, and as a result, the public sector is being "deprived" of resources in a growing society. There are two fundamental criticisms of the argument: first, it is not factually correct except when using a very narrow way of defining the time period examined. Second, it is irrelevant and inappropriate.

The first criticism – revenues have not risen as fast as personal income - is refuted by facts shown in Figure 5 (next page). Based primarily on data provided by the non-partisan Tax Foundation (getting their data from the Bureau of the Census, U.S. Department of Commerce), Figure 5 shows state and local taxes in Texas as a percent of personal income for the 34 fiscal years 1970 through 2003.

The median tax burden as a percent of personal income over the 34 year period was 8.3 percent – *exactly* the estimated burden for the last full fiscal year, 2003. The tax burden as of 2003 has risen relative to 1970 or 1980, but fallen relative to 1990. In a majority of years, the tax burden was between 7.7 and 8.9 percent (0.6 percentage points either side of the median figure). From 1979-1983, the tax burden fell below this range, and from 1987-1996, it rose above it.

Figure 5.



Source: Tax Foundation

The data suggest Texans feel comfortable with taxes and government services in the 7.7-8.9 percent range, and when the tax burden moves outside that range, political forces work to correct the imbalance. Thus taxes peaked in the administration of Governor Ann Richards in the early 1990s, and her electoral defeat was followed by tax reductions under her successor, George W. Bush. The notion that Texans want higher taxes than at present – when they are in the middle of the range prevailing over the past one-third century – appears highly unlikely. Polling of voters is consistent with this view.⁶²

Thus, the notion that there is a true long-run downward trend in the relative tax burden must be rejected. When a simple least squares regression on the relationship between the tax burden against time was performed, there was a weak, but statistically significantly positive relationship between the tax burden and time. Taxes have tended to rise

somewhat over time relative to income.⁶³ Thus the “inflexibility” of tax revenues is a myth.

The idea that the tax burden should rise as fast as or even faster than personal income is indefensible in a representative democracy. The idea implies government has a “right” to share in the gains to personal income arising from economic growth – *without any deliberate policy actions on the part of legislators*. It is more appropriate in a representative democracy that decisions to increase the absolute real per capita tax burden be made through the electoral process, not “automatically” because of an excessive expansionary revenue stream. If the legislature were not responsible to raise (or lower) the burden of taxation, Texans would be inflicted with “taxation without representation,” the antithesis of the principles upon which the American Revolution was fought and won. Government does not have any inherent “right” to a given share of income increases generated by productivity increases in the private sector.

The Economic Effects of Changing Texas’ Tax System: Some Specifics

For some people looking forward to a proposed special session, “tax reform” is a euphemism for a tax increase. They point out that Texas’ state tax burden is relatively low, and that some increase is possible without Texas being labeled a “high tax” state.

There is an enormous and growing literature that suggests that increasing the aggregate state and local tax burden will likely lower the rate of economic progress, whether progress is measured by state product (output), personal income, employment, population growth, or new business start-ups. The conclusion holds true, using time series data (looking at things over time), cross-section data (looking at things across space), highly sophisticated econometric models, or simple statistical comparisons.

While the literature varies in its emphasis and offers some nuances, the general observation holds: higher taxes mean lower economic growth. This is not to deny that other factors are also relevant, often importantly so. It does not deny that the composition of taxes may be important as well, as well as the uses made of tax revenues (e.g., some types of expenditures may be growth-enhancing and other forms may not be). It does suggest that, typically, states raising aggregate tax rates are likely to pay some price in economic terms.⁶⁴

To demonstrate the point more specifically, a simple but effective econometric model was developed to explain the variations in the growth in real income per capita between the 50 states and the District of Columbia over the twelve-year period 1990 to 2001. The average state and local tax burden as a percent of personal income for the years 1990 and 2000 was employed as the key tax variable, and five other variables that plausibly could also explain variations in tax burden were built into the model for control purposes. The results, in Table 6, confirm the basic proposition that state and local tax burdens are negatively correlated with growth.

Table 6.
The Relationship Between Economic Growth, 1990-2001, and Various Factors,
50 States and District of Columbia

Factor	Effect of an Incremental Change in the Characteristic (Coefficient)	Statistical Significance (t-Statistics)	Relationship Between Economic Growth and Factor
Average Tax Burden	-1.6831	-3.406	Very likely a negative relationship
1990 Income Per Capita	-0.0009	-2.155	Very likely a negative relationship
Percent of Population Who Were College Graduates in 1990	0.8037	3.361	Very likely a positive relationship
Sunshine	-0.0551	-0.668	No relationship likely
Percent of Population Who Were Foreign Born in 1990	-0.4297	-1.992	Likely a negative relationship
Percent of Population Considered “Conservative”	-0.1136	-1.324	Possibly a negative relationship
Intercept	45.6904	3.47	
R ²	0.4469		
F-Statistic	14.728		

Source: Authors’ Calculations; U.S. Government Statistical Agency Data

The results of Table 6 are interesting. There is a statistically strong negative relationship between state and local taxes and economic growth. Moreover, the relationship is powerful. Suppose Texas had the median tax burden of the 48 contiguous states in this period instead of a lower burden. If Texas’ tax burden had been at the median, real per capita income would have increased only by 18.68 percent instead of 20.50 percent.

Put differently, income per capita in 2001 would have been \$431 *lower* in Texas if Texas had a typical tax burden. That is \$1,724 for a family of four. Moreover, some 39 percent of the higher-than-typical rate of economic growth in Texas (relative to the rest of the country) was explained by the lower tax burden. The evidence suggests that “tax burdens matter,” and they matter a lot. This also says that, if economic growth and progress are viewed as important policy goals, *any tax changes in Texas must be revenue neutral or revenue reducing*.

Today, some policymakers feel that Texas should modify the school finance system to increase state education revenues, perhaps substituting a state property tax for some

portion of local property taxes, and also modify other tax sources. Some proponents of reform clearly advocate revenue-enhancing changes, which this paper argues would be detrimental for economic growth, while other individuals seem willing to accept revenue-neutral changes. With this in mind, it is important to consider the three traditional major sources of state tax revenues: income, property and general sales taxes.

Income Tax

Many advocates of larger Texas state government argue that state public finance is a “three legged stool,” but one of the three legs, the individual income tax, is missing in Texas. Based on the empirical research done, the absence of a third leg has been a major source of Texas’ prosperity in recent generations. While other important states do not have an individual income tax (Florida, Washington and Tennessee being the largest), it is true that 41 states have instituted a third leg.

There is abundant evidence that income taxes are particularly egregious in their negative economic effects. To cite one recent study using data from 23 countries, Swedish scholar Frida Widmalm concluded “the proportion of tax revenue raised by taxing personal income has a negative correlation with economic growth.”⁶⁵ Income taxes adversely impact the creation of small businesses as well, the source of most new jobs.⁶⁶

Moreover, the American experience has been that states implementing income taxes have far more rapid growth in the overall tax burden (with negative economic effects) than those without income taxes. From 1957 to 1997, the 12 states implementing income taxes saw their overall tax burden rise by an average of 37.2 per cent, compared with 10.5 percent in the eight states without income taxes, and 23.4 percent in states with income taxes already in place in 1957.⁶⁷

Income taxes are a “cash cow” enabling legislators to increase spending easier than otherwise, and the empirical evidence is that they do so. Income taxes promote the crowding out of relatively more productive private economic activity. Thus it is extremely important that policymakers avoid moving toward an income tax if Texas places a value on economic prosperity and living standards.

General Sales Taxation

Without an individual income tax, Texas relies more on sales taxation than most states. Yet the sales tax burden, measured as a percent of personal income, is only moderately above the national average, and if one excludes five non-sales tax states, the Texas sales tax rate is only very slightly above that average.

In the decade 1990-2000, sales tax revenues (partly local government) rose by over 87 percent, suggesting a significant increase even in real per capita terms, although this is a modest decline if expressed as a percent of personal income.⁶⁸ The post-2000 economic stagnation led to a dramatic slowdown in sales tax revenue growth, although it was still positive.

While taxes in general have negative effects on economic growth, *and income taxes have a particularly corrosive impact*, the evidence with respect to sales taxes is more benign. Of the hundreds of statistical examinations conducted by the primary author in looking at the sales tax/growth relationship, most have shown that sales taxes have an adverse effect (lowering economic growth), but the correlation is typically modest or even not significant statistically. *This suggests sales taxes are a preferred form of taxation to income taxes from the standpoint of growth maximization.*

While income taxes are an explicit levy on production (income is earned by providing resources used to produce goods and services), sales taxes are consumption taxes, and thus less likely to have negative effects on production, or the income created from production.

There are three objections to raising sales tax rates:

- First, it is argued the sales tax tends to be regressive. Even with food being excluded from its base, the sales tax burdens lower income people more than affluent members of society. This burden, some would say, violates the “fairness” criterion on which taxes should be evaluated. It should be pointed out that polls of individuals on tax “fairness” have usually given higher ranks to sales taxes than to income taxes, which tend to be more progressive in nature; taxing the rich on a larger proportion of their income than the poor demonstrates that “fairness” is an elusive, hard-to-measure and define concept.
- A second objection to raising sales taxes is there are enormous incentives and opportunities to avoid paying the tax. If rates become abnormally high, people can buy merchandise in other jurisdictions (e.g., Oklahoma, Mexico) and engage in difficult-to-tax Internet and catalog purchases.
- Lastly, since some goods and services are not subject to tax, raising rates on taxed goods violates the “neutrality” or “level playing field” criterion of taxation more than previously. People will shift spending away from the more expensive taxed goods toward non-taxed goods, even though they would otherwise prefer to buy the taxed items.

If policymakers are determined to raise revenues, another option to do so would be the expansion of the sales tax base – taxing sales currently exempt from taxation. The aforementioned “neutrality” principle suggests that all consumption items should be taxed, although on equity grounds the polity often favors exempting some items, notably food, medical goods and services (e.g., hospital services), and educational services (e.g., tuition fees are tax exempt). There is, consequently, a decent argument to be made for expanding sales taxes to cover at least some excluded services.

Several states in recent years have begun taxing more services, such as beauty parlors, movie theaters, automobile repair, and income tax preparation services. If revenues raised from a tax base expansion are used to lower rates on the sales tax or on other taxes so

total revenues stay unchanged, economic growth may well be enhanced, particularly if the tax that is lowered had detrimental effects.

Also, broadening the sales tax could make it more “neutral,” and even vertical equity (as measured by some) would be served if the incrementally taxed items are consumed particularly among the rich (a populist idea would be to tax country club memberships). Horizontal equity (treating people of similar economic circumstance similarly with respect to taxes) also is improved by reducing items not subject to taxation.

There is one pitfall that should be avoided in sales tax expansion: taxing items used in production. Should accounting services for businesses be taxed? Probably not. Such a tax leads to tax pyramiding (or cascading), where “taxes are piled on top of taxes.” For example, a firm pays taxes on accounting services needed as a byproduct of producing goods. Then consumers pay taxes on the good sold by the firm, which incorporates into its price the cost (including taxes) of the accounting services used.

Tax pyramiding creates an uneven playing field, particularly since some firms, especially big businesses, can afford to hire in-house accountants (or other services) to provide needed services and thus avoid the tax, whereas small businesses cannot. The extension of sales taxes to business services tends to be anti-small business, and, given the demographics of small business ownership, also anti-minority groups. Considering that the majority of businesses in Texas are relatively small, policymakers should be particularly cautious if considering expanding the sales tax to include production items.

This, in turn, raises still other issues with expanding the sales tax. Determining what items should be taxed as individual consumption rather than purchases for business use can be problematic. To cite but one example, it is probably inappropriate to tax pickup trucks used by businesses in performing their jobs, but appropriate to tax pickup trucks used by individuals for pleasure. How do you know what the truck is truly being used for? Should an individual having her income tax done by H & R Block pay tax on income used to pay for tax preparation, whereas the business using a major national accounting firm to calculate its complex federal income and state franchise tax be exempt? There are thorny issues in “drawing the line” and devising a tax that is not administratively complex.

Moreover, the experience of other states suggests that expanding the base of the sales tax can be very tough politically. Some states (e.g., recently Ohio) have been successful in modestly expanding the base to include some consumer services, such as beauty parlors and barber shops. But when states try to ambitiously make the tax cover a wide range of professional services, the business lobbying against the proposals tends to become extremely intense. Thus, Florida in 2001 considered a large expansion of the sales tax base along with some reduction in the tax rate as part of a tax reform package. The idea, promoted by the powerful leader of the Florida Senate, was overwhelmingly rejected by a bipartisan coalition of legislators.⁶⁹

What, then, is best for Texas if policymakers decide additional revenues are necessary for public schools? It is difficult to provide a precise answer but it is likely that a modest expansion of the sales tax base to include consumer goods and services currently exempt from taxation would be appropriate if, *and only if*, the revenues are used to reduce other taxes that have more adverse effects as measured by generally accepted principles of taxation.

There are proposals to replace the sales tax with alternative forms of taxes on sales, including a gross receipts tax or a modified value-added tax (VAT). These are discussed in the following pages.

Property Taxation

Property taxes raise more money in Texas than any other tax, including sales taxes. Because property taxes are levied locally, with rates varying considerably across the state, the reforms policymakers are presently considering with school finance are complicated. In the 1990s, property tax revenues in Texas rose 79.2 percent, moderately less than sales tax revenues (87.6 percent) or all “other taxes” (89.8 percent), but still an increase even allowing for inflation and population growth.

Property taxes are levies on wealth, and output (income) is derived from wealth. They are not, however, a tax on all forms of wealth; for example, property taxes exclude the market value of intangible financial assets (such as stocks and bonds) from their base. A large portion of revenues are raised from residential property, which some economists view as a form of durable consumer good consumption. Many, though, including the calculators of our national income accounts, view residential property as a form of investment spending – i.e., residential property is a capital asset that promotes the production of housing services.

Business property taxes are clearly levies directly related to production. On the whole, it is probably appropriate to view property taxes, like income taxes, to be levies on productive activity. The empirical evidence suggests these taxes have some adverse economic effects. The negative relationship between property taxes and growth that is typically observed in empirical analyses is less than observed for income taxation, but greater than observed for sales taxation.

Some policymakers have proposed reducing property taxes and replacing the revenue with sales tax revenues for financing Texas public schools. Other things equal, the substitution of \$1 billion in new sales taxes for \$1 billion in property taxes would likely have at least a modestly positive economic impact, but the substitution of \$1 billion in income taxes for \$1 billion in property taxes would have a negative impact.

Since Texas has no income tax, an argument could be made to increase sales tax revenues through some expansion of the sales tax base, giving moderate relief on property taxes. Yet the issue is complicated by two facts. First, property taxes are levied locally, and rates vary spatially. Second, as indicated above, there is some good research that

indicates that local property tax funding of schools tends to have more positive *learning* effects than comparable amounts of state (non-property tax) funding. Certainly the analysis of Texas public schools conducted for this report confirms the value of relatively higher funding for schools that is derived from local revenue.

The relationship between local funding and student performance probably exists because increased local funding generally means greater community involvement in public schools – rather than because of the nature of the tax (on real estate wealth). The argument for replacing some local district property tax funding of schools with state-generated sales tax revenues is weakened sharply by the reduction in local accountability that occurs when school officials no longer have as compelling a need to justify their actions to local property tax holders who are also voters.

Local approval of property tax rates is one of the few ways that citizens have to “hold school administrators/boards feet to the fire” and demand accountability.⁷⁰ Given the strength of the empirical evidence found in the analysis of public schools conducted for this report, Texans should be very cautious about moving away from local property tax funding.

Arguments for replacing some or all of local property taxes with a state property tax would be more compelling, however, *if such a scheme were enacted as part of a broader overhaul of education that increased consumer control over educational decisions and enhanced competition.* The accountability that now comes at the ballot box (through local voter approval of taxes and candidates for school boards) could be generated more directly in an educational marketplace where students and their parents make decisions that impact importantly on the resources available to school districts – just as in the market place in which consumers buy other goods and services.

A state property tax paired with school choice could advance Texas’ goals of equal educational opportunity which appears to be thwarted by inter-district variations in per pupil assessed property valuation and only imperfectly resolved by “Robin Hood.” Financial equity could be partially met by state control of some of the revenue sources, along with using some of the state property tax revenues to particularly assist economically disadvantaged students.

Currently, Texas public schools spend over \$30 billion a year in government monies. While the amount of local funding for public schools varies widely from district to district, approximately fifty percent of total state education funding is raised locally.⁷¹ The substitution of a \$0.50 state property tax for \$0.50 in local property taxes would increase state revenues by something approaching \$6 billion per year (with a corresponding loss in local revenue). With existing funding schemes, this substitution would increase the state share of funding to well above 60 percent for the state as a whole.

Nevertheless, another, different approach is worth considering for financing public

education.

- Suppose the additional, incremental state property tax funds were earmarked for scholarships for students (vouchers) and funds were given directly to students and their parents (averaging perhaps \$1,400 per student).
- Also, suppose Texas schools, using their remaining local property tax revenues and existing state subsidies, were required to offer free “core” education for Texas students, but would be allowed to charge tuition fees for the remaining (non-core or “elective”) instruction. Student vouchers would be redeemable toward paying those tuition fees.
- Suppose further, to promote equity and conform with judicial interpretations of the state constitution, the size of the scholarships given to students would be need-based, with lower income children receiving larger scholarships (say, in some cases, as high as \$3,000), while students from affluent families would receive smaller amounts, perhaps as low as zero, but more typically, say, \$1,000.
- Suppose that the proportion of instruction designated “core” would be determined to be 75-80 percent, and 20-25 percent be “elective.” Tuition could be charged for the non-core instruction – those courses that not all students are required to take to meet minimal standards of learning expected of all citizens.
- Students would be given discretion on the use of the voucher funds, being able to attend any public school and, desirably, private schooling options as well, including such for-profit operations as Sylvan Learning Centers.
- School schedules could be established so elective courses were largely taught as blocks, allowing, for example, middle/junior high and high school students to complete their “core” courses by 1:00 p.m. so that they could attend two elective courses offered from, say, 1:30 to 3:15 p.m. Presumably, non-core offerings would be less of the day (perhaps zero) in elementary grades, and perhaps as much as 50 percent of the day in junior/senior years in high school.

This proposal would accomplish several things.

- **First**, it would significantly reduce the importance of inter-district variations in property valuations, lowering the need to engage in Robin Hood-style means of equalizing district funding.
- **Second**, it would increase accountability by making some school district revenues dependent on satisfying consumers, namely the students and their parents.
- **Third**, it would provide the basis to evaluate changes in learning in core programs versus those in elective tuition/voucher courses.
- **Fourth**, it would provide students, particularly low income ones, with new options to existing programs and allow them added enrichment instruction to reduce their educational disadvantages.

- **Fifth**, it would do all of this with no net incremental cost to the taxpayer. Indeed, under some scenarios (where higher income students were cut off from all scholarship aid), it could be done in a manner that would reduce state funding.
- **Sixth**, it would allow affluent districts to offer elaborate, high tuition, elective courses to students willing to pay some money out of pocket. There would be no effective ceiling on what a school district could do – as long as parents are willing to pay for it.

While not unanimous, the research literature on the whole supports both the concept of vouchers and greater public school competition.⁷² Students in voucher-funded programs learn at least as much as students in traditionally funded schools, and sometimes more. Students and parents in privately or publicly funded voucher programs are generally happy they shifted from the previous school setting. A growing number of states are providing vouchers – including Florida, Maine, Vermont, Wisconsin, and Ohio.

Because there are severe political obstacles to switching overnight to an all-voucher funded program, the proposal put forward here represents a compromise that introduces the concept of vouchers and increases the parental decision-making role while preserving some of the structure of the public education institution. This incremental approach to school choice should be reassuring to members of the public school community who are fearful of change.

If Texas were to decide *not* to include some form of vouchers as a part of school finance reform, reducing local reliance on taxation would be a step backward in terms of improving student educational performance. Increasing the state share of education funding would reduce the sensitivity of school officials to the desires of their clients, who also pay local property taxes. A substantial body of research, including the analysis of Texas public schools conducted for this report, indicates such a decision would lead to lower levels of student academic performance. It would make Texas schools less “efficient” in the way that word is usually used: the “output” (learning) of public schools would decline relative to the “input” (dollars spent on education).

Other Taxes

Selective Excise Taxes

A popular policy move in recent years by many states has been to sharply increase selective excise taxes – tobacco, wine, beer, liquor and even motor fuel taxes. These taxes are important, raising about \$4 billion in Texas in fiscal year 2003, more than two-thirds of it from motor fuel taxes. While some of these tax increases may have made political sense (especially raising cigarette taxes), they are highly dubious in many other regards.

First, sharp increases in excise taxes often prove a disappointment for generating additional revenues because price-sensitive consumers shift to out-of-state purchases to avoid the tax (aided, these days, by the ease of buying products, particularly cigarettes, on

the Internet). Second, these taxes violate virtually all principles of public finance. There are severe administrative problems (e.g., smuggling, evasion) with excise taxes. They are non-neutral. These taxes typically violate the principle of vertical equity (impacting more on low income persons) as well as horizontal equity (leading to much higher tax burdens for some individuals relative to others in similar economic circumstances). They even violate the desired attribute of being transparent, as the tax is usually not explicitly stated to the purchaser.

In short, excise taxes are extremely hard to justify economically. One exception to this, perhaps, relates to motor fuel taxes that are user fees in a practical sense. Where gasoline taxes are 100 percent earmarked for highway construction and maintenance, for example, there is some reasonable justification, because these taxes are almost the equivalent of a private sector price for the use of a service.

Oil and Gas Taxes

Oil and natural gas production taxes have been historically important to Texas, and in fiscal year 2003 raised nearly \$1.5 billion. The justification for oil and gas taxes diminish constantly as Texas loses what economists call its “comparative advantage” in energy production. When an area can extract oil or natural gas at an extremely low price relative to other areas, a tax on such production makes some sense. Even with the tax (provided it is not too high), the producer can make a good profit, and that tax does not impact seriously on production – in a sense, the government captures some “economic rent” (payments in excess of what is necessary to induce productive activity) that would have otherwise gone to a private individual. Moreover, the burden of the tax is often redistributed to out-of-state owners of resources.

It may well be in the 1940s and 1950s Texas’ oil and gas industry reflected this general picture. However, with the passage of time and the maturing of Texas’ natural resource base, not to mention new energy discoveries elsewhere, Texas has lost its status as a very low cost producer. Natural gas and oil taxes have the effect in some cases of raising the marginal cost of producing energy products above the marginal revenues received, leading producers to reduce production. Taxes impose disincentive effects on current production and on investment in new energy sources. In the aggregate, Texas energy firms pay much higher taxes than justified by their size in the Lone Star state economy. These taxes clearly violate the principle of economic neutrality (treating all producers and other taxpayers equally), and distort the allocation of resources.

Telecommunications Taxes

A limited examination of the telecommunications industry in Texas suggests a problem similar to that of oil and gas. Again, the reasoning behind current taxes is more related to historic phenomena than current economic reality. A generation or more ago, telecommunications companies were regulated monopolies and high taxes seemed to be a price that they had to pay to have government-enforced protection from competition. With the introduction of fierce competition in the area, any justification for such special

(high) taxation has disappeared. In a deregulated environment, there is little or no justification – from a tax perspective – for treating utilities and telecommunications companies different from other business enterprises.

Gross Receipts Taxes

Several academics and prominent public officials have suggested that the current Texas sales tax should be replaced with a gross receipts tax. A pure gross receipts tax would tax all sales of goods and services by businesses. Because the base on such a tax would be large, it is argued that the rate could be relatively low, with minimal distortional effects. A revenue-increasing move to a gross receipts tax would either allow for more spending on schools (some individuals' preference) or reductions in other levies, such as the property tax.

There are numerous, serious problems with a pure gross receipts tax. First, there are severe problems with pyramiding or cascading, and it can seriously violate the neutrality principle of taxation noted earlier. For example, the miller pays a tax on the flour that she makes, then the baker pays a tax on the bread that he makes from the flour, and then the grocer pays a tax on the distribution of the bread. Some ingredients are taxed three times, others twice, and the distributional service is taxed once. Incentives are created for vertical integration, where a single firm performs all steps in the production process, since that would lower tax liability.⁷³ Thus small businesses are taxed more than large ones. For all these reasons and more, most scholars are skeptical of schemes to impose a pure gross receipts tax.

Business Activity Taxes

The pyramiding problem mentioned above can be alleviated, however, by a modified gross receipts tax, one that for all practical purposes is a value-added tax (VAT). European countries depend heavily on this form of taxation, which has been used only to a very limited extent in the U.S., the earliest close counterpart is the Michigan business activity tax. Under a modified gross receipts tax, hereafter called a VAT, businesses can deduct the cost of inputs purchased for use in the production process in calculating the base subject to taxation. Because the base is narrowed greatly from what a pure gross receipts tax would be, the rate would be notably higher, but still considerably less than with the existing general sales tax, which excludes large quantities of items from its base.

While preferred to a pure gross receipts tax, there are a number of issues with a VAT. Some might argue that it is not progressive enough, not taxing those enough with the greatest "ability to pay;" they advocate excluding items from the base, such as food products. But it is difficult for policymakers to know where to draw the line. Should the accounting firm charge the tax on its services to car dealers or bars, but not charge them on its services for grocers who sell food? Should the grocery store's sales of food be exempt? The administrative costs of enforcing a VAT are probably notably higher than for existing sales taxes, particularly if exemptions are numerous.

A VAT has one huge disadvantage: the tax lacks transparency. People are not aware of paying it. Moreover, in a vast interstate economy, the tax potentially puts Texas businesses at a disadvantage relative to states without such a tax. Moreover, while the VAT has several positive qualities to it, the “bottom line” is that economies with governments heavily dependent on the VAT have not fared well over time.

In Europe, where admittedly the VAT is very high (15-25 percent), economic growth rates have declined for every decade since the 1960s – the period in which the VAT became widespread and large. In Michigan, the VAT has demonstrated a lackluster performance; the economic growth rate has been slow, perhaps for a number of reasons but owing at least in part to its high taxation of business. For all of the reasons elaborated in these pages, policymakers should be very careful when considering the idea of substituting a gross receipts tax for other taxes as part of a revenue-neutral plan.

The biggest problem with the VAT is that it is *never* revenue-neutral. The explosion of big government and the stifling of free enterprise in Europe is closely coincident with the widespread adoption of high-rate VATs.

Business Climate in Texas

It is often argued that businesses in general are relatively lightly taxed in Texas. This argument is not true; additionally, policymakers should recognize that in the ultimate sense “businesses” do not pay taxes in any case – human beings do.

First, what are the facts? In fiscal year 2001, the last year for which Census data is available for all states, state corporate income tax revenues in the United States were \$3.71 per \$1000 of American personal income. In Texas, the Census Bureau records “zero” for this tax, yet the state franchise tax raised \$1.96 billion, equal to \$3.28 per \$1,000 in personal income.

It is true that Texas’ corporate taxes are below the national average by about 12 percent – but so were other taxes that were levied directly on individuals. The proportion of Texas state revenues generated by taxing business actually was similar to the national average. Importantly, however, when utility, property and other forms of business taxes are added, the aggregate business tax burden is substantially higher in Texas than the national average.

When considering taxes, people should recognize that income ultimately belongs to human beings. Businesses are merely organizational devices owned by human beings that generate income for them. While the incidence of business taxes varies with the tax and the time period examined, it is roughly true that in the long run consumers of business goods or services pay most business taxes, while in the shorter run some of the burden may fall on shareholders or employees.

It is not meaningful to say “Texas taxes business lightly.” This statement is fundamentally inaccurate, and it is irrelevant. Some restructuring of business taxation

may be appropriate, and the state tax system could be improved – keeping in mind the goals of neutrality, administrative simplicity and fairness.

The disproportionate taxing of some industries and services is, in general, unjustified. Economists generally disfavor corporate income (or franchise) taxes: their incidence is uncertain, they are not transparent, and in some cases they violate principles of equity. The administrative problems of taxing out-of-state/nation income are severe and raise the question of why business income should be taxed if personal incomes are protected from tax. Evidence and ideas of fairness suggest phasing out the franchise tax over time, and equalizing industry-specific taxation.

Non-Tax Forms of Revenue

The proportion of state and local government revenues coming from taxation in Texas has declined over time, and while reliance on non-tax revenue has grown, policymakers often pay insufficient attention to non-tax revenue sources. A large proportion of revenues from non-tax sources comes from federal government grants. Beyond that, however, a rapidly growing revenue source is fees and user charges.

Non-tax revenues derive from the benefit principle of public finance, which says when government provides services accruing to specific individuals, those individuals ought to pay for them through charges akin to prices charged by private businesses to provide services. It is appropriate, therefore, for governments to charge for hunting licenses, where the revenues enforce laws and regulations designed to protect wildlife and human safety. It is also appropriate for governments to charge for municipally provided sanitation or hospital services. However, it is important to note, there is a rich literature that suggests that these types of activities are typically more efficiently provided by the private sector.⁷⁵ A good argument can be made for governments to charge tolls on roads, although the motor fuel tax provides a crude but administratively convenient substitute as a user charge.

Payment for services provides government an opportunity to recoup costs for subsidized services as well as generating revenues. A compelling argument can be made for making most students in state colleges and universities pay a large majority of the costs of their instruction. The recent rise in tuition fees in Texas, and other states, in large part reflects inherent inefficiency in universities, although stagnant state funding has recently played a bigger role.

The strongest argument for reducing state subsidies for higher education is provided by statistical evidence suggesting that the correlation between state government spending on higher education and economic growth is actually *negative*, and rather strongly so.⁷⁶ A progressive voucher system, such as suggested for K-12 education above, may well be desirable for the Texas higher education system as well. In any case, a continued reduction in state subsidies accompanied, if necessary, by tuition fees hikes, would relieve pressure on the state budget and release tax revenues to implement some of the non-radical but useful tax reforms suggested above.

Part II Conclusions

The Texas system of taxation is above average from an economic growth perspective, and has contributed to relatively high prosperity in the Lone Star State. Caution should be used in tinkering extensively with it. Although the system could be improved by equalizing corporate tax burdens, on the whole Texas has a tax system that the nation envies.

If policymakers determine that additional revenues are needed for public education, the best approach would be modest expansion of the sales tax base coupled with reductions in some excessive business taxes. More use of fees and charges is justified where the beneficiary is clearly delineated and where the fees help pay the cost of the government service.

Above all, Texas should *not* increase its overall level of taxation. The state should not even consider levying income taxation. This statement is worth repeating: ***Texas policymakers should avoid raising tax burdens, and should not even consider an income tax.***

There is no evidence to support the conclusion that providing greater financial support for public education will improve student performance. Raising taxes to do so would be a big mistake. The research on the relationship between learning and resources shows no evidence that more money means higher student performance.

There is a crude but pithy expression: “If it ain’t broke, don’t fix it.” Despite the poor grammar, those words convey a good deal of wisdom when it comes to Texas’ system of financing its government in general, and its schools in particular.

The decision-makers of Texas owe it to themselves, their constituents and future generations to avoid engaging in counterproductive and expensive “solutions” to the issue of public education financing. Rather they need to move to an educational delivery system that is more efficient, more effective, and enhances, rather than detracts from, Texas’ economic future.

Returning to First Principles

Texas is presently embroiled in a lengthy debate about public schools, the education of its children and especially the financing of public education. Most of the debate has focused on changing the amounts and forms of taxation used in financing public schools, implicitly assuming that the basic method of delivering services is essentially a good one. This is an assumption that poses considerable risk for Texans.

The most solemn responsibility of each generation is to pass on the accumulated wisdom, truth and beauty of past generations to the youth who will lead the state and nation in future years. Our civilization is maintained only if its “cultural capital” keeps from depreciating, which means as carriers of the knowledge, traditions, artistic forms, and humanistic values die, the younger generation must be “taught” those things that make up what we broadly term our “civilization.”

Moreover, if the civilization is to grow and progress, we need to expand the frontiers of our knowledge and our artistic accomplishments by forming new “cultural capital” through research and creative endeavors. For scores of generations since the beginning of recorded history, this process of replacing and creating our cultural capital has continued. The current debate in Texas is merely a continuation of a discussion that has raged for literally thousands of years.

In the 19th century, many communities established government schools largely funded by local property taxes. These schools offered instruction to further the cultural heritage. They provided the general population with tools necessary to perform the tasks of basic citizenship and employment. This was largely “reading, writing and arithmetic.” It was felt every student needed to know how to communicate well with others, both to further economic goals (minimizing the costs of carrying out trades), and to allow for full participation in civic life.

The common core of knowledge, it is argued, helps bind us together as a people. Because it was common to all, there was some rationale for having this knowledge largely produced and financed by government schools. This need served as the rationale for requiring all students to learn how to read, to spell, to write, and to know the rudiments of English grammar. Mathematical skills were also required because this knowledge was indispensable for carrying out trade; as a practical matter, in a market economy, buyers and sellers need to know how to add, subtract, multiply and divide in order to trade efficiently with one another.

With the passage of time, some additional forms of knowledge were deemed sufficiently important for meeting minimal goals of citizenship and binding us together as a unified people. Acquiring knowledge of our historical heritage and political institutions, for example, was considered important. And familiarity with the scientific method and a few rudimentary principles of science (e.g., the notion that the Earth revolves around the sun, and not vice versa) was also deemed important.

In addition to the core curriculum about which virtually all educated persons agree that everyone should study, there are other worthy subjects that are valuable, but not necessarily *universally* vital. There are subjects that are not necessarily useful or of interest to all. For example, some might wish to learn how to play the piano, understand Spanish, or learn how to work a drill press. Yet others might wish just as strongly to learn to play the guitar, study French, and master a computer language. Still others might find value in familiarity with the fine and industrial arts, other languages and computers. There is nothing inherently “right” about any of these choices, and it is not imperative all students study all of these areas in precisely the same manner. Indeed, it would be impossible for all students to acquire these skills before high school graduation, given constraints of time and resources.

On the other hand, there are skills that people commonly agree are imperative for high school graduates to acquire. Knowledge of English is necessary to providing the common vehicle of communication that allows us to speak to our fellow citizens and participate fully in the economy. Alternatively, the knowledge of French or Spanish is not necessary to meeting that most basic goal, and thus falls in the category of an elective form of learning. The same is true of the other subjects mentioned above, along with a myriad of others as well.

It seems reasonable that the obligation of government is to guarantee all students instruction in the educational core curriculum, equipping them with the knowledge and skills necessary to succeed in our society and economy. And it seems reasonable that funding for this instruction should be guaranteed by the state. However, a student should have an alternative to the neighborhood government school, particularly if the school is not meeting the student’s educational needs.

Today an educated person needs additional training beyond the core curriculum provided by secondary schooling. The nature and extent of that individual training will vary according to individual academic interests and strengths, by vocational considerations, and by costs. While the state has a moral and, in Texas, a constitutional obligation to provide access to the core curriculum at no private tuition charge to the student, the same is less true of the secondary forms of instruction.

Because post-secondary training is essential, the forms of elementary and secondary instruction serve as the foundation for more advanced forms of schooling, such as state universities. While the core curriculum helps individuals to be prepared to cope with the obligations of citizenship and to be sufficiently educated for unskilled employment, the secondary curriculum gives students the tools needed to improve their economic lot and to obtain high paying jobs.

The benefits of this training accrue to the individual student, and it makes sense in many cases to force those students or their families to incur at least part of the cost of this “human capital investment.” The notion of doing so at the higher education level has been accepted for years, and perhaps should be extended to lower grades.

At the same time, it is important to ensure that family income does not serve as a barrier to education. One of the goals of publicly funded education is to provide opportunities for the relatively disadvantaged members of society to achieve economic advancement. College graduates, for example, on average earn more than double the wages of those with less than a high school education, so it makes sense to subsidize the education of poor children to allow them to rise up the economic ladder. It makes far less sense for taxpayers from middle or even low-income families to contribute to the non-core educational attainment of students from highly wealthy backgrounds for which financial considerations are not an important impediment to learning.

Well educated, highly skilled individuals also benefit our state and nation. There is mounting evidence that post-secondary training (as opposed to spending on universities) is positively related to productivity and economic growth. Educated people are more likely to be involved in their communities and to vote. Increased education is associated with reductions in crime and less reliance on government-subsidized services.⁷⁷

ENDNOTES

¹ For example, teachers constituted only 50.46 percent of the full-time equivalent staffs of Texas schools in 2000-2001. See Texas Education Agency, *Texas Public School Statistics: Pocket Edition, 2001-02* (Austin, TX: Texas Education Agency, 2003). The Office of the Comptroller reports that only 50.8% of total education spending was devoted to instruction during the 2002-03 school year.

² See, for example, Gary M. Anderson, William F. Shughart, and Robert D. Tollison, "Educational Achievement and the Cost of Bureaucracy," *Journal of Economic Behavior and Organization* vol. 15, no. 1 (January 1991): 29-45.

³ Brian M. Stecher, et al., "The Relationship between Exposure to Class Size Reduction and Student Achievement in California," *Education Policy Analysis Archives* vol. 11, no. 4 (November 2003); also, Ludger Wobmann and Martin R. West, *Class Size Effects in School Systems Around the World: Evidence from Between-Grade Variations in TIMSS*, (Cambridge, MA: Program on Education Policy and Governance, Harvard University, 2002).

⁴ Eric A. Hanushek, "The Failure of Input-based Schooling Policies," *Economic Journal* 113, no. 2 (February 2003): F64-F98.

⁵ Caroline M. Hoxby, "Does Competition Among Public Schools Benefit Students and Taxpayers?" *The American Economic Review* vol. 90, no. 5 (December 2000): 1209-1238.

⁶ U.S. Bureau of the Census, *Governmental Finances in 1979-80* and *Governmental Finances in 1999-2000* (Washington, D.C.: Government Printing Office, 1981 and 2002).

⁷ See, for example, William A. Fischel, "School Finance Litigation and Property Tax Revolts: How Undermining Local Control Turns Voters Away from Public Education" in *Developments in School Finance 1999-2000* William J. Fowler, ed. (Washington, D.C.: National Center for Education Statistics, 2002), and Caroline M. Hoxby, "Local Property Tax-Based Funding of Public Schools," *Heartland Institute Studies #82*, May 1997.

⁸ Craig B. Howley and Robert Bickel, *School Size, Poverty, and Student Achievement* (Washington, DC: Rural School and Community Trust, February 2000).

⁹ Texas Education Agency, *Texas Public School Statistics: Pocket Edition, 2001-02* (Austin, TX: Texas Education Agency, 2003).

¹⁰ Vicki Murray and Ross Groen, *Competition or Consolidation? The School District Consolidation Debate Revisited*, (Phoenix, AZ: The Goldwater Institute, January 2004).

¹¹ For a representative study advocating the "adequacy" approach, see John G. Augenblick, John L. Meyers and Amy Berk Anderson, "Equity and Adequacy in School Funding," *The Future of Children*, Winter 1997. Augenblick runs a thriving consulting business doing adequacy studies. For a criticism of Augenblick's work in Ohio, see John Ruggerio, "Determining the Base Cost of Education: An Analysis of Ohio School Districts," *Contemporary Economic Policy* vol. 19, no. 3 (July 2001): 268-279.

¹² See Richard Vedder, "Comparable Worth," *Education Next* vol. 4, no. 3 (Summer 2003): 14-19; or Michael Podgursky, "Fringe Benefits: There Is More to Compensation Than a Teacher's Salary," *Education Next* vol. 4, no. 3 (Summer 2003): 71-76. See also Dale Ballou and Michael Podgursky, *Teacher Pay and Teacher Quality* (Kalamazoo, MI: Upjohn Institute, 1997).

¹³ Ibid; and Eric A. Hanushek and Steven G. Rivkin, "Does Public School Competition Affect Teacher Quality," in *The Economics of School Choice* ed. Caroline M. Hoxby (Chicago, IL: University of Chicago Press, 2003).

¹⁴ One statistic here will make the point. The 10 states raising their income taxes the most from 1957-97 averaged 191 percent real personal income growth, compared with 455 percent for states, including Texas that raised their taxes the least (most, like Texas, not having a tax at all). See Richard Vedder, *Taxes and Economic Growth* (Cedarburg, WI: Taxpayers Network, Inc., September 2001).

¹⁵ One representative example should suffice. On the Third International Mathematics and Science Study (TIMSS) that tested 500,000 students in 41 countries, U.S. students ranked 12th of 26 nations at the fourth grade level, 28th of 41 nations at the eighth grade level, and a pathetic 19th of 21 nations at the 12th grade level. See the set of three National Center for Education Statistics studies on this topic. U.S. Department of Education, National Center for Education Statistics, *Pursuing Excellence: A Study of U.S. Eighth-Grade Mathematics and Science Teaching, Learning, Curriculum, and Achievement in International Context* (Washington, DC: Government Printing Office, 1996); *Pursuing Excellence: A Study of U.S. Fourth-Grade Mathematics and Science Achievement in International Context* (Washington, DC: Government Printing

Office, 1997); *Pursuing Excellence: A Study of U.S. Twelfth-Grade Mathematics and Science Achievement in International Context* (Washington, DC: Government Printing Office, 1998).

¹⁶ Herbert J. Walberg, *Spending More While Learning Less: U.S. School Productivity in International Perspective* (Washington, DC: Thomas B. Fordham Foundation, July 1998).

¹⁷ National Center for Education Statistics, *Digest of Educational Statistics, 2002* (Washington, D.C.: Government Printing Office, 2003).

¹⁸ The Education Trust, *Telling the Whole Truth (or Not) About High School Graduation: New State Data* (Washington, D.C.: The Education Trust, 2003). See also, Jay P. Greene and Marcus A. Winters, *Public School Graduation Rates in the United States*, The Manhattan Institute Civic Report No. 31, November 2002.

¹⁹ Since the Texas Assessment of Knowledge and Skills (TAKS) has had its first official administration only in the 2002-03 school year, it has no student performance history whereas the previously-administered TAAS does have several years of student performance history.

²⁰ College readiness is clearly a concern of Texas policymakers and philanthropists. See, for example, Governor Rick Perry's High School Initiative, which (among other things) requires the class of 2008 to take a more rigorous curriculum to graduate so that students will be better prepared for college.

²¹ For more see, William Peacock, "Debunking the Myths of Texas School Finance," in *Putting the Sides Together*, ed. Chris Patterson (Austin, TX: Texas Public Policy Foundation, 2003): 137-158.

²² Eric A. Hanushek and Javier A. Luque, "Efficiency and Equity in Schools Around the World," *Economics of Education Review* vol. 20, no. 5 (October 2003): 481-502.

²³ *Ibid.*

²⁴ Hanushek, "The Failure of Input-based Schooling Policies."

²⁵ For a Texas example, see Diane Pan et al., *Examination of Resource Allocation in Education: Connecting Spending to Student Performance* (Austin, TX: Southwest Educational Development Laboratory, 2003).

²⁶ Margaret A. Raymond and Eric A. Hanushek, "High Stakes Research," *Education Next* vol. 3, no. 3 (Summer 2003): 48-55.

²⁷ Fischel, "School Finance Litigation and Property Tax Revolts," and Hoxby, "Local Property Tax Based Funding of Public Schools."

²⁸ Jay P. Greene, "A Survey of Results from Voucher Experiments: Where We Are and What We Know," in *Can The Market Save Our Schools*, ed. Claudia R. Hepburn (Vancouver, BC: Fraser Institute, 2001).

²⁹ Kate Walsh, *Teacher Certification Reconsidered: Stumbling for Quality* (Baltimore, MA: Abell Foundation, 2001); and Dan Goldhaber, "The Mystery of Good Teaching," in *Education Next*, vol. 2, no.1 (Spring 2002): 50-55.

³⁰ Caroline M. Hoxby, "Rising Tide: New Evidence on Competition and the Public Schools" *Education Next* vol. 1, no. 4 (Winter 2001): 68-75.

³¹ See Texas Education Agency, *Academic Excellence Indicator System, District Reports, 2002-03* [electronic file] (Austin, TX: 2003), <http://www.tea.state.tx.us/perfreport/aeis/2003/district.srch.html>. For data from the special school district tabulation from the Census, see U.S Department of Education, National Center for Education Statistics, *Census 2000 School District Tabulation Data* [electronic file] (Washington, DC: National Center for Education Statistics, 2003), <http://nces.ed.gov/surveys/sdds/>.

³² Specifically, the performance measure used is DA311PA03R - Sum of All Grades Tested, All Tests Taken, 2002-2003, All Students, 2SEM Below Panel Recommendation. While this "All Students" measure is not used for school accountability rating purposes, it is shown on the AEIS report and is, in our opinion, the most comprehensive measure of both the quality and depth of education provided in a given district.

³³ To be fair to those districts scoring lower than a 100-percentage passage rate, the only district scoring at 100 percent is the smallest school district in Texas in terms of population, the San Vicente Independent School District. In addition, San Vicente is only a K-8 district.

³⁴ This is a higher figure than usually reported as a statewide average spending figure. The reason is that the number is an average of school districts, and as such is not weighted by differences in district size. Since the larger districts on average spent less than smaller ones, a weighted average of spending per pupil is less than the un-weighted average reported here.

³⁵ In this way, our approach is very different from the school ratings published by Just for the Kids (www.just4kids.org). Just for the Kids compares schools (not districts) with other "comparable" schools. Their criteria for determining comparable schools is based on mostly demographic factors such as the

percentage of low-income students in the district and the percentage of limited English proficiency students. They are concerned with passage rates on tests among comparable schools, not efficiency *per se*. In fact, spending appears to play no role whatsoever in their ranking of high performing schools. For more on their criteria, see http://www.just4kids.org/jftk/content/texas/texas_selection_criteria_M.cfm.

³⁶ This should not be construed as a dismissal of the work done by the folks at Just for the Kids. Instead, it is just recognizing that we live in a world of scarce resources and policymakers must prioritize spending in those areas that have the “biggest bang for the buck.”

³⁷ For more on this point, see William A. Fischel, *The Homevoter Hypothesis: How Home Values Influence Local Government Taxation, School Finance, and Land Use Policies* (Cambridge, MA: Harvard University Press, 2001), 133-135.

³⁸ See, for example, Jon C. Sonstelie, Eric Brunner, and Kenneth Ardon, *For Better or For Worse? School Finance Reform in California* (San Francisco, CA: Public Policy Institute of California, 2000). Also, “Note: A Statistical Analysis of the School Finance Decisions: On Winning Battles and Losing Wars,” *Yale Law Journal* 81 (June 1972): 1303-1341.

³⁹ For more on Texas exams and standards, see Ellen Williams, “Funding What Matters,” in *Putting The Sides Together*, ed. Chris Patterson (Austin, TX: Texas Public Policy Foundation): 193-220.

⁴⁰ This finding should not be viewed as an excuse for perpetually poor performance. It is important to identify districts that do well while having a large number of disadvantaged students so that their techniques for eliminating the education deficits associated with disadvantaged populations can be replicated.

⁴¹ This is consistent with our work on Ohio school districts. See Richard Vedder, Joshua Hall and Michael Melander, “Determinants of Ohio Student Performance,” Ohio University Department of Economics, Working Paper, January 1998.

⁴² This finding is consistent with other research. See, for example, Emmanuel Jimenez and Vincente Paqueo, “Do Local Contributions Affect the Efficiency of Public Primary Schools?” *Economics of Education Review* vol. 15, no. 4 (October 1996): 377-386.

⁴³ This is not the same thing as saying that quality teaching is unrelated to student performance. Research has shown, using Texas data, that the high quality teachers can erase the education deficit associated with differences in family income. Steven G. Rivkin, Eric A. Hanushek, and John F. Kain, “Teachers, Schools, and Academic Achievement,” National Bureau of Economic Research, Working Paper No. 6691, July 1998.

⁴⁴ For more on the school district/learning relationship, see William A. Niskanen, “Student Performance and School District Size,” In William A. Niskanen, ed., *Policy Analysis and Public Choice: Selected Papers of William A. Niskanen*, ed. William A. Niskanen (Cheltenham, U.K.: Edward Elgar, 1998: 124-134).

⁴⁵ This is very consistent with the majority of the class size research. See, Eric A. Hanushek, “The Evidence on Class Size,” in *Earning and Learning: How Schools Matter*, eds. Susan E. Mayer and Paul E. Peterson. (Washington, D.C.: Brookings Institution Press, 1999): 131-168.

⁴⁶ Interestingly, the work of economist Dale Ballou suggests that schools do not, in any consistent way, hire the best teachers even when they may have the opportunity to do so. See, Dale Ballou, “Do Public Schools Hire The Best Applicants?” *Quarterly Journal of Economics* vol. 111, no. 1 (February 1996): 97-133.

⁴⁷ John Pisciotta, *Deteriorating Teacher Morale in Texas Public Schools* (San Antonio, TX: Texas Public Policy Foundation, 2001); and John Pisciotta, *Teacher Attitudes in Texas Public and Private Schools* (San Antonio, TX: Texas Public Policy Foundation, 2000).

⁴⁸ Eric A. Hanushek, John F. Kain, and Steven G. Rivkin, “Why Public Schools Lose Teachers,” National Bureau of Economic Research, Working Paper No. 8599, November 2001.

⁴⁹ For example, increasing salaries in certain school districts in an attempt to reduce teacher turnover may or may not have an impact on other factors that influence teacher turnover and/or student performance. Teacher mobility may be a result of school district spending priorities rather than low salaries, *per se*. See, for example, Neil D. Theobald and R. Mark Gritz, “The Effects of School District Spending Priorities on the Exit Paths of Beginning Teachers Leaving the District,” *Economics of Education Review* vol. 15, no. 1 (February 1996): 11-22.

⁵⁰ “Inefficient Education Spending in School Districts: A Case for Consolidation?” It should be noted, however, that this was in a state that spent \$2.1 billion at the state level on education. See, U.S. Census

Bureau, *Public Elementary-Secondary Education Finances: 1999-2000* (Washington, D.C.: Government Printing Office, 2002), Table 3.

⁵¹ Vicki Murray and Ross Groen, *Competition or Consolidation? The School District Consolidation Debate Revisited.*

⁵² William Fox, "Reviewing Economies of Size in Education," *Journal of Education Finance* vol. 6, no. 3 (1981): 273-96.

⁵³ In addition, larger school districts might not really reduce expenditures on these students, but might instead just mask the high cost of educating certain populations by averaging their high costs over a much larger population. For more on intra-district variations in school district expenditures, see Marguerite Roza and Karen Hawley Miles, *A New Look at Inequities in School Funding: A Presentation on the Resource Variations within School Districts* (Seattle, WA: Center on Reinventing Public Education, May 2002).

⁵⁴ Fred White and Luther Tweeten, "Optimal School District Size Emphasizing Rural Areas," *American Journal of Agricultural Economics* vol. 55, no. 1 (February 1973): 45-53.

⁵⁵ Fox, 289.

⁵⁶ Gary M. Galles and Robert L. Sexton, "Diseconomies of School District Size," *Journal of Social, Political, and Economic Studies* vol. 20, no. 2 (Summer 1995), 241.

⁵⁷ See, for example, Herbert J. Walberg and William J. Fowler, "Expenditures and Size Efficiencies of School Districts," *Educational Researcher* vol. 16, no. 7 (October 1987): 5-13.

⁵⁸ Carole Keeton Strayhorn, Texas Comptroller of Public Accounts, "Texas Revenue History by Source, 1978-2003." At <http://www.window.state.tx.us/taxbud/revenue.html>.

⁵⁹ The 2003 price deflator is partly estimated. The fiscal year price deflator was calculated as the average of the two calendar years in which the fiscal year occurred (e.g., 1977 and 1978 for fiscal year 1978). Economists are virtually unanimous in believing the widely used Consumer Price Index (CPI) significantly overstated inflation in this period; the GDP price deflator is a broader-based price index that is used in calculating changes in national output that is probably more appropriate in any case. For a good review of the vast literature on the problems with the CPI, see David E. Lebow and Jeremy B. Rudd, "Measurement Error in the Consumer Price Index: Where Do We Stand?" *Journal of Economic Literature* vol. 41, no. 1 (March 2003): 159-201.

⁶⁰ Carole Keeton Strayhorn, Texas Comptroller of Public Accounts. "Texas Expenditure History by Function, 1978-2003." At <http://www.window.state.tx.us/taxbud/expend.html>.

⁶¹ Caroline Hoxby has written extensively on this in the context of the nation. See, for example, her article "The Productivity of Schools and Other Local Public Goods Producers," *Journal of Public Economics* vol. 74, no. 1 (November 1999): 1-30.

⁶² For example, a survey of over 1,000 voters conducted by Baseline & Associates for the Texas Public Policy Foundation showed more than three-quarters of respondents were opposed to an income tax. See their Texas Voter Survey, June 11-15, 2003.

⁶³ In part, this was because of rate increases on existing tax bases enacted by the Texas legislature, notably a sales tax hike in the mid-1980s. The point still stands, however: the *tax structure*, as occasionally modestly modified by the legislature, is capable of producing revenue growth equal to or greater than the growth in the Texas economy as a well.

⁶⁴ A good survey of much of the literature is found in Richard Vedder, *Taxes and Economic Growth*. For three representative studies showing the adverse impact of taxes on growth, see L. Jay Helms, "The Effect of State and Local Taxes on Economic Growth: A Time Series-Cross Section Approach," *Review of Economics and Statistics*, November 1985; Paul Cashin, "Government Spending, Taxes, and Economic Growth," *International Monetary Fund Staff Papers*, June 1995, and Se-Jik Im, "Growth Effects of Taxes in an Endogenous Growth Model: To What Extent Do Taxes Affect Economic Growth?" *Journal of Economic Dynamics and Control*, October 1998.

⁶⁵ Frida Widmalm, "Tax Structure and Growth: Are Some Taxes Better Than Others?" *Public Choice*, June 2001.

⁶⁶ Robert Carroll et al., *Personal Income Taxes and the Growth of Small Firms* (Cambridge, MA: National Bureau of Economic Research Working Paper W7980, October 2000).

⁶⁷ Vedder, *Taxation and Economic Growth*.

⁶⁸ Data supporting this statement come from U.S. Bureau of the Census, *Governmental Finances in 1990* (Washington, D.C.: Government Printing Office, 1992) and *Governmental Finances in 2000* (Washington, D.C.: Government Printing Office, 2003).

⁶⁹ The senior author, who was actively involved in this debate as a consultant to the Florida House of Representatives, was told by numerous legislators that the lobbying on this issue was as intense as they had ever seen, with conventional lobbying pressure augmented by television ads blasting various aspects of the proposal.

⁷⁰ For national evidence arguing that local district functioning positively relates to student performance, see Caroline M. Hoxby, "Efficiency and Equity in School Finance: Substitutes or Complements," *Journal of Economic Perspectives* vol. 10, no. 4 (Fall 1996): 51-72. See also her *Local Property Tax Funding of Public Schools* (Chicago, IL: Heartland Institute Studies No. 82, May 1999).

⁷¹ See Texas Education Agency, *Academic Excellence Indicator System, State Performance Report, 2002-03* [electronic file] (Austin, TX: 2003).

⁷² The literature is voluminous. For a book that reviews much of the voucher/competition literature, among other things, see Herbert Walberg and Joseph L. Bast, *Education and Capitalism: How Overcoming Our Fear of Markets and Economics Can Improve Our Schools* (Stanford, CA: Hoover Institution Press, 2003). Other good recent books relating to choice and vouchers, see Paul E. Peterson, ed., *The Future of School Choice* (Stanford, CA: Hoover Institution Press, 2003) or Paul E. Peterson, ed., *Our Schools and Our Future: Are We Still at Risk?* (Stanford, CA: Hoover Institution Press, 2003). Perhaps the best article on public school competition is Hoxby, "Does Competition Among Public Schools Benefit Students and Taxpayers?" For a representative study of the impact of vouchers, see Jay P. Greene and Marcus Winters, *When Schools Compete: The Effects of Vouchers on Florida Public School Achievement* (New York: Manhattan Institute for Public Policy Research, August 2003). The pioneering study by John Chubb and Terry Moe arguing that choice and competition is beneficial is *Politics, Markets and America's Schools* (Washington, D.C.: The Brookings Institution, 1990).

⁷³ For additional discussion on a gross receipts tax and its pitfalls, see Caroline M. Hoxby, "A New School Finance Plan for Texas," in *Putting the Sides Together* ed. Chris Patterson (Austin, TX: Texas Public Policy Foundation, December 2003): 85-86.

⁷⁵ For a summary of studies on privatization, many in an international context, see William L. Megginson and Jeffry M. Netter, "From State to Market: A Survey of Empirical Studies on Privatization," *Journal of Economic Literature*, June 2001.

⁷⁶ See Richard K. Vedder, *Going Broke By Degree: Why College Costs Are Rising So Much* (Washington, D.C.: American Enterprise Institute, forthcoming May 2004), especially chapters three through six, for a detailed examination of this issue.

⁷⁷ Eric A. Hanushek, "Publicly Provided Education" in *Handbook of Public Economics*, eds. Alan J. Auerbach and Martin Feldstein (Amsterdam: North Holland Press, 2002).



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