

A New School Finance Plan for Texas

The Texas Great Teachers & Facilities Fund

Caroline M. Hoxby is an appointed member of the House Select Committee on Public School Finance. She is a professor of economics at Harvard University, director of the Economics of Education Program for the National Bureau of Economic Research, a distinguished visiting fellow at the Hoover Institution, and member of the Koret Task Force on K-12 Education. A Rhodes Scholar, she earned her master's degree from the University of Oxford, and her doctorate in economics from the Massachusetts Institute of Technology. She has written extensively on educational choice and related issues, and received numerous awards, including a Carnegie Fellowship, a John M. Olin Fellowship, a National Tax Association Award, and a major grant from the National Institute of Child Health and Development.

FEATURES OF THE TEXAS GREAT TEACHERS AND FACILITIES FUND

1. TGTF aid targets ensure that every district could attract and keep able people as teachers, without placing an undue burden on local taxpayers.
2. Revenue dedicated to the TGTF fund would be sequestered from other state revenues and used solely for aid to elementary and secondary schools.
3. TGTF is a much more transparent program than the current Foundation School Program (FSP). Transparency ensures that taxpayers can understand how their taxes are being spent.
4. TGTF is a substitute for FSP and Chapter 46 Instructional Facilities Aid. To ensure that TGTF does not add to Texans' overall tax burden, each district's local property taxes would automatically be rolled back by an amount commensurate with TGTF aid.
5. After the roll back, there would be a 5% allowance for current spending needs that are unmet owing to FSP's problems. Above this allowance, increases in property tax rates would require a supermajority vote of local residents.
6. Districts would receive aid so that they could reach TGTF target spending if:
 - their households were willing to spend 1.125% of their incomes (0.5% or 50¢ per hundred of residential property value for a typical household) on local schools,
 - their owners of non-residential property were willing to spend 0.5% (or 50¢ per hundred of their property value) on local schools.
7. TGTF contains additional aid for districts with concentrations of poor children and for sparsely populated districts.
8. Texas districts would be *guaranteed* to get at least as much, if not more, from TGTF's Teaching and Instructional Fund as they currently get from FSP.
9. TGTF maintains local control and keeps schools accountable to local taxpayers. This is because 100% of each *marginal* dollar would come from local property

Putting the Sides Together

- taxes, even though poorer districts would start from a base of much more generous aid.
10. By design, TGTF does not contain elaborate systems of pupil weights. Districts receive aid based on fundamental factors that they cannot control (such as household incomes and pupil sparsity). Aid is not based on classification systems that can be manipulated.
 11. The state currently appropriates revenues from the Available School Fund, Lottery, and General Revenue Account for the Foundation School Program. These would fund part of TGTF. The remainder of TGTF could be funded by one of several tax alternatives. A sales tax, a modified gross receipts tax, and an education flat tax are described.

INTRODUCTION TO THE TGTF

The idea behind the Texas Great Teachers and Facilities (TGTF) fund is simple: the state should fulfill its duty to educate Texas children by ensuring that every district can provide the core parts of the educational process: good teachers and adequate facilities. Each district would get two amounts from the TGTF fund: a general aid amount (TGTF Teaching and Instruction) and an amount for facilities (TGTF Facilities).

Every system of school finance has two sides: a method of allocating aid among districts and a method of raising revenue to fund the aid. The two sides are equally important: a system that allocates money inefficiently requires excessive revenues to support it; a system that raises revenue inefficiently overtaxes taxpayers. TGTF is primarily a method of *allocating aid*, but this report also describes some alternatives for financing the system.

TGTF is compatible with many other school reforms, such as teacher incentives, accountability incentives, charter schools, and other forms of school choice. TGTF is fully compatible with such school reforms because each of them *presupposes* a method by which the state allocates aid.

The TGTF program would remedy several problems that exist in the current Foundation School Program (FSP). These problems include: an inflexible tax ceiling that eliminates the discretion of many districts, inefficient distribution of state aid, inefficient taxation to support FSP, a weighted pupil (WADA) formula that is manipulable, and a lack of accountability to taxpayers.

Specifically, TGTF replaces an inflexible tax ceiling with a system of local control that has built-in, flexible “brakes.” TGTF allocates aid much more efficiently than the current system, reducing the burden on the state to raise revenue. Unlike FSP, TGTF is not funded by property taxes. Although property taxes are the most efficient way to fund truly *local* spending, they are by far the least efficient way to fund state spending such as interdistrict aid. TGTF targets are adjusted for cost factors that are clearly beyond a district’s control, such as child poverty and a sparse population of children. However, in contrast to the current WADA formula which is manipulable and opaque, TGTF contains

Putting the Sides Together

no elements that can be manipulated. TGTF is transparent enough for taxpayers and legislators to monitor whether aid is allocated fairly. Accountability to taxpayers is also guaranteed by the fact that the *last* or *marginal* dollar of school spending is always a local dollar, even though poorer districts start from a base of much more generous aid.

A key part of any school finance program is setting targets for the state. Often, states set their targets by conducting adequacy studies or choosing a percentile target (for instance, the spending of the district at the 85th percentile). Both of these methods are seriously flawed.

Percentile targets generate spending spirals, both negative and positive. In other words, a state can end with school spending that falls or rises uncontrollably. In such states, districts often hit the system's ceilings or floors (for instance, the maximum property tax rate allowed or the minimum per-pupil spending allowed). Once a district has hit such a limit, it has lost all local fiscal control.

The adequacy method of choosing a target is unreliable because there is *no* scientific, accepted method of determining the causal effect of spending on student achievement. Therefore, the adequacy method is an invitation to interest groups of all sorts to propose their own favorite target based on their own analysis of the statistical relationship between spending and achievement. Since no state could prove in court that its adequacy method is more scientifically accepted or correct than those of myriad interest groups, states that adopt school finance programs based on the adequacy method face perennial legal battles over whether their target is too low or too high. Adequacy-based programs produce unpredictable school spending with predictable legal costs for the state.¹

Weighted pupil formulas with a myriad of weights are an example of adequacy methods in action. There is *no* scientific, accepted way to set the weights because a pupil's characteristics are correlated with many unobserved factors that also affect achievement. Weighted pupil formulas are an invitation to interest groups to (a) propose weights that disproportionately benefit their constituents, (b) alter the classification of students or alter the interpretation of classification rules in order to maximize aid from the system. The more complex and multi-dimensional a weighted pupil formula is, the more it is prey to manipulation and exploitation. This is because taxpayers and legislators cannot effectively “mind the store” with a complex weighting formula. Only interest groups pay a great deal of attention to the weights that affect their constituents. Since no state could prove that its weights are scientifically based, the weights inevitably become – through litigation or legislation – the weights that most benefit interest groups. Complex, opaque weighted pupil formulas produce predictable upward spirals of school spending, with a greater and greater share of state aid going to special interests, as opposed to needy schools in general.

There *are* a few parts of schools' costs that can be determined in a scientific manner: the compensation that is necessary to attract skilled people to be teachers and the cost of building and maintaining adequate facilities. The reason that these costs can be determined in a scientific way is that they are largely determined by market prices. For

Putting the Sides Together

instance, the wages that are paid to college graduates in Texas are determined largely by the supply and demand for such workers in the private sector. If schools are to compete with the private sector for college graduates, then they must be able to pay competitive wages. Such wages are not arbitrary; they are set by the market. Similarly, the amount that must be paid for the construction and renovation of facilities is determined largely by the supply and demand for building services in the private sector. If schools are to compete with the private sector for construction services, they must be able to pay competitive amounts. Such amounts are not arbitrary; they are set by the market.

TGTF's targets are built up from the elements of school spending that can be most objectively and scientifically determined. The logic of TGTF is to ensure that every district can adopt an efficient strategy for creating student achievement, without an undue burden on its local taxpayers. The target is based on a strategy that emphasizes competitive teacher pay and adequate facilities, but schools are free to use their resources as they see fit, particularly if they can find a more efficient strategy for their local circumstances. The target is adjusted for districts that have concentrations of poor students and/or sparse student populations (student who live far apart). However, TGTF is designed to be simple enough to be transparent. Transparency is the key to voters and legislators understanding their system of school finance and keeping it accountable.

TGTF GENERAL AID (TEACHING AND INSTRUCTION)

A. Introduction to TGTF General Aid

The target level of TGTF general aid is built up from facts about what college graduates are paid in the state of Texas. This is why TGTF general aid is called "teaching and instruction." TGTF general aid is logically built on evidence about salaries, but there are no salary mandates. Schools may use the aid to cover payroll and other expenses as they see fit.

The basic target will be built first. After that, target adjustments are added for districts with concentrations of poor students and districts with sparse student populations.

B. Using College Graduates' Compensation to Set the Target

In the 2001-02 school year, the average teacher salary in Texas was \$39,232 or \$40,986 in September 2003 dollars.² This puts the average teacher salary at the 44th percentile of the earnings distribution of college graduates in Texas who work full time.³ In other words, the average Texas teacher's salary is currently more than that of 44 percent of Texas college graduates who work full time.⁴ When comparing teacher salaries to those of other college graduates, one should keep in mind that full-time college graduates who are *not* teachers usually work 12 months, while teachers' salaries are based on working 9 months. On a *per weeks worked* basis, the average teacher salary is greater than that of 65 percent of Texas college graduates who work full time.

The *median* salary for a college graduate who works full-time in Texas is \$46,905 and the median compensation (salary plus cost of benefits) for that worker is \$63,385.⁵ (Per nine months of work, the median salary and compensation are, respectively, \$35,179 and

Putting the Sides Together

\$47,539.) The *60th percentile* salary for a college graduate who works full-time in Texas is \$53,213 and the median compensation (salary plus cost of benefits) for that worker is \$71,909. (Per nine months of work, the 60th percentile salary and compensation are, respectively, \$39,910 and \$53,932.)⁶ That is, if the average teacher's compensation in Texas were \$71,909, he or she would earn more than 60 percent of other college graduates who work full-time in Texas.

If one wants to attract above average college graduates to teach school in Texas, one should be able to compensate them with pay that is competitive with that of other college graduates (keeping in mind that teachers work an usually short year). If one uses the 60th percentile compensation (\$71,909) to create an aid target, it is clear that a school willing to focus its resources on teachers (the core of a successful school) could pay *highly* competitive salaries.

Compensation Basis for the TGTF General Aid Target
\$71,909 in 2003
(for future years, adjust according to 60th percentile of college graduates' earnings)

C. Converting the Compensation Base into a Target

Pupils per Teacher

How many teachers in each school should the TGTF fund provide for? In Texas, in 2002-03, the typical student experienced a teacher-pupil ratio of 14.4. (The pupil-teacher ratio is full-time equivalent teachers divided by refined average daily attendance (RADA).) Because TGTF is a substitute for current FSP aid, it is logical to set TGTF so that schools can maintain teachers already employed and classes already in place. (Indeed, a guarantee that ensures that schools do not receive less aid under TGTF than under FSP is imposed, below.) Thus, a reasonable standard for the basic TGTF target is one teacher compensation unit (\$71,909) per 14.4 pupils in refined average daily attendance.

Allowance for Expenses that Are Non-Teacher-Related and Non-Facilities-Related

We have so far built up TGTF general aid from the expense of hiring college graduates to be teachers. Below, we account for student poverty, student sparsity, and facilities. To complete the *basic* TGTF aid, we need an allowance for expenses that are non-teacher-related and non-facilities-related.

The best, most recent evidence strongly suggests that teachers are the key source of variation in student achievement.⁷ Therefore, one logical achievement strategy is for a school to focus its resources on paying for able teachers and not much else. If a school adopts this strategy with resources of \$71,909 per 14.4 pupils, it can pay highly competitive salaries and should be able to attract very able teachers. Schools that choose a teacher-focused strategy spend about 75% of their non-facilities budget on teacher pay. This suggests that the total TGTF target should be given by

Putting the Sides Together

target * 0.75 = \$71,909 per 14.4 pupils

or

target = \$6,658 per pupil.

The teacher-focused strategy is at least one efficient strategy open to schools with the \$6,658 target. So long as they have one efficient strategy open to them, schools should be able to adopt their own preferred strategy with the same resources.

For instance, a school that wanted to pursue a less teacher-focused strategy could still pay competitive teacher salaries (above the 60th percentile based on 9-month compensation or above the median based on 12-month compensation) and yet have 35 to 44 percent of its target spending available for non-teacher-related, non-facilities expenses. This is ample flexibility: in the United States, there is no evidence that efficient schools ever devote more than 40 percent of their non-facilities-related budget to expenses outside of teaching.

Summary of TGTF General Aid Target

In short, using the 60th percentile of college graduates' compensation in Texas (\$71,909) as the foundation for efficient school strategy gives us a TGTF general aid target of \$6,658. This target is sound for four reasons:

- (1) The compensation is set by market forces in Texas, using the market for college graduates. This is the most important market for knowing whether schools have the resources to function well.
- (2) There is an objective and appropriate way to adjust the target over time: follow the compensation of college graduates in Texas.
- (3) The 60th percentile of twelve-month compensation is used so that at least one achievement strategy supported by evidence can be pursued: a teaching-focused budget. That is, the state will have enabled each school to adopt a logical strategy for raising achievement: paying highly competitive salaries in order to get teachers who actually raise achievement. With at least one good strategy open to them, schools will be able to adopt their own preferred strategy with the same resources.
- (4) The target is set so that TGTF can substitute for current FSP aid, without undue disruption.

Putting the Sides Together

<p style="text-align: center;">The TGTF General Aid Target (before adjustments for pupil poverty and sparsity)</p>
<p style="text-align: center;">\$6,658 per pupil in refined average daily attendance in 2003 (for future years, adjust according to 60th percentile of college graduates' earnings)</p>

Principals and Flexible Teacher Pay

If schools are to have high quality teachers, it is not sufficient that they have the funds to pay teachers well. They must also manage their teachers successfully and direct compensation toward teachers who are successful at raising achievement. A teaching-focused strategy will typically not work if pay is allocated without regard to teachers' performance, simply because unsuccessful teachers will be attracted by higher pay as least as much as successful teachers will. Indeed, a wise school that is pursuing a teaching focused strategy may wish to use a combination of test results and principals' discretion to assign pay and bonuses to teachers. Evidence suggests that principals are able to identify their best teachers, especially when they have results from statewide testing. It is important to allow a district to allocate its resources in the manner it deems most likely to help it meet Texas' accountability goals. In other words, aid should facilitate, not supplant, local control and good management by principals. TGTF is fully compatible with local control and performance pay for teachers.

D. Adjusting the Target for Concentrations of Poor Students

The TGTF target is raised for districts that have a concentration of poor students. This is because child poverty is outside the control of a district and yet students who come from lower income households tend to have a variety of extra instructional needs, such as a greater need for remedial education, a greater propensity to be disabled, and a greater propensity to need English language instruction. Also, schools that serve poor students must often provide resources, such as technology, that better-off students get at home.

For instance, the most expensive and intractable disabilities and the greatest English language limitations are highly correlated with child poverty, in Texas. According to Texas microdata from the 2000 United States Census of Population, a child's having limited proficiency in English is correlated at the 0.74 level with his being poor. This is a very high degree of correlation. Also, there are correlations of 0.16 or greater between a child's being poor and his having a sensory disability, a physical disability, or multiple disabilities. In short, districts with concentrations of child poverty systemically face student conditions that require more expensive education than districts without such concentrations.

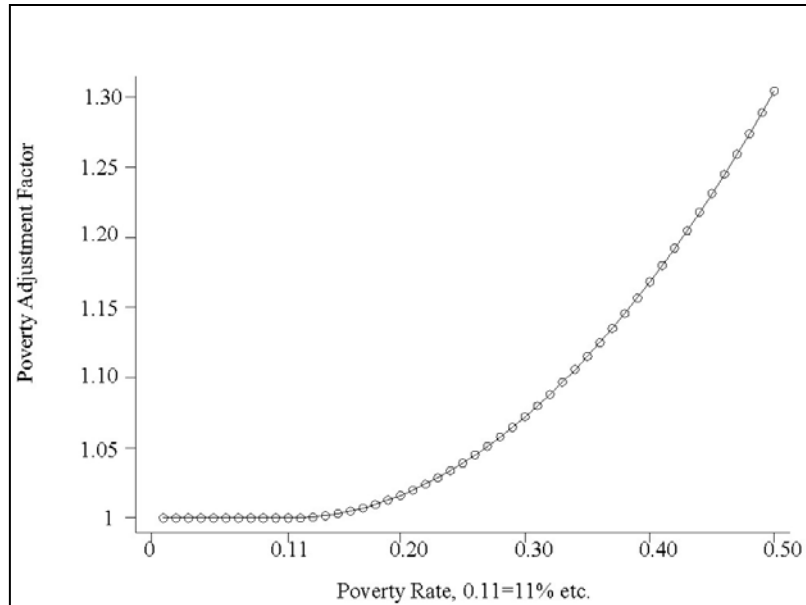
Disability payments in the United States are increasingly moving toward prospective payment systems in which districts that can routinely expect disproportionately high costs are given extra aid. Districts that merely face normal or occasional costs associated

Putting the Sides Together

with disability or limited English proficiency should provide for these costs from a regular budget that is sufficiently generous to allow for regular level of disability and limited English proficiency. The reason that the United States is moving toward prospective payment systems is that reactive payment systems like Texas' WADA calculation encourage districts to arbitrage disability classification rules and limited English proficiency classification rules to get maximum funds. This leads to students being wrongly classified and sometimes kept too long in special classrooms. A district that gets learning disabled and limited English proficient students into regular classrooms with the maximum efficiency is actually punished by a WADA system. In contrast, the WADA system

implicitly rewards districts that do little for such students and thus keeps them classified for more years.

In short, districts should be given additional funds for expensive-to-educate students based on circumstances that are disproportionate and out of the district's control. This is the origin of the TGTF adjustment for concentrated child poverty.



The median child poverty rate in Texas school districts is 11 percent. There are 13 districts with child poverty rates over 40 percent (most such districts are small). A further 20 have child poverty rates between 30 and 40 percent, and a further 75 have child poverty rates between 20 and 30 percent.

The proposed adjustment to the basic TGTF target gives no extra aid to districts with child poverty rates of 11 percent or below (that is, to districts with below-median poverty rates). For districts with child poverty above 11 percent, their target is equal to the basic target times a factor given by:

$$\text{poverty factor} = 1 + 2 \times [(\text{child poverty rate} - 0.11)^2] .$$

This factor gives the most generous adjustments to districts with an unusual concentration of poverty, as shown by the following figure. The child poverty rate is calculated every year by the United States Department of Education (see <http://nces.ed.gov/surveys/sdds/inter.asp>).

Putting the Sides Together

The TGTF poverty adjustments are sufficiently generous to support extra services for students who are disabled, in need of English language instruction, or in need of remedial services. The additional funds are flexible, however. They may be used for any instructional activity that improves conditions for such students. A district may spend its extra funds hiring or retaining better teachers, offering special services, or reducing class size so that each child gets more time in the regular classroom. Thus, in contrast to the WADA formula, TGTF's target adjustments do not penalize districts that keep disadvantaged students in regular education and do not reward districts that unnecessarily keep students classified as disabled or limited English proficient.

E. Adjusting the Target for Sparse Pupil Populations

Another factor that is out of a district's control and yet affects its costs is pupil sparsity – that is, its pupils living far apart. Such districts are faced with disproportionate transportation costs and also may be forced to build schools that are too small to be efficient in scale. It should be noted that not all small districts are sparsely populated. A sparsely populated district has no choice but to have small schools and high transportation costs. A district with normal population density may decide to remain very small or have very small schools, even though it could have larger schools or consolidate with a neighboring district in order to save on costs. Although local residents should have the right to keep their district small even if the district has normal population density, the state need not *promote* this decision by giving extra aid to districts that remain unnecessarily small. The state should aid only sparsely populated districts that have no potential remedy for their extra costs.

In Texas, 90 percent of students live in districts that have less than one tenth of a square mile per student. However, the remaining ten percent of students live in districts that range from being a little sparse (one quarter of a square mile per student) to extremely sparse (20 or more square miles per student). If districts arrange their schools efficiently within their area in order to minimize average travel time, then the average distance to a school within the district increases linearly in the sparsity of the student population, where sparsity is equal to the number of square miles per pupil.

The proposed sparsity adjustment to the basic TGTF target gives no extra aid to districts with sparsity below one tenth of a square mile per pupil. For districts with higher sparsity, their target is equal to the basic target times a factor based on their sparsity (which reflects the average distance a student would have to travel if their schools were arranged to minimize distance):

$$\text{sparsity factor} = 1 + 2 \times [(\text{sparsity} - 0.10)/100] .$$

It should be noted that, even though sparsity has an important effect on certain districts' costs, the sparsity adjustment factor is not costly for the state overall because the affected districts contain so few students. In fact, fewer than 1 percent of Texas school children would experience sparsity factors greater than 1.10, but for this small number of students, the sparsity factor would be crucial.

Putting the Sides Together

The sparsity factor can be updated every year with refined average daily attendance. A district's target can simultaneously be multiplied by the sparsity adjustment factor and poverty adjustment factor, if both apply. In practice, only 4 percent of districts have both a significant sparsity adjustment factor and a poverty adjustment factor.

F. An Efficient System of Distributing State Aid

Having set the TGTF targets, we now need to consider how the state should distribute aid to enable districts to meet with targets with reasonable effort. An efficient system of school finance gives poorer districts a sufficiently large base of aid that they can reach their target without an undue burden on their taxpayers. However, an efficient system of school finance also makes districts responsible for raising 100 percent of their *last* or *marginal* dollar of spending. By giving poorer districts a generous base but keeping the last dollar a local dollar, all districts are able to reach the target spending level but they must also make an effort and remain accountable to their local voters. Finally, an efficient system of school finance does not give aid to districts that can reach target spending with their own resources. (Economists will understand that efficiency comes from using lump-sum methods of redistribution, rather than methods that distort marginal tax prices. In school finance, there is a dramatic reduction in dead-weight loss if lump-sum methods are used.)⁸

In allocating funds, an efficient system of school finance considers a household's ability to pay. Household income is the best measure of ability to pay, so efficient systems of school finance are based on *household incomes*. Efficient systems of school finance are not based on households' property values because these (1) property values are a poor measure of ability to pay and (2) property values are the worst possible measure of ability to pay *for local schools*. There are two reasons that a household's property value is a bad measure of ability to pay. First, house values are not highly correlated with a family's current income. For instance, the elderly often own homes that they bought decades ago and that have values quite out of line with their current ability-to-pay. Second, and more importantly, house prices reflect the perceived value of local public schools. Take two families with identical incomes but a different willingness to dedicate family income to their children's education. The family with a greater interest in education buys a house in the attendance area of school that is known for being good. The family has to pay a premium for such a house, all else equal. Thus, the family that cares more about education has a more expensive home, even if its house is physically identical to the house of the second family. If we then have a system of school finance that redistributes among households based on their property values instead of their ability-to-pay, we are punishing households that care more about education and rewarding households that care less about education. This is a perverse incentive – one that has severely damaged a number of states' support for public education.

Putting the Sides Together

G. Districts' Ability-to-Pay

When determining how much state aid a district needs in order to reach the spending target with reasonable effort of its own, TGTF considers the *household incomes* of all people who live in a district. Household incomes are available from the Census of Population and are updated between censuses using intercensal income estimates.⁹ TGTF uses property values only for non-residential property, for which there is no measure of ability-to-pay that is the parallel to household income. Also, non-residential property values do not reflect preferences about education to nearly the same degree that residential property values do. Therefore, using non-residential property values as a (admittedly flawed) measure of ability to pay is considerably less harmful than using residential property values as a measure of ability to pay.

The typical family in Texas has a house value equal to 2.25 times its annual household income. Therefore, when calculating a district's ability to reach its target spending, it is fair to have households contribute 2.25 percent of their incomes for every 1 percent of non-residential property value that is contributed. It is the intention of TGTF to roll back property taxes to about 0.5-0.6 percent (equivalently, 50¢-60¢ per \$100 of value). Therefore, it is logical to expect every non-residential property owner to spend 0.5 percent of his property value on local public schools and it is logical to expect every household to spend 1.125 percent of its income on local public schools (or 0.5 percent of the typical household's property value). This gives us the following local ability-to-pay for each district:

$$\text{district's local ability-to-pay} = 0.01125 \times (\text{sum of all households' incomes}) + 0.005 \times (\text{non-residential property tax base}).$$

TGTF is inherently flexible in its ability-to-pay component. Therefore, if one wanted to roll back property taxes to 75¢, say, instead of 50¢, one would merely multiply the numbers in the above equation by 1.5=(0.75/0.50). If one wanted to roll back property taxes to \$1.00, say, one would multiply the number in the above equation by 2.0=(1.00/0.50). TGTF can be adjusted easily for any desired tax roll back.

H. The TGTF General Aid Formula

TGTF General Aid to each district is given by the following simple formula:

$$\text{aid} = \text{the maximum of:}$$

- (district's target * pupils) - district's local ability to pay.
- 0.

Aid cannot be negative. In practice, the districts with the highest ability-to-pay get just under \$300 in aid per pupil. "Pupils" are pupils in refined average daily attendance.

The table below shows the distribution of TGTF general aid, relative to districts' household income per pupil.

Putting the Sides Together

Since TGTF is designed to be generous enough to substitute for FSP and to allow a property tax roll-back, it costs only a small amount (1.05% more) to guarantee that districts with poorer students get at least as much aid as they do now. This is achieved simply by "grandfathering" the state aid of districts with household income per pupil that is below the state's median.

All such districts are guaranteed to get at least as much state aid under TGTF as under FSP. This type of grandfathering will naturally, gradually phase itself out as TGTF aid rises with college graduates' wages but previous FSP amounts remain constant.

Household income per pupil	Average level of TGTF general aid before Grandfather/ Hold Harmless	Average level of TGTF general aid after Grandfather/ Hold Harmless
lowest 1 percent	7140	7240
lowest decile	6617	6809
2nd decile	5821	6000
3rd decile	5599	5812
4th decile	5406	5568
5th decile	5227	5345
6th decile	5100	5100
7th decile	5052	5052
8th decile	4894	4894
9th decile	4658	4658
highest decile	3875	3875
highest 1 percent	2821	2821

I. The Automatic Roll-Back of Property Taxes

It is proposed that TGTF implementation coincide with an automatic reduction in each district's property tax rate, so that taxpayers "get back" the property tax revenues that would otherwise support FSP. Each district's automatic reduction in property tax rates would be calculated to be exactly the reduction that allows each district to maintain its current spending plus 5 percent to allow for normal growth (especially because many districts were constrained by the \$1.50 cap under FSP). This automatic reduction would guarantee that TGTF substitutes for FSP and does not simply add to the tax burden.

Household income per pupil	Average local property tax rate in cents per \$100, after roll-back
lowest 1 percent	50
lowest decile	50
2nd decile	53
3rd decile	54
4th decile	60
5th decile	63
6th decile	63
7th decile	66
8th decile	66
9th decile	67
highest decile	67
highest 1 percent	67

Thus, another way of comparing the TGTF to the current system is noting the level to which property tax rates would automatically fall while districts maintained their current operating expenditure. The table above shows the distribution of property tax rates in Texas after the substitution of TGTF for FSP, relative to household income per pupil.

Putting the Sides Together

Notice that local property tax rates are generally below \$1 per \$100; they are in the range of 50¢ to 67¢ per \$100. This is a substantial reduction because the current average property tax rate for school Maintenance and Operations is \$1.46.

J. A Supermajority Required to Raise Property Taxes after the Roll-Back

With TGTF general aid plus the local property tax rate created by the automatic roll-back, each district would have sufficient revenue to maintain its current spending. In future years, districts would be able to keep up with rising costs because TGTF would automatically rise with wage increases in Texas.

Nevertheless, some districts may encounter education opportunities that local voters want to fund by raising their property tax rates above the level set by the automatic roll-back. In order that the TGTF system remain flexible, while still ensuring that taxpayers "get back" the taxes that support FSP, it is proposed that a 60 percent supermajority of voters be required to raise local property taxes above the automatic roll-back level. A supermajority vote will ensure that programs that are truly popular with local voters get support, but it will prevent districts from frivolously attempting to return property taxes to their previous level.

K. A Property Tax Exemption for Public School Teachers

An additional way to make teaching attractive in Texas is to exempt teachers from local property taxes that support schools, up to a limit (so that a teacher with an unusually high earning spouse or independent means is not unduly exempted from property taxes). Such an exemption would acknowledge that teachers are already contributing to the education of Texas children, through their work.

Because we do not know exactly how many teachers *live* in each district (as opposed to teach in each district) and because data do not currently exist on the valuations of teachers' homes, only rough estimates of the benefits and costs of such an exemption can be made.

Households that contain a full-time, full-year teacher are very close to having median income *among homeowners*.¹⁰ Therefore, we expect that the typical teacher would have a house value close to Texas' median house value, which is *approximately* \$100,000. The first \$15,000 is already exempt from property taxes under the homestead exemption. This leaves approximately \$85,000 of nonexempt property for a typical teacher. If \$85,000 of taxable property value were exempted for each full-time equivalent teacher in Texas, the typical teacher would save \$8.50 for each cent of property tax per \$100 of valuation. For instance, a typical teacher would save \$510 per year if she lived in a district with a property tax rate of 60¢ per \$100 of valuation (a typical property tax level after the roll-back). It would be logical to pro-rate the exemption so that a half-time teacher got one half of the exemption, and so on.

The total number of full-time-equivalent teachers in Texas during the 2001-02 school year was 282,583, so the cost of exempting the first \$100,000 of Texas teachers' homes from property taxes would be *roughly* \$2,401,956 for each cent of property tax per \$100

Putting the Sides Together

of valuation. Above, we note that the average district would roll back its local property tax rate to about 60¢ per \$100 under TGTF. This means that the total cost of the exemption, aggregated over all districts in Texas, would be in the area of \$144,117,360.

THE TGTF FUND FOR FACILITIES

Under Chapter 46, Texas currently provides districts with aid for Instructional Facilities and Existing Debt. For both, a guaranteed revenue formula is applied to a district's tax rates that support payments for bonds and existing debt. The Chapter 46 guaranteed revenue program has the basic structure as Tier II aid and shares most of the flaws of Tier II aid. In addition, the Chapter 46 programs have the problem that they are used by districts very unevenly. If we compare two very similar Texas districts, which have similar wealth and enrollment patterns, we are likely to find that they receive different amounts of Chapter 46 aid. These differences persist even when we compare the districts over long periods of time, such as a decade. The differences arise because some districts are willing to make more use of bonds (debt) than others are. The State of Texas has no interest in discriminating in favor of districts that make greater use of debt. Indeed, Texas' only interest is in ensuring that all students have access to adequate facilities.

It is proposed to replace Chapter 46 aid with a TGTF Facilities Amount for each district. Note that it is *not* proposed to replace the New Instructional Facility Allotment (§42.158), which is not part of Chapter 46 and which is not particularly flawed. The reader may want to have a sense of the magnitude of the Chapter 46 programs; it may help to know that the Chapter 46 programs are only about 6% of the size of the current Foundation School Program.

The TGTF facilities aid would be given to districts every year. Because spending on facilities tends to fluctuate, even in a district with stable enrollment, districts would be allowed to save their TGTF facilities aid. In other words, a district would be able to save its TGTF aid in years in which its facilities expenses were low and spend that aid in years in which its facilities expenses were greater. It is important to give districts the tools they need to smooth demands on their local taxpayers for facilities expenditures. Of course, districts would also continue to use bonds as a way to smooth their facilities expenditures.

Districts would be able to spend their TGTF facilities funding on expenditures for instructional facilities. For the most part, these expenses are already listed in Chapter 46 as eligible expenses. The expenses eligible for TGTF facilities aid would include:

- payments for construction, acquisition, renovation, and improvement of an instructional facility;
- payments of principal of and interest on bonds issued to construct, acquire, renovate, or improve an instructional facility;
- payments under a lease-purchase agreement for an instructional facility;
- payments of principal of and interest on bonds that meet the eligibility criteria described in §46.033.

Putting the Sides Together

A. The Basic TGTF Facilities Target

Just as schools compete with private employers for college graduates, they compete with private firms for the services of construction companies, which could build office space if they were not to build schools. A state's construction cost index for office space is a good indicator of the market price per square foot that schools ought to be paying. Like the wages of college graduates, construction costs are set on an open market, so that a reasonable level of spending can be objectively established. The facilities target is set based on the market price of office space with a 36 square foot allowance per student and 10 year depreciation. Over time, the facilities target should be adjusted upwards using a construction cost series for Texas.¹¹

The Basic TGTF Facilities Aid Target (before adjustments for pupil sparsity and enrollment growth)
\$370 per pupil in refined average daily attendance in 2003
(for future years, adjust according to commercial cost index for Texas office space)

The facilities target does not need to be adjusted for concentrations of poverty because poor students do not inherently require extra facilities.

B. Adjusting the Facilities Target for Pupil Sparsity

However, the facilities target does need to be adjusted for pupil sparsity. As noted before, even a district that is optimally managing a sparse pupil population is forced to build schools that are below minimum efficient scale. Moreover, sparsely populated districts have enrollment that fluctuates substantially in percentage terms. For instance, a district that has 30 children in a grade in an *average* year may find that it has 21 children or 39 children per grade in certain years. These are large enrollment fluctuations in percentage terms (30 percent fluctuations, in fact). Such fluctuations require a certain amount of overbuilding.

As noted above, the adjustment should be for pupil *sparsity*, not for small districts per se. The adjustment should be based on sparsity so that districts are not encouraged to remain inefficiently small when they have circumstances that would make it easy for them to consolidate. The sparsity adjustment to the TGTF facilities target gives no extra aid to districts with sparsity below one tenth of a square mile per pupil. For districts with higher sparsity, their target is equal to the basic target times the sparsity factor, which is (again):

$$\text{sparsity factor} = 1 + 2 \times [(\text{sparsity} - 0.10)/100] .$$

C. Adjusting the Facilities Target for Substantial Increases in Enrollment

Districts that experience substantial increases in enrollment face disproportionate expenses for instructional facilities during the time of actual increase in enrollment. The state has already accounted for this disproportionate burden in the New Instructional Facility Allotment (\$42.158). However, districts that experience rapid and substantial increases in enrollment face disproportionate facilities expenses before they actually

Putting the Sides Together

begin construction. Also some districts will find it better to modify their facilities, rather than construct new ones. In this case, they will not qualify for the New Instructional Facility Allotment. Thus, there will be a need for some adjustment to TGTF Facilities aid for districts experiencing substantial increases in enrollment.

The enrollment growth adjustment to the TGTF facilities target gives no extra aid to districts with enrollment growth of less than 10% over the most recent five years. For districts with higher enrollment growth, their target is equal to the basic target times a factor based on their percentage enrollment increase:

$$\text{enrollment growth factor} = 1 + (\text{percentage enrollment increase over previous 5 years} - 0.10) .$$

where the percentage enrollment increase is calculated as follows:

$$\text{percentage enrollment increase} = \frac{\{\text{enrollment this year} - \text{enrollment 5 years ago}\}}{\text{enrollment 5 years ago}}$$

For instance, a district that had experienced a 20% increase in enrollment would get 110% of its basic TGTF Facilities aid, a district that had experienced a 30% increase in enrollment would get 120% of its basic TGTF Facilities aid, and so on.

Districts would be eligible to take either the sparsity adjustment factor or the enrollment growth factor, but not both factors. This is because sparsely populated districts routinely experience enrollment fluctuations that are large in percentage terms, though small in actual numbers of children. The sparsity adjustment already accounts for the enrollment swings that such districts routinely experience. Thus, a district that had taken the sparsity adjustment any time in the previous five years would not be eligible for the enrollment growth adjustment factor based on those same five years.

D. Districts' Ability-to-Pay for Facilities

When determining how much state aid a district needs in order to reach its facilities spending target with reasonable effort of its own, TGTF again computes districts' ability-to-pay from their household incomes and their non-residential property tax bases. A typical taxpayer in Texas currently faces an Interest and Sinking Fund tax rate of 15¢ per \$100. Thus, a typical household currently devotes about 0.33 percent (a third of 1 percent) of its income to local payments for facilities. If TGTF is to reduce the local property tax burden of facilities significantly, then the typical taxpayer might devote 10¢ per \$100 to facilities. In the case of households, this amounts to 0.25 percent of income (a quarter of 1 percent of income). Thus, a district's local ability-to-pay for facilities is given by:

$$\text{district's local ability-to-pay} = 0.0025 \times (\text{sum of all households' incomes}) + 0.0010 \times (\text{non-residential property tax base}).$$

Notice again that TGTF is inherently flexible in its ability-to-pay component. Therefore,

Putting the Sides Together

if one wanted to roll back property taxes to 5¢, say, instead of 10¢, one would merely multiply the numbers in the above equation by 0.5=(0.05/0.10). TGTF can be adjusted easily for any desired tax roll back.

E. Summary of TGTF Facilities Aid

The following table summarizes TGTF facilities aid, by districts' household income per pupil. Keep in mind that most of the variation in facilities aid is generated by differences in districts' ability-to-pay, but some of the variation in facilities aid is generated by the pupil sparsity adjustment or the enrollment growth adjustment.

Household income per pupil	Average facilities aid per pupil, for these districts
lowest 1 percent	411
lowest decile	354
2nd decile	312
3rd decile	294
4th decile	284
5th decile	270
6th decile	270
7th decile	260
8th decile	246
9th decile	226
highest decile	179
highest 1 percent	75

FINANCING THE TGTF FUND

A. A Sequestered Fund

A key principle of the TGTF fund is that its revenue should be constitutionally *sequestered* from other state revenue. That is, Texans would have to enact a *constitutional amendment* to tap into the TGTF fund for purposes other than education. Having the TGTF sequestered would not only ensure that it's being used solely for education; it would also help to ensure that the taxes used to fund it do not have their rates raised over time.

B. Surpluses: Rainy Day Saving and Competitive Grants for Poor Districts

Below, a few alternatives for financing TGTF are described. The purpose is to fund TGTF, not *over-fund* it. Nevertheless, surpluses may arise in future years that happen to be high income years. If the fund is to stay sequestered, surpluses must first be dedicated to "rainy-day savings" for years in which deficits may arise. A good rule is to let surpluses build up until the savings are equal to 7.5 percent of the TGTF (this would allow the fund to successfully weather 2 or 3 deficit years).

After that level of "savings" has been accomplished, any remaining surplus can be used to fund competitive grants to poorer districts. That is, districts with lower-than-median income would be able to apply for a grant to fund any pressing need, such as technology

Putting the Sides Together

needs, college scholarships for needy students, unusual facilities requirements, teacher training needs, or special instructional programs. The competitive grant process would help to ensure that only useful and promising programs get support. The competitive grant process would raise public awareness of districts' most promising programs and help districts learn to articulate their needs (a process that they need to master in order to enlist voter support for their programs).

C. Financing Needs of the TGTF Fund

Using Texas' enrollment and household incomes to create the estimates, the TGTF would require revenue of approximately \$20.20 billion for its Teaching and Instruction component (this includes the property tax exemption for teachers) and \$0.62 billion for its Facilities component. This give us a total of \$20.82 billion.

Revenue required for the TGTF Fund		
<u>General Aid Component (Teaching & Instruction)*</u>	<u>Facilities Aid Component</u>	<u>Total</u>
\$20,198,238,208	\$624,979,968	\$20,823,218,176
* includes property tax exemption for teachers		

D. Alternatives for Financing the TGTF Fund

It is proposed to finance part of the TGTF fund with the current state appropriations from the Available School Fund, Lottery proceeds, and General Revenue Fund. It is proposed to finance the remainder of TGTF with another statewide tax. Several alternative statewide taxes are discussed below.

For the fiscal year ending in August 2003, the Comptroller of Public Accounts estimates that the available school fund will be \$1.50 billion, the lottery proceeds for schools will be \$0.80 billion, and the other revenues from the General Revenue Fund for education will be \$8.98 billion. This makes a total of \$11.28 billion.¹² These revenues are already dedicated for state education aid. We propose that the state continue to appropriate these revenues from the General Revenue Fund for education. In particular, we propose that, in the future, the state's appropriation for TGTF include the entirety of the Available School Fund, the lottery proceeds already dedicated to education, and the same share of the taxes and fees that support the General Revenue Fund as the state has appropriated now.

Subtracting these revenues, we see that revenue of \$9.55 billion is needed to cover the remaining cost of the TGTF fund.

Putting the Sides Together

TGTF Fund, revenue required after subtracting dedicated revenues from Available School Fund and Lottery Proceeds	
total cost	\$20,823,218,176
minus Available School Fund	- 1,498,401,184
minus Lottery Proceeds	-799,000,000
minus other General Revenue Fund appropriations for education	-8,976,923,603
revenue required	\$9,548,893,389

Sales Tax Alternative

Let us first consider financing TGTF with the Limited Sales and Use Tax. For 2003, the Comptroller of Public Accounts estimates that the tax revenues from 6.25% Limited Sales and Use tax and the 6.25% Motor Vehicles Sales and Use tax will be \$16,992,393,000.¹³ Therefore, the state would need to dedicate approximately 3.5% of the current 6.25% sales taxes to TGTF, in order to cover its revenue requirements. The rate increase required to raise the same revenue would be somewhat higher, approximately 4.12%.¹⁴

When we evaluate a tax, we need to consider its efficiency, administrative costs, progressivity, transparency, federal deductibility, and controllability (whether the tax rate can be maintained at a modest level, given politics). The sales tax does quite well on all of these grounds, *except* for federal deductibility.

Efficiency. A tax is efficient if its tax base does not shrink much when its tax rate is raised. If raising a tax does cause its tax base to shrink substantially, this is occurring because the tax is discouraging job creation, work effort, sales, or other productive activity in the state. Inefficient taxes cause a state's economy to contract, with consequent loss of jobs and income.

Sales taxes are generally efficient means for funding state school finance programs. This has been shown empirically, based on evidence from 1970 onwards.¹⁵ Also, some of the most successful school finance programs in the U.S., such as Michigan's, rely on sales taxes. The reason that sales taxes tend to be efficient is that, when a state raises the sales tax rate modestly in order to direct funds to poor school districts, few people decide to move or shop outside of the jurisdiction (the state, in this case) in order to avoid the tax. We will see that the same cannot be said of a statewide property tax used for school finance.

One disadvantage of using the sales tax to finance TGTF is that the sales tax rate is already moderately high in Texas, and it is a fundamental economic rule that the deadweight loss associated with a tax is proportional to the *square* of the tax rate. This means that the deadweight loss of a sales tax increase is higher when the initial rate is higher.

Putting the Sides Together

Administrative Costs, Transparency, and Controllability. Raising the sales tax rate would have very little effect on the costs of administering it. Therefore, it does very well on administrative costs. The sales tax is a reasonably transparent tax: people understand how much they are paying in any given transaction, but they probably do not know how much total tax is collected from them each year. Because people are very aware of the sales tax rate, which they see every time they buy something, the tax tends to be politically controllable. Voters do not tolerate sales tax increases unless they know that the revenues will go to something they care about.

Progressivity. The sales tax is more progressive than the property tax and less progressive than the income tax. People pay sales taxes according to their consumption. Once we have removed food, medical goods and services, and housing (none of which are taxed by Texas' sales tax), people pay the sales tax roughly in proportion to their incomes. That is, the sales tax is approximately a proportional tax. However, progressivity should not be a major concern for the financing of the TGTF because the distribution of the funds is *extremely* progressive. This is clear if we look at the table that shows that school districts with poor families get more than three times more aid per student than school districts with rich families. Overall, the TGTF program is a strongly progressive program.

Federal Deductibility. Currently, people cannot deduct their sales tax payments when filing their federal taxes. Although federal legislators have discussed a proposal to make some sales taxes deductible in states that do not have an income tax, it is not clear that such legislation will ever be enacted. Therefore, a disadvantage of the sales tax is that Texans forego federal income tax deductions that they could get with other taxes.

Expanded Sales Tax Base

Another alternative being considered is an expanded sales tax base, especially a tax on the sales of services. Much of what has been said about a higher sales tax rate could also be said about an expanded sales tax base. However, there are a few differences.

Efficiency. Expanding the sales tax base has one efficiency advantage over raising the sales tax rate on the existing base. Because the sales tax rate is currently zero on the expanded base and because the deadweight loss associated with a tax is proportional to the *square* of the tax rate, the deadweight loss associated with a base increase will be small compared to the deadweight loss associated with a rate increase.

Administrative Costs, Transparency, and Controllability. Expanding the sales tax base would raise administrative costs, so the base expansion does not do well on this dimension. The sales tax is a reasonably transparent tax regardless of the base, so a base expansion does well on transparency and controllability.

Putting the Sides Together

Progressivity. Whether expanding the sales tax base is more progressive than raising the rate depends on whether food is part of the expanded base. Most items in the expanded base (such as services) are disproportionately bought by the *non-poor*. Therefore, expanding the base would be more progressive than raising the rate, except for the treatment of food. If food *is* part of the expanded base, then it unclear whether the base expansion or rate increase is more progressive.

Federal Deductibility. Sales tax payments are not federally deductible regardless of whether they arise through base expansion or rate increases.

Modified Gross Receipts Tax

A gross receipts tax is a tax on all receipts of an organization. The primary appeal of a gross receipts tax is its very broad potential base, which enables its rate to be very low, creating little deadweight loss. The logical way to construct such a tax in Texas, in order to maximize its efficiency, is to levy it on organizations of all kinds, including partnerships, small businesses, and non-profits. This broad base would enable the rate to be very low—estimates suggest that 1.5 percent would raise the necessary \$9.55 billion.

The primary concern with a gross receipts tax is chain taxation. For instance, a company that buys a lot of business inputs is not only paying taxes on its own value-added but also on inputs it buys from other businesses, which have already paid the gross receipts tax in the process of producing the inputs. Whether firms with considerable purchases from other firms actually get overtaxed or not depends on tax incidence; exact calculations require elasticity estimates for the supply and demand for every business input. The chain taxation concern is minimized by a gross receipts tax with a very low rate and a broad base because such a tax minimizes the potentially uneven treatment of organizations.

An alternative is to implement a modified gross receipts tax in which an organization can deduct from its gross receipts its input purchases from another firm that pays the gross receipts tax *if* those input purchases from the single firm exceed a certain value (for instance, \$20,000) over the course of the year. Such a modified gross receipts tax eliminates the worst problems of chain taxation. It also ensures that the administrative burden of tracking business purchases is not imposed except in cases where the input purchases are large enough for the deadweight loss of chain taxation to exceed the paperwork costs of tracking.

Efficiency. A gross receipts tax, especially if modified to avoid the worst chain taxation, is an efficient tax for supporting school finance. This is because, with a very low rate, few if any firms would move outside the state to avoid the tax. An advantage of a gross receipts tax, over the sales tax, is that Texas' initial rate would be zero. As a result, the deadweight loss associated with a gross receipts tax would be minimized.

Administrative Costs, Transparency, and Controllability. A gross receipts tax is transparent to the organizations that pay it and is administratively simple apart

Putting the Sides Together

from the modification to avoid chain taxation. It has already been noted that the modification should be limited to large purchases from a single firm. Thus, the gross receipts tax does well on transparency and administrative costs.

Progressivity. A gross receipts tax is more progressive than the sales tax. Whether it is more progressive than an income tax depends on exact incidence calculations.

Federal Deductibility. Firms may deduct state taxes from their income for the purpose of paying federal taxes. Therefore, the gross receipts tax has federal deductibility.

Education Flat Tax

Let us now consider how the revenue requirement of approximately \$9.55 billion might be funded through an Education Flat Tax.

When a state enacts a flat tax, it typically starts with Adjusted Gross Income or Taxable Income, as defined by the federal government. Using one of these two federal definitions of income minimizes paperwork. In fact, if the state were to use federal Taxable Income as the base of a flat tax, the tax form could be the size of a postcard for most people. For instance, a 2% Education Flat Tax could be

administered using a form something like that above.

<h3>Mock Education Flat Tax Form</h3>		
Check the type of federal tax form you used:		
<input type="checkbox"/> 1040	<input type="checkbox"/> 1040A	<input type="checkbox"/> 1040EZ
Enter your taxable income from Line 39 from 1040, Line 25 from 1040A, Line 6 from 1040EZ		A. _____
Multiply Line A amount by 0.02. This is your flat tax.		B. _____
Enter your flat tax withheld, from your W2 form.		C. _____
If Line C is larger than Line B, subtract Line B from Line C. This is the amount of your refund.		D. _____
If Line B is larger than Line C, subtract Line C from Line B. This is the amount of tax you owe.		E. _____

Federal Taxable Income is federal Adjusted Gross Income minus deductions (standard or itemized). If the flat tax were based on Adjusted Gross Income, instead of Taxable Income, the tax form would be longer, in order to accommodate deductions.

Based on IRS tax collections, total Taxable Income was \$337 billion for Texas in 2001.¹⁶ There are insufficient data to make a precise projection for 2003. However, even if taxable income had not grown between 2001 and today, a 2.8% education flat tax rate would be sufficient to cover the revenue needs of TGTF. With such a tax and the automatic reduction in property taxes, Texas' tax burden would remain among the lowest in U.S. states. The sequestration of TGTF would help to guarantee that the flat tax rate would not be raised in the future.

Putting the Sides Together

Efficiency. A flat tax is generally an efficient means for funding state school finance programs. This has been shown empirically, based on evidence from 1970 onwards.¹⁷ The reason that a flat tax tends to be efficient is that, when a state raises the flat tax rate modestly in order to direct funds to poor school districts, few people decide to move outside of the state in order to avoid the tax. An advantage of a flat tax, over the sales tax, is that Texas' initial rate would be zero. As a result, the deadweight loss associated with a flat tax would be minimized.

Administrative Costs, Transparency, and Controllability. Flat taxes are easy to administer because there is only one bracket. Also, employers already do filing for federal taxes, so the additional burden on them is small. Unlike the federal income tax, flat taxes are very transparent. Anyone can calculate what 2.8% of his taxable income is. In fact, the main reason that flat taxes have been popular with legislators who want to control government spending is that they *are* transparent, and are thus more easily controlled.

Progressivity. An Education Flat Tax would be progressive because deductions are a greater share of income for low income households than for high income households. For instance, low income households would pay only about 0.3% (two-tenths of 1%) of their adjusted gross income for a 2.8% Education Flat Tax, while high income households would pay close to 2.5% of their adjusted gross income.

Federal Deductibility. An Education Flat Tax would be deductible from federal income taxes. This is an advantage of a flat tax relative to a sales tax, which is non-deductible.

Statewide Property Tax

Finally, let us consider financing TGTF with a state-wide property tax. Currently, state-wide property taxes are unconstitutional, so this plan would require an amendment to the state constitution. For 2002, the Comptroller of Public Accounts estimates that the property tax base for school-related tax will be \$979,084,668,725.¹⁸ Therefore, TGTF would require a state-wide property tax rate of approximately 97¢ per hundred dollars of property value, in order to cover its revenue requirements.

Efficiency. Recall that a tax is efficient if its tax base does not shrink much when its tax rate is raised. A state-wide property tax is the *least efficient* means of funding a state school finance program. This has been shown empirically using data from all states, over the entire period from 1970 onward.¹⁹ There is a simple reason why state-wide property taxes are very inefficient. Consider what a state school finance program does. It redistributes money from richer districts to poorer districts. Such redistribution makes living in a richer district less attractive and makes living in a poorer district more attractive. The shift in attractiveness reduces home buyers' and renters' willingness to pay for homes in richer districts and therefore causes property values to fall in richer areas relative to property

Putting the Sides Together

values in poorer areas. But, the base for a state-wide property tax is largely made up of property values in richer areas! Thus, a state-wide property tax causes its own base to shrink as it drives down property values in richer areas.

The shrinkage in the tax base is much more severe with a state-wide property tax than it is with a sales tax, gross receipts tax, or flat tax. This is because people are unlikely to move or purchase goods *out of state* in response to a tax increase, but someone looking for a home is likely to slightly alter his residential choice between one district and another in response to a tax increase. It is much easier to choose to live a few blocks in one direction or another than it is to move or conduct business activities out of state. Also, the property tax base shrinks even if only people who are already looking for homes react to property tax changes; this occurs because everyone's home valuation moves with market valuations, which are determined by current buyers and rents. In contrast, the tax base for a flat tax or sales tax only shrinks to the extent that everyone reacts by living out of state or conducting business activities out of state.

Experts in state and local finance know that the following rule of thumb should be used:

- The property tax is the most efficient tax to support spending that is wholly *local*.
- The property tax is the least efficient tax to support spending that is *non-local* (that is, spending that will benefit people in another locality).

In other words, property taxes are the most efficient way to support *local* school spending. Property taxes are the least efficient way to support a state-wide fund that targets money toward poorer districts. It is wasteful and inefficient for the state to fund the current FSP with property taxes; it should not fund TGTF with property taxes either.

Administrative Costs, Transparency, and Controllability. Property taxes have high administrative costs because assessment of property is necessary. Assessment is a time-consuming and costly business, even if done efficiently. Much of the difficulty of assessment is caused by the need to maintain similar standards across an entire state. Yet, statewide standards *must* be maintained if property taxes are used for any statewide purpose. For instance, the current Foundation School Program would quickly fall apart if districts were allowed to use different standards for assessing property. Thus, the costs of a statewide property tax would be at least as great as the costs of current property tax administration. However, the purely local property taxes that would be in place if TGTF were enacted would not be nearly so costly. This is because (a) the need to maintain identical standards across the state would be greatly reduced, and (b) districts would have little incentive to manipulate their assessment standards because they could not receive additional state revenue thereby.

Putting the Sides Together

The property tax is transparent in the sense that households know what their bill is. However, they often find the assessment process mysterious and suspect that it is unfair. The property tax is thus not transparent.

A statewide property tax can be difficult to control. Difficulties arise when house prices rise faster than incomes, as can occur when an area is increasingly in demand for housing. Such control difficulties have resulted in property tax limitations in several states.

However, *local* property taxes are highly controllable. Indeed, they are widely regarded as the most controllable tax. Not only can people vote at the local level for lower property tax rates, they can vote with their feet by moving to another district. At the local level, people are highly aware of how much they pay in property taxes and the services they get. Districts that enact excessive property taxes end up seeing households move out, resulting in an automatic reduction in the property tax base.

Progressivity. The property tax is the least progressive of the statewide taxes we have considered. This is because poorer households spend a disproportionately large share of their incomes on housing. Indeed, the property tax is a regressive tax.

A common misunderstanding is that renters do not bear any of the burden of property taxes. This is incorrect. Rents increase when property taxes increase, so that the landlords remain able to pay their property taxes. The property tax's regressivity is a function of families' demand for housing, not whether they rent or own.

Federal Deductibility. Property taxes are deductible from federal income taxes. Thus, an advantage of property taxes is that Texans pay less federal tax than they would with a sales tax.

E. Summary of Financing Alternatives for TGTF

In summary, there are multiple reasonably efficient alternatives for financing TGTF, including an increased sales tax rate, an expansion of the sales tax base, a (modified) gross receipts tax, and an education flat tax. The choice among these taxes, or combination of these taxes, should be based on trading off their various advantages and disadvantages, listed above. A statewide property tax is the only alternative for financing a state's system of school finance that is so inefficient as to be obviously dominated by alternative tax proposals.

Putting the Sides Together

ENDNOTES

¹ Specifically, all regressions or other statistical methods that relate student achievement to school spending are plagued by omitted factors. These omitted factors (which are associated with students' families, students' abilities, and schools' efficiency) are the dominant determinants of student achievement. Indeed, the causal effects of school spending on achievement are very weak compared to the effects of the omitted factors. Therefore, whether an adequacy study produces a high or low target depends entirely on how the researchers treat these omitted factors. By definition, the omitted factors are not observable, so there is no one way to treat them that is widely accepted. The result is that almost any interest group can produce an adequacy study that delivers their preferred target and that uses statistical methods with validity that is indistinguishable (so far as the courts are concerned) from those of the study on which the state's system currently relies.

² The source is the Texas Education Agency's *2001-02 Academic Excellence Indicator System*, (AEIS), Staff file, 2003. The 2002-03 AEIS data are due to be released on October 1, 2003. Dollars are converted into today's dollars using the Consumer Price Index, United States Department of Labor, Bureau of Labor Statistics.

³ In constructing these percentiles, only earnings from wages and salaries are considered. The data source is the March 2002 Current Population Survey (including supplement), United States Department of Labor, Bureau of Labor Statistics.

⁴ A college graduate is defined as someone who has a baccalaureate degree.

⁵ This statistic is in September 2003 dollars, and it comes from the United States Department of Labor, Bureau of Labor Statistics, *March 2002 Current Population Survey*.

⁶ This statistic is in September 2003 dollars. Its source is the same as that listed in the previous footnote.

⁷ See, for instance, J.E. Rockoff, "The Impact of Teachers on Student Achievement: New Evidence from Panel Data," Harvard University working paper, 2003; W.L. Sanders and S. Horn, "Research Findings from the Tennessee Value-Added Assessment Database: Implications for Educational Evaluation and Research," *Journal of Personnel Evaluation in Education*, 12, 1998; E.A. Hanushek, J.F. Kain, and S.G. Rivkin, "Teachers, Schools, and Academic Achievement" National Bureau of Economic Research Working Paper No. 6691, 1999.

⁸ The reduction in dead-weight loss is dramatically illustrated by states like California and New Mexico where implicit high marginal tax prices put the states on the wrong side of the "Laffer Curve." In other words, when California and New Mexico attempted to redistribute more toward poorer districts, they shrank the total pie of spending that poor districts actually experienced *decreased* school spending. Although most states do not have the extreme problems of the California and New Mexico systems, many use methods of redistribution that are needlessly inefficient relative to lump-sum methods.

⁹ In addition, data from federal income tax filings can be used to update household incomes by school district, between censuses. For states that have no income tax, the intercensal estimates are perhaps easier than tax data. States that have income taxes generally use the data from their own tax returns to update household incomes by school district.

¹⁰ This figure is based on comparing the March 2000 census with the 2000 United States Census of Population and Housing, *Summary File 3*, 2002.

¹¹ Commercial cost estimators such as McGraw/F.W. Dodge, R.S. Means, and Marshall & Swift offer such

Putting the Sides Together

cost series. The estimate shown above depends on McGraw/F.W. Dodge because it is the private firm whose statistics are used by United States Bureau of the Census.

¹² See Article III, page 8 of the *General Appropriations Act for the 2002–2003 Biennium*.

¹³ See Schedule 1 in Carole Keeton Strayhorn (Texas Comptroller of Public Accounts), *2004-05 Biennial Revenue Estimates*, 2003. See also Carole Keeton Rylander (Texas Comptroller of Public Accounts), “Tax Rates and Tax Bases for Major Texas State Taxes,” in *An Overview of the Texas Tax System*, a presentation to the Texas House Committee on Ways and Means, 1999.

¹⁴ The sales tax rate would need to rise by 3.5% times an elasticity factor. The elasticity factor is based on the degree to which the taxable sales would shrink if the rate were raised. With a typical elasticity estimate for a relatively high sales tax rate, we might predict that the sales tax rate would need to rise by approximately 4.12% to achieve the same revenue as 3.5% on the current sales tax base. If the actual elasticity is higher in absolute value, the tax rate increase needed would also be higher.

¹⁵ See Caroline M. Hoxby, “Not All School Finance Equalizations are Created Equal,” *Quarterly Journal of Economics*, Vol. 116, No. 4 (November 2001), pages 1189-1231.

¹⁶ This projection is based on IRS tax collections for 2001 from Texas and on IRS analysis of Texas adjusted gross income and taxable income in 2000. See “Internal Gross Revenue Collections, by State, Fiscal Year 2001” in *2001 IRS Data Book* (publication 55b). Also see “Texas, Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2000,” IRS Expanded Unpublished Version, electronic table, 2001.

¹⁷ Hoxby, “Not All School Finance Equalizations are Created Equal.”

¹⁸ The property tax base for 2001 was \$864,236,700,880. See page 84 in Carole Keeton Rylander, Texas Comptroller, *2001 Preliminary School and Appraisal Districts' Property Value Study*, 2002.

¹⁹ Hoxby, “Not All School Finance Equalizations are Created Equal.”