Presentation to Governor Haslam's Basic Education Program Task Force
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System-level Fiscal Capacity — Observations & Challenges *Redux*

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Background

- Requested by Governor Bredesen's Task Force on Teacher Pay formed in February 2003
- Requested by the State Board of Education's Basic Education Program Review Committee responding to 2004 legislation asking that it

  > "give special attention to . . . the development and implementation of a system-level fiscal capacity model."

- 2005 BEPRC annual report recommended converting to a system-level equalization model.

Background

(continued)

- July 2003 report titled *Funding Public Schools: Is the BEP Adequate?* by the Tennessee Comptroller's Office of Education Accountability noted that ***the use of a county fiscal capacity model in a system-level funding formula results in***

  "funding inequities among LEAs with multi-LEA counties."

Background

(continued)

- October 2003 report by Governor Bredesen's Task Force on Teacher Pay also recommended adoption of a system-level method of equalizing the local match required by the BEP:

> "#4. **Introduce a New District-level Fiscal Capacity Model**—Introduce a new district/system-level fiscal capacity model in order to provide a fairer method of determining local contribution."

Development

The Team

- Staff provided by
  - TACIR
  - Comptroller
- Review provided by
  - Middle Tennessee State University
  - Tennessee State University
  - Vanderbilt University
- Reported to
  - Governor's Task Force on Teacher Pay

Comptroller's 1990 Performance Audit

Response of State Board of Education to Comptroller's finding that "[f]unds available for public education vary considerably from school district to school district" . . .

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 6).

Comptroller's 1990 Performance Audit

(continued)

State Board of Education concurs:

> **"The Board's Basic Education Program proposal would resolve much of this problem by gauging state appropriations for schools to *each system*—county, city or special school district—*according to the ability of each to raise local tax revenue for schools*."**

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 6).

1995 Small Schools II

Response of State Board and Commissioner of Education:

Requested that TACIR further study a system-level model.

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 11).

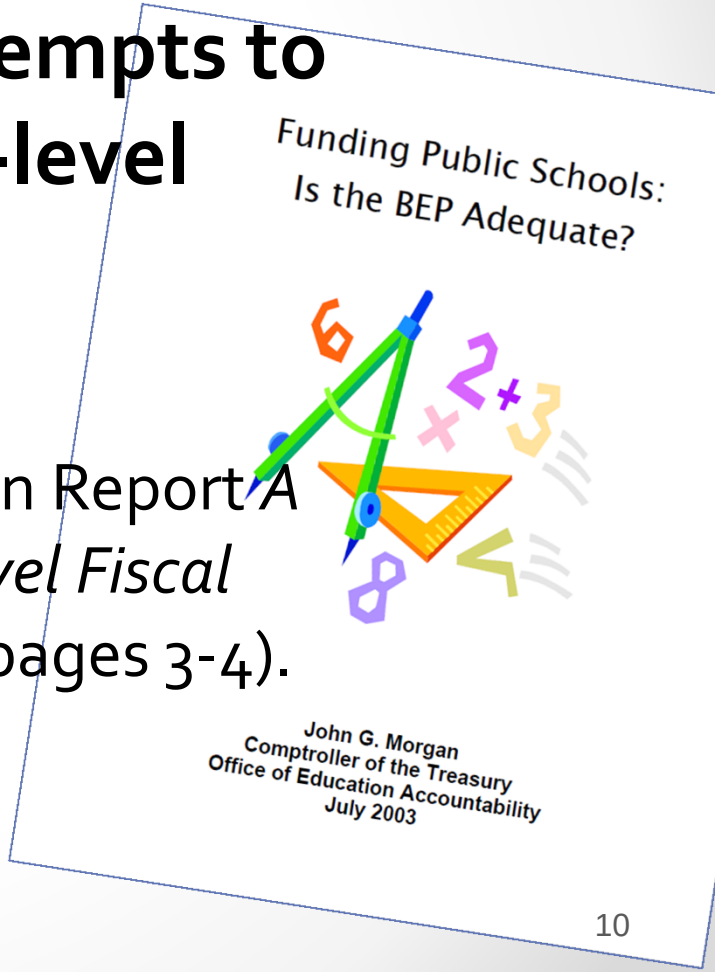
Challenge #1

"Any change in the equalization method will necessarily cause shifts in state funding across Tennessee's [now 140] public schools systems and is, therefore, highly controversial."

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 3).

Challenge #2

"Still the current method, in the words of the Comptroller's Office, creates a structural flaw because it attempts to equalize funding in a system-level formula at the county level."



TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (pages 3-4).

Challenge #3

"Correcting this flaw is particularly problematic in Tennessee because of the fiscal complexity of its local system for funding public schools."

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 4).

Challenge #3

(continued)

"With three distinct types of school systems, each with authority to impose various taxes and subject to certain intra-county sharing requirements,

> **"*Tennessee has equalization challenges that other states do not*."**

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 4).

Figure 1. Tennessee's Unique Challenge
How to Handle Disparate Fiscal Entities in a Single Model

Measuring fiscal capacity for Tennessee's 136 school systems presents

Two Significant Challenges

different authority to tax and raise revenue

different fiscal relationships among systems

County governments*

Must levy county-wide tax for schools if operating a county system
May tax property
May tax sales
May tax other activities or items (e.g., wheel tax)
Must share school taxes with other systems in county
May use revenue from state-shared taxes for schools without sharing

City governments

May make general fund transfers for schools or establish school tax rates
May tax property
May tax sales
May tax other activities or items
Not required to share school funds with any other system
May use revenue from state-shared taxes for schools without sharing
Receive share of county governments' school revenue

Special School Districts

May only tax property
Need not share school funds with any other system
Receive share of county governments' school revenue

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 27).

Objectives of the 2003 Team

- **Account for major statutory sources of revenue available locally and restrictions placed on them.**
- **Mirror the collective behavior of local officials in allocating funds for schools.**
- **Account for equity factors affecting local tax rates.**
- **Resolve as many of the issues raised with respect to the county model as possible.**

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 28).

Tax Structure Challenges

Figure 2. Sources of Shared and Unshared Revenue by Type of School System

Revenue Source	County School Systems	City School Systems	Special School Districts
Taxable Property			
♦ Shared	Yes—retain portion of county taxes based on share of WFTEADA	Yes—receive from county based on share of WFTEADA	Yes—receive from county based on share of WFTEADA
♦ Unshared	No—county revenue for education must be shared[14]	Yes—at individual city's discretion or through general fund transfer	Yes—based on rate established by legislature
Taxable Sales			
♦ Shared	Yes—retain portion of county taxes based on share of WFTEADA	Yes—receive from county based on share of WFTEADA	Yes—receive from county based on share of WFTEADA
♦ Unshared	No—county revenue for education must be shared[14]	Yes—at individual city's discretion or through general fund transfer	No—not authorized by legislature
State-shared Tax Revenue	Yes—no sharing requirement	Yes—no sharing requirement	No—not eligible to receive

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 30).

Tax Structure Challenges

A note about state-shared taxes from the 2005 report:

> **"TACIR staff's current work on fiscal capacity confirms that revenue from certain state-shared taxes is often used by local governments to fund schools and is a quite substantial source of revenue for some systems."**

TACIR's October 2005 Staff Information Report *A Prototype Model for School-System-Level Fiscal Capacity in Tennessee: Why and How* (page 21).

Tax Structure Challenges *Unique to Tennessee*

No other state has the variety of school system types in combination with the complex fiscal powers and interrelationships among school systems that exist in Tennessee.

TACIR's September 2006 Staff Education Brief *Searching for a Fiscal Capacity Model: Why No Other State is Comparable to Tennessee* (page 8).

Summary Data for Other States with More Than One Type of School System

State	Types of School Systems (a) (1)	Different Systems and Different Fiscal Authority (2)	Capacity Measure Used (3)	Major Own-Source Revenues Considered (b) (4)	Other Minor Revenue Available (b) (5)
Alabama	C,M	N	**Y**	P	S
Alaska	M,B,S	N	**Y**	P	S,NT
Arizona	I,C	N	**Y**	P	N
California	I,C,M	N	N	NA	NA
Connecticut	I,M,T	N	**Y**	P	N
Maine	I,M,T	N	**Y**	P	V
Massachusetts	I,C,M,T	N	**Y**	P	M,H
Michigan	I,M,S	N	**Y**	P	N
New Hampshire	I,C,M	N	**Y**	P	N
New Jersey	I,C,M,T	N	**Y**	P	NT
New York	I,C,M	N	**Y**	P	S
Rhode Island	I,M,T	N	N	NA	NA
Tennessee	I,C,M	**Y**	**Y**	P,S	State-shared Taxes
Virginia	I,C,M	N	**Y**	P,S	Other

Source: "2002 Census of Governments" and individual state data.

Notes (a) Types of school systems: I = independent school district, C = county system, M = municipal system, T = town or township system, S = state school, B = borough system.

(b) Major own-source revenues: P = property taxes, S = sales taxes, I = income tax, V = annual vehicle excise tax, H = hotel motel taxes, NT = non-tax revenue, Other = state reimbursement payments for phased-out local vehicle property taxes. NA = not applicable because fiscal capacity not a consideration in distribution of funds.

TACIR's September 2006 Staff Education Brief *Searching for a Fiscal Capacity Model: Why No Other State is Comparable to Tennessee* (page 7).

Observations

- **The current model limits the state's capacity to achieve equity for students in all 140 systems.**
- **The fiscal structure of the three types of local governments that fund schools complicates attempts to create a system-level model.**
- **Any change in the equalization model will be disruptive.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Four models were evaluated; all used the following seven tax bases:

- **the county property tax base, which is shared in multi-system counties**
- **the county sales tax base, which is shared in multi-system counties**
- **county state-shared tax revenues**
- **the city property tax base**
- **the city sales tax base**
- **city state-shared tax revenues**
- **the special school district (SSD) property tax base**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Four Models—Overview

- **One-tier algebraic model based on actual tax bases and effective tax rates.**
  - Primary strength: relatively easy to explain.
  - Primary weakness: cannot account for variations in the ability of residents of different cities and counties to pay or export taxes.
- **One-tier regression model based on the same theory as the current county level model.**
  - Primary strength: ability to include non-tax-base factors that affect jurisdictions' ability to raise revenue for education.
  - Primary weakness: some variables that are consistent with the theory of fiscal capacity do not produce significant coefficients.
- **Two two-tiered models that started with a revised version of the current county-level model and had either a regression-based second tier or an algebraic second tier.**
  - Primary strength: familiarity of the first tier; improves on the current model.
  - Primary weakness: because they involve a second tier, they are more difficult to explain.

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Algebraic model—how it worked:

- **This method multiplied the seven local tax bases by rates established within the model to determine fiscal capacity.**
- **In multi-system counties, each system's share of the county tax bases was determined as required by law (i.e., based on its weighted full-time equivalent average daily attendance).**
- **For any individual system, its local share of the BEP was calculated by multiplying all applicable tax bases by the rates established in the model.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Algebraic model—Strengths

- **simpler to understand and explain than regression models and two-tiered models**
- **most effective and direct method of accounting for state-shared revenues**
- **more directly mirrors the actual tax structure**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Algebraic model—Weaknesses

- **does not include a comprehensive measure of taxpayer equity in that it does not account for income differences that affect ability to pay higher or lower tax rates**
- **does not include a measure of the potential to export taxes (i.e., not quite fiscal capacity)**
- **depends on sketchy data and judgment calls to calculate city tax and usage rates**
- **larger systems may drive the tax and usage rates in this model (e.g., the Memphis City SSD drives the average SSD property tax rate in this model because it contains most of the property tax base of SSDs)**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Algebraic model—Other Issues

- **Tax capacity produced for multi-system counties by one-tier system-level models does not equal that produced by county-level models:**
  - **capacity is not held constant at the county level;**
  - **therefore capacity of city systems and special school districts affects capacity of systems outside their respective counties so that the sum of the values for systems within the county exceeds the capacity that would be produced by a county-level model.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Two-Tier Models, Tier One—Regression Model—how it worked:

- **Modified version of the current county-level model**
- **Results held constant when determining system-level capacity in multi-system counties.**
- **Differed from the current county-level in two ways:**
    1. **Replaced per capita income with median household income because PCI is so heavily influenced by outliers in high-income brackets and to avoid the problem of having prisoners and students in the denominator when using per capita income.**
    2. **Dropped the students-per-capita variable because service burden is already calculated in the BEP formula itself.**
- **Retained the property and sales tax base variables and the exportability variable, the ratio of the farm and residential assessments to the total property assessment.**
- **Did not include state shared tax revenue because of the difficulty of determining how to handle unshared [among school systems] revenue in a county-level model.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Algebraic Tier Two—how it worked:

- **Multiplied weighted average tax and use rates by the various tax bases for systems in multi-system counties.**
- **Included only unshared revenue streams (shared revenue bases are handled by tier one):**
  - **county state-shared tax revenues**
  - **the city property tax base**
  - **the city sales tax base**
  - **city state-shared tax revenues**
  - **the special school district (SSD) property tax base**
- **County-area share for multi-system counties = amount produced by the regression model.**
- **Values produced in tier two were pro-rated up or down so the sum of the system-level values equaled the county-area capacity produced by tier one.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Algebraic Tier Two—Strengths

- **the r^2 for county-level model is relatively high***
- **tier one accounts for exportability and ability to pay at the county level**

* adjusted r^2 of 0.8129 and F statistic of 103 ($p<0.00$)

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Algebraic Tier Two—Weaknesses

- **tier one does not include state-shared tax revenue.**
- **tier two does not include a measure of taxpayer equity or a measure of the potential to export taxes.**
- **tier two depends on sketchy data and judgment calls to calculate city tax and usage rates.**
- **the larger systems may drive the tax and usage rates (e.g., the Memphis City SSD drove the average SSD property tax rate because it contained most of the property tax base of SSDs).**
- **difficult to explain the combination of regression and algebra.**
- **difficult to explain the pro-rating up and down to fit the results of tier two to the results of tier one.**
- **regression models (tier one in this case) are difficult to explain and can become circular when results are used in a manner that affects the dependent variable.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Algebraic Tier Two—Other Issues

- **The county-level fiscal capacity produced by tier one was held constant when combined with tier two to produce system-level values so that only the county system in the same county as any particular city system or special school district was affected by the results for those sub-county systems.**
- **In most cases, the sub-county totals were more than the county-area fiscal capacity (in all cases when compared with the one-tier algebraic model and in most cases of counties with more than two systems in the one-tier regression model) though in some cases they were less.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Regression Tier Two—how it worked:

- **Tier two = regression model involving only systems in multi-system counties using seven variables** (next slide)**.**
- **County-area share for multi-system counties = amount produced by the regression model.***
- **Values produced in tier two were pro-rated up or down so the sum of the system-level values equaled the county-area capacity produced by tier one.***

* Same as algebraic tier-two model.

cont. . . .

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Regression Tier Two—how it worked (cont.)**:**

- **Variables used to estimate revenue per student (ADM)**
  - **county property tax base (shared)**
  - **county sales tax base (shared)**
  - **county and city state-shared tax revenues (unshared)**
  - **the city and special school district property tax bases (unshared)**
  - **the city sales tax base (unshared)**
  - **the city and special school district residential and farm property value divided by total property value and subtracted from one to measure tax exportability***
  - **the child poverty rate—the only measure of ability to pay available for school systems**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Regression Tier Two—Strengths

- **The r2 for county-level model was relatively high***
- **Both tiers accounted for exportability and ability to pay.**

* Adjusted r^2 of 0.8129 and F statistic of 103 ($p<0.00$).

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Regression Tier Two—Weaknesses

- **Tier one did not include state-shared tax revenue.***
- **Lower r2 and F statistic for regression tier two.****
- **Very difficult to explain difference between the two tiers.**
- **Difficult to explain the pro-rating up and down to fit the results of tier two to the results of tier one.***
- **Regression models are difficult to explain and can become circular when results are used in a manner that affects the dependent variable.**

* Same as algebraic tier-two model.

** Adjusted r^2 of 0.7174 and an F statistic of 26 ($p<0.00$).

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

Regression Tier Two—Other Issues*

- **The county-level fiscal capacity produced by tier one was held constant when combined with tier two to produce system-level values so that only the county system in the same county as any particular city system or special school district was affected by the results for those sub-county systems.**
- **In most cases, the sub-county totals were more than the county-area fiscal capacity (in all cases when compared with the one-tier algebraic model and in most cases of counties with more than two systems in the one-tier regression model) though in some cases they were less.**

* Same as algebraic tier-two model.

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Regression model—how it worked:

- Essentially like the revised county model used in the first tier of the two-tier models but with a single tier that included all 136 school systems. It included nine independent variables:
  - County-area equalized assessed property value (shared)
  - Equalized assessed property value for city school systems or special school districts (unshared)
  - County-area taxable sales (shared)
  - Taxable sales for city school systems (unshared)
  - County-area exportability ratio (shared)
  - Cities and special school districts exportability ratios (unshared)
  - State-shared tax revenue for counties and cities (unshared)
  - County median household income (shared)
  - Child poverty rate for each school system (unshared)

cont. . . .

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Regression model—how it worked (cont.)**:**

- **Tax base values were divided by the appropriate student counts for each school system.**
- **Regression coefficients for each of the dependent variables were multiplied by the values for each school system**
- **Results summed to produce estimated fiscal capacity.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Regression Model—Strengths

- **Accounts for exportability and for ability to pay both for counties and for cities and special school districts.**
- **Easier to explain than two-tier models.**
- **Higher r^2 than tier two of two-tier regression/regression model.***

* Adjusted r^2 of 0.7639 and F statistic of 50 ($p<0.00$).

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Regression Model—Weaknesses

- **Lower r^2 than the current 95-county regression model (though comparable to the early years of the model)**
- **State-shared tax revenue variable was statistically insignificant and has a perverse (negative) sign**
- **Regression models are difficult to explain and can become circular when results are used in a manner that affects the dependent variable.**

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Regression Model—Other Issues*

- **tax capacity produced for multi-system counties by one-tier system-level models does not equal that produced by county-level models:**
  - **capacity is not held constant at the county level;**
  - **therefore, capacity of city systems and special school districts affects capacity of systems outside their respective counties so that for most multi-system counties the sum of the values for systems within the county exceeds the capacity that would be produced by a county-level model.**

* Same as one-tier algebraic model.

Alternatives Evaluated for the 2003 Task Force on Teacher Pay

One-tier Regression Model—Why Preferred?

1. **Smaller change in required local match**
2. **Difficulty estimating average tax rates for city systems and SSDs**
   - **Many cities don't identify revenue sources**
   - **Memphis's size skews average rates**
3. **Ability to include taxpayer equity factors**
   - **Income (MHI)**
   - **Tax exportability**

Yet Another Alternative?

Change the fiscal structure of local school systems?

Create a simple, mathematical "required local effort" (RLE) model* to determine the local funding requirement?

Could this be less disruptive?

* RLE models set minimum tax rates.

Change the fiscal structure of local school systems *how?*

One option discussed *but not vetted*—*Give each school system a discrete tax base?*

- ***Big change*** **for multi-system counties, much more so for counties than for cities and special school districts**
- **Smaller change for single-system counties**

Change the fiscal structure of local school systems *how?*

Give each school system a discrete tax base?
An option that has *not* been vetted

- **Allow counties to raise revenue for their schools only outside the taxing jurisdiction of other public school systems**
- **Eliminate all sharing requirements**
- **Require tuition paid from state and local funds by cities and SSDs that are not K-12**

Give each school system a discrete tax base?

Required Statutory Changes—Local Governments

- **Restrict taxing authority of counties to funding schools from revenue raised only outside other school systems—property and sales—without affecting their authority to tax and fund other programs, offices, and responsibilities**
- **Repeal all sharing requirements**
- ***Treat unearmarked state-shared taxes like a tax base?***
- ***Require county approval for all forms of tax increment financing (the Sevier County problem)?***

Give each school system a discrete tax base?

Required Statutory Changes—State Government

Require the state to determine the minimum amount of revenue required to fund each school system based on

- **the discrete tax bases allowed each school system and**
- **a simple application of minimum tax rates for property and sales.**

Give each school system a discrete tax base?

Required Statutory Changes—State and Local

Require tuition paid from state and local funds by cities and SSDs that are not K-12 to the county systems required to admit them

- **Should the state receive and reallocate those funds?**
- **How to determine the proper amount when source system doesn't offer the grades or programs (e.g., vocational) that the student will be in?**
- **Should the state accept responsibility for ensuring that the proper amount follows the child?**

Expected Effects: Limited to Multi-system Counties?

- **County tax bases would be restricted to least developed areas**
- **County systems would lose access to sales taxes on most purchases in county**
- **Cities would lose portion of county revenues collected outside cities**
- **Cities would gain back revenue from sales currently shared with county and other systems**
- **SSDs would likewise lose portion of county revenues collected outside their borders (*and all revenue from local sales?*)**

Expected Effects: Limited to Multi-system Counties?

- Substantial reduction in local revenue for county systems in multi-system counties—some could become the poorest systems in the state
- Some reduction in local revenue for SSDs
- Can the state make up the difference in what locals have been doing?
- Could the state maintain that in the future?
- Substantial incentive for cities to create new school systems
- RLE could exceed total BEP for wealthiest systems

Give each school system a discrete tax base?

Advantages

- Simplicity
- Transparency
- Understandability

Disadvantages

- Drastic reduction in county schools' tax bases in multi-system counties
- Dramatically increased dependence of those systems on state funding
- Potential for RLE to require more from some systems than BEP costs
- Difficulty tracing local revenues to ensure compliance with new funding scheme
- Difficulty determining appropriate tuition payments between systems
- Potential detrimental effect on spending equity
- Increased incentive to create new city systems