SUPREME COURT OF THE STATE OF NEW YORK COUNTY OF NEW YORK	: New York County Courthouse 60 Centre Street New York, New York 10007
----------	: Hon. Leland DeGrasse
CAMPAIGN FOR FISCAL EQUITY, INC. Plaintiffs, v. THE STATE OF NEW YORK Defendants.	: Index No.: 111070/93 : Special Masters: Hon. William C. Thompson Hon. E. Leo Milonas John D. Feerick, Esq.

AMICUS CURIAE BRIEF OF JOHN YINGER AND WILLIAM DUNCOMBE

John Yinger
Trustee Professor of Public
Administration and Economics
Syracuse University
The Maxwell School
426 Eggers Hall
Syracuse, New York 13244
Telephone: (315) 443-9062
Facsimile: (315) 443-1081
Email: jyinger@maxwell.syr.edu

William Duncombe
Professor of Public Administration
Syracuse University
The Maxwell School
426 Eggers Hall
Syracuse, New York 13244
Telephone: (860) 424-1946
Facsimile: (315) 443-1081
Email: duncombe@maxwell.syr.edu

September 17, 2004

TABLE OF CONTENTS

1. Introduction

This brief provides a scholarly perspective on the issues raised by the New York Court of Appeal's 2003 decision in *Campaign for Fiscal Equity v. New York*.[1] We do not represent any particular constituency but instead present our views on this case based on over a decade of scholarly research concerning education finance in New York State.[2]

In its discussion of remedies for this case, the Court of Appeals declared that "the funding level necessary to provide City students with the opportunity for a sound basic education is an ascertainable starting point" (p. 50). This report demonstrates that the cost of a sound basic education in New York City is determined largely by two factors: (1) the operational definition of a sound basic education and (2) adjustments for the relatively high cost of education in New York City due to high wage costs and a concentration of disadvantaged students. We argue that defining a sound basic education is largely a legal/political issue, which must be decided by the state's policy makers, including this panel, and that calculating cost adjustments is a technical issue, which should be resolved through a process that includes scholarly input.

The reforms called for by the Court of Appeals are not limited to education funding. Specifically, the Court also says that "the new scheme should ensure a system of accountability to measure whether the reforms actually provide the opportunity for a sound basic education" (p. 47). This report argues that no accountability program can be fair or effective unless a school district not only has the resources it needs, but also knows which educational and management programs are most appropriate. This argument shifts the focus in an accountability system away

[1] *Campaign for Fiscal Equity Inc.*, (*CFE*), *v. The State of New York* (June 26, 2003) (Not yet filed).

[2] Our publications on education finance reform are described in Attachment A.

from punishment toward providing the information and assistance New York City needs to provide a sound basic education.

2. Background

According to the *CFE* decision, New York State has a constitutional obligation to ensure that New York City provides a "meaningful high school education, one which prepares them to function productively as civic participants" (p. 12) This type of standard is known among scholars as an adequacy standard, that is, as a standard requiring that the education provided in New York City be brought up to an adequate level. Adequacy standards have appeared in many state supreme court decisions, especially since the widely cited *Rose v. Council for Better Education, Inc.* decision in Kentucky in 1989.[3]

There exists a broad consensus among education finance scholars that the best way to achieve an adequacy objective is through a "foundation" aid formula for operating aid. This type of formula is currently used in 41 states and appears in the reform proposals for New York State prepared by the Campaign for Fiscal Equity (CFE), the New York State Board of Regents (Regents), and the New York Commission on Education Reform (the Zarb Commission), which was appointed by Governor Pataki.[4] An adequacy objective may also require reforms in the

[3] Unlike the decision in New York, the court decisions in other states usually raise other equity objectives in addition to adequacy. Equity standards in education finance cases around the country are discussed at length by A. Lukemeyer, *Courts as Policymakers: School Finance Reform Litigation* (New York: LFB Scholarly Publications, 2003); A. Lukemeyer, "Financing a Constitutional Education: Views from the Bench," in *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. 59-87; and P. A. Minorini and S. D. Sugarman, "Educational Adequacy and the Courts: The Promise and Problems of Moving to a New Paradigm," in *Equity and Adequacy in Education Finance: Issues and Perspectives*, edited by H.F. Ladd, R. Chalk, and J.S. Hansen (Washington, D.C.: National Academy Press, 1999), pp. 175-208. The education decisions of the highest court in each state are summarized in Y. Huang, A. Lukemeyer, and J. Yinger, "Appendix A: A Guide to State Court Decisions on Education Finance," in *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. 317-330.

[4] Educational aid programs in all states are described in Y. Huang, "Appendix B: A Guide to State Operating Aid Programs for Elementary and Secondary Education," in *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. 331-351. The three reports are

finance of capital spending. Although this brief focuses on operating spending, we also offer a few comments on building aid reform in section 9.

The *CFE* decision applies only to New York City, not to all districts in the state. As a result, this panel may not want to consider a foundation aid plan that applies to all districts, as do the plans in these three proposals. In this report, we discuss the design of a foundation plan for New York City alone, but the logic of our argument could easily be extended to cover other districts in the state.

A foundation aid formula provides a district with the amount of money it needs per pupil to meet the selected adequacy standard, called the foundation amount, less the amount of money the state expects the district to raise itself, usually expressed as a share of the local property tax base. This expected local contribution is discussed in section 8.

The great challenge that policy makers face in designing a foundation aid formula is determining the foundation amount, which need not be the same for every district. To be specific, a foundation amount for New York City must be calculated in four steps.

1. Select an adequacy standard.
2. Determine the cost of achieving the adequacy standard in an average school district in New York State.

Campaign for Fiscal Equity, S*ound Basic Education Task Force: Ensuring Educational Opportunity for All: Final Report*, New York: Campaign for Fiscal Equity, May 2004 (available at http://www.cfequity.org/SBETaskForceFinalReport.pdf); New York State Department of Education, "Regent's 2004-2005 State Aid Proposal," Albany, NY: New York State Education Department, December 2003 (available at http://www.oms.nysed.gov/press/121103release.htm); and The New York State Commission on Education Reform, *Ensuring Children an Opportunity for a Sound Basic Education: Final Report*, Albany, NY: The New York State Commission on Education Reform, March 2004 (available at http://www.state.ny.us/pdfs/finalreportweb.pdf).

3. Determine the extra costs New York City faces because it must, for reasons outside its control, pay more than the typical district to attract teachers and other personnel of a given quality.[5]
4. Determine the extra costs New York City must pay to achieve the standard because it has more disadvantaged students than the typical district.

The next four sections examine these four steps and the following section examines their overall implications for the cost of education finance reform in New York City.

3. Costing Out, Step 1: Selecting an Adequacy Standard

The first step is to select an operational adequacy standard. In the *CFE* case, this step corresponds to finding an operational definition of a "meaningful high school education." This step has three components. The first component is to determine what set of skills and knowledge constitutes a meaningful high school education. This component cannot be addressed with scientific procedures; that is, there is no scientific way to determine what constitutes a "meaningful high school education." Instead, this step must be based on the judgment of the state's public officials, including the members of this panel.

A scientific procedure is one that can be tested against the evidence. As a social scientist might put it, a scientific procedure is based on hypotheses that are testable and falsifiable, which means that they might or might not be supported by the evidence. The statement that New York City should provide a "reasonable high school education" is not a scientific statement in this sense. It is a standard based on the Court of Appeal's interpretation of the New York State

[5] Personnel costs typically represent 80 percent or more of a school's operating budget. In principle, energy and transportation costs also might vary across districts due to factors outside districts' control. In practice, we believe that energy costs do not vary enough across New York to be considered here. Moreover, all proposed operating aid programs for New York, including our own, fund school transportation through a separate aid formula. Capital costs can also vary geographically in New York; as discussed in section 9, however, they, too, are covered in a separate aid formula.

Constitution, offered by the Court with considerable discussion as to its meaning but without a precise definition. So the first part of this step is for public officials to make a judgment about exactly what the Court had in mind.

Educational experts may, of course, provide informed commentary on the best way to define a "reasonable high school education." Policy makers will undoubtedly want to listen to this commentary, as well as to the views of other interested parties, but the opinions of educational experts should be interpreted as just that—opinions—not as scientific conclusions.

The second component of this set is to develop a set of assessment instruments that can determine whether students have acquired the skills and knowledge selected in the first part. This component is technical, that is, scientific, in nature. The statement that a particular set of questions measures a student's knowledge on a particular subject, for example, can be tested against the evidence. This component should be conducted by people who are experts in test design.

The third component of this step is to select a method for aggregating the results of assessment instruments so that they can be used to evaluate a school's or a school district's performance. This step is largely a matter of judgment. For each test instrument selected, for example, policy makers must decide whether to use an average test score or a share of students above some standard reference point. Although the judgment of education experts on this topic may be important, this decision cannot be phrased in the form of a testable hypothesis.

The CFE, Regents, and Zarb Commission proposals all weigh in on these issues, and, despite the potential complexity of this step, they come to fairly similar conclusions.

All three proposals focus their attention on student test scores and in particular on the Learning Standards defined by the Board of Regents.[6] This focus draws on New York State's long history of developing and administering achievement tests, and the widespread agreement that these tests measure the key elements of educational success. The CFE proposal, for example, argues that the standard should be an education system that "provide[s] all students a full opportunity to meet the Regents Learning Standards" (p. 3). The Regents education aid reform proposal expresses a similar goal, namely that "all students have the opportunity to achieve the State's learning standards" (p. 9).[7] The Zarb Commission examines several different performance standards, all of which are based on Regents tests.

These quotations appear to imply that the proposals expect all students to meet the Regents Learning Standards. An alternative interpretation is that existing proposals accept tests developed by the Regents as indicators of student performance and seek to raise the share of students who pass these tests. It is unrealistic to expect every student to pass every test, so the question is how to translate the focus on Learning Standards into an aggregate measure of school or school district performance, which is the third component of this step.

The Regents proposal uses an index that measures the share of students reaching proficiency levels on elementary English and mathematics exams along with five high school exams (English, mathematics, world history, U.S. history, and earth science), which are the

[6] These standards are described in New York State Education Department, "New York State Learning Standards," Albany, NY: New York State Education Department, 2004 (available at http://www.nysatl.nysed.gov/standards.html).

[7] At first glance, these proposals may appear to be inconsistent with the *CFE* decision, which declined to endorse the Regents' Learning Standards as the definition of a sound basic education. "[S]o to enshrine the Learning Standards," says the Court, "would be to cede to a state agency the power to define a constitutional right" (p. 11). However, the CFE decision does not prohibit policy makers from selecting these Learning Standards. Moreover, the Court does not address the third component of defining a sound basic education, namely, the translation of a set of tests into an aggregate measure of school performance. This step implies that these proposals do not literally use the Learning Standards as the definition of a sound basic education, but instead use the Learning Standards as a way to scale a district's performance.

exams incorporated into the Regents Learning Standards. The standard built into this proposal is the average share of students reaching proficiency across these exams in the average district. One of the standards examined by the Zarb Commission proposal uses the proficiency rate targets set by the Regents on English and mathematics tests in fourth and eighth grades and in high school. It also gives a lower weight to the share of students scoring just below the proficient level and sets a maximum drop-out rate. The CFE proposal remains unclear on this issue; that is, it never specifies an explicit performance target.

Our research makes use of a student performance index that contains elements of the NYSED and Zarb Commission approaches (although it predates them). This index is based on English and mathematics proficiency rates in fourth and eighth grades and in high school.[8] It gives higher weight to high school tests than to the elementary and middle school tests and a lower weight to scores just below the proficiency level. The maximum possible value of this index, which corresponds to all students passing all tests, is 200, and the index has a value of 160 in the state's average district in 2000. This index also highlights the range in student performance across the state, as it reaches 169 in the average downstate suburb but is only 103 in New York City.

One possible target for a revised state education finance system is to bring all districts up to the current state average of 160, which is roughly the same as the target in the Regents proposal. A less ambitious target would be to bring all districts up to an index value of 130, which is still well above the level in the lowest-performing districts. A more ambitious target,

[8] The index for each exam is constructed by multiplying the share of students reaching only Level 2 by 100, and the share of students reaching at least Level 3 by 200. The indices for the math and English exam for each level are averaged. The final index is a weighted average of the indices by level using a weight of 25% for 4th grade, 25% for 8th grade, and 50% for high school. For more discussion of this index, see W. Duncombe, A. Lukemeyer, and J. Yinger, "Financing an Adequate Education: A Case Study of New York," in *Developments in School Finance: 2001-2002*, edited by W.J. Fowler, Jr., Washington, D.C., U.S. Department of Education, National Center for Education Statistics, June 2003, pp. 127-154 (available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003403).

which appears to be consistent with the CFE approach and the most stringent standard in the Zarb Commission report, might be an index value of 180 or more.

This focus on test score passing rates raises several issues that this panel may want to consider. First, test score results depend on which students take the test. A school district might be able to raise its high school test scores, for example, by encouraging weaker students to drop out.[9] Moreover, the costs of keeping students in school may increase when expected performance standards are raised. These issues were implicitly raised by the Court of Appeals, which declared that "it may, as a practical matter, be presumed that a dropout has not received a sound basic education." Thus, it would be appropriate for a remedy to consider the cost of dropout prevention and include changes in the dropout rate in an evaluation of school performance (as in the Zarb Commission proposal).

Second, test scores are very helpful for examining required operating spending, but they are not so helpful for examining required capital spending. As a result, input-type measures, such as building and equipment quality and number of classrooms relative to pupils may be helpful in thinking about required spending on the capital side of a school's budget. We return to this issue in section 9.

4. Costing Out, Step 2: Initial Costing Out Calculations

The second step in a foundation plan is to determine the cost of achieving the selected standard in a typical school district. This step is the start of what is often called a "costing-out" exercise.

[9] For studies that address the issue of dropouts, see W. Duncombe, and J. Yinger, "School Finance Reform: Aid Formulas and Equity Objectives," *National Tax Journa*l, 51, June 1998, pp. 239-262, and W. Duncombe and J. Yinger, "Financing Higher Student Performance Standards: The Case of New York State," *Economics of Education Review* 19, October 2000, pp. 363-386. For another example of the problems that can arise with an exclusive focus on test scores, see Diana Jean Shemo, "School Achievement Results Often Exclude the Disabled," *The New York Times*, August 30, 2004.

Costing out is a technical step, which can be conducted and evaluated using scientific procedures. This does not imply, of course, that there is only one way to conduct this step. As with any complex topic, scholars disagree about the right way to specify and test the relevant hypotheses. (We return to some of these disagreements below.) Nevertheless, any statement that it will cost $X per pupil to reach a specific adequacy standard in a specific school is, in principle, a scientific statement that can be tested against the evidence.

The technical nature of the costing out step was implicitly acknowledged by CFE and the Zarb Commission when they hired outside consultants with technical expertise to conduct this step. In addition, the analysis conducted by NYSED served as background for the Regents proposal. We will refer to the report prepared for CFE as the AIR/MAP report and to the report prepared for the Zarb Commission as the S&P report.[10]

The distinction between a legal/political issue and a technical issue appears in other policy arenas, as well. The State of New York recognizes, for example, the difference between the legal/political issue of selecting tax rates and the technical issue of forecasting revenue for a given set of tax rates by setting up different processes for addressing these two issues.[11] The setting of tax rates is a standard part of the political process, with constitutionally determined voting procedures involving the State Assembly, the State Senate, and the Governor. In contrast,

[10] The report prepared for CFE is J. G. Chambers, T. B. Parrish, J. D. Levin, J. R. Smith, J. W. Guthrie, and R. Seder, *The New York Adequacy Study: Determining the Cost of Providing All Children in New York an Adequate Education, Volume I—Final Report*, American Institutes for Research/Management Analysis and Planning, March 2004 (available at http://www.cfequity.org/FINALCOSTINGOUT3-27-04.pdf). The report prepared for the Zarb Commission is Standard and Poor's, *Resource Adequacy Study for the New York State Commission on Education Reform*, New York: Standard and Poor's School Evaluation Services, March 2004 (available at http://www.spses.com).

[11] Another analogy comes from the state budgeting process. First, lawmakers must decide what level of services to provide. This is a legal and political step. Scientific procedures may be able to provide some evidence on the costs and benefits of various services, and this evidence may influence lawmakers, but scientific procedures cannot determine which services a state should provide, nor can it determine the quality and nature of those services. Second, legislative staffs must estimate how much the service level they select will cost. This is a technical step, which is guided by scientific procedures.

revenue forecasts are prepared by the staffs of each of these institutions and then evaluated by a panel of experts. Based on the comments of these experts, the staffs attempt to reconcile their forecasts. Moreover, even if the various staffs cannot agree on a common forecast, this process highlights the differences in scientific judgments that lead to differences in the forecasts.

Before turning to the details of various costing-out calculations, therefore, we would like to emphasize the importance of designing a process for resolving this type of technical debate. Both because different analysts make different judgments on technical issues and because the issues raised by costing-out are not static, a process to resolve the technical issues in costing out in future years needs to be implemented.

Three approaches have been used to calculate the cost of a sound basic education: the professional judgment approach (also called the resource cost model), the successful schools approach, and the cost estimation approach. Each of these approaches has been developed in the scholarly literature.[12] Moreover, each of these approaches has appeared in reports prepared for various states around the country. The professional judgment approach has recently been used in Maryland, Minnesota, and Wyoming, for example, and an aid program based on the cost estimation approach was implemented in Massachusetts.[13] In New York, the professional judgment approach appears in the AIR/MAP report prepared for CFE, and the successful schools

[12] Citations for each of these methods are provided in Attachment B. This attachment shows that the cost estimation approach has been applied to Arizona, Nebraska, Kansas, Massachusetts, Michigan, Texas, and Wisconsin.

[13] The Maryland, Minnesota, and Wyoming cases are discussed in the AIR/MAP report. The Massachusetts case is discussed in K. L. Bradbury, H. F. Ladd, M. Perrault, A. Reschovsky, and J. Yinger, "State Aid to Offset Fiscal Disparities Across Communities," *National Tax Journal* 37, June 1984, pp. 151-170. A table listing the methods used by education finance commissions around the country can be found in B. D. Baker, L. Taylor, and A. Vedlitz, *Measuring Educational Adequacy in Public Schools*, Report prepared for the Texas School Finance Project of the Texas Legislature, 2004. Available at http://www.capitol.state.tx.us/psf/reports.htm

approach was used in the S&P report prepared for the Zarb Commission and in the Regents proposal. The cost estimation approach is applied to New York in recent work of ours.[14]

Each of these three approaches provides a reasonable way to conduct the initial costing-out analysis, but they proceed in quite different ways.

- The professional judgment approach asks educators to list the staffing and program needs that a typical school requires to achieve a given set of student performance standards. The AIR/MAP report, for example, asked educators to determine the set of "instructional programs necessary to provide an opportunity for all children to meet the Regents Learning Standards" and then to "specify resource requirements needed to deliver those programs" (p. i).
- The successful schools approach identifies schools that are thought to provide a sound basic education and then determines the average per-pupil spending in this set of schools (excluding schools with very high or very low property values or incomes). This spending level is used as a measure of the minimum spending needed to provide a sound basic education.[15]

[14] See W. Duncombe, A. Lukemeyer, and J. Yinger, 2003, op. cit. The final report of CFE's Sound Basic Education Task Force, op. cit., claims on page 9 that the analysis conducted for CFE by AIR/MAP "is the first in New York State to directly confront the critical issue of the precise level of resources needed to provide *all* students in the state the opportunity to meet the Regents Learning Standards." In fact, however, the above article by Duncombe, Lukemeyer, and Yinger, as well as NYSED, 2003, op. cit., estimate the cost of reaching various standards based on the Regents exams.

[15] In its initial costing-out exercise, NYSED adjusted school spending for wage differences and for student need differences based on students qualifying for free and reduced price lunch. Districts meeting the standard were then ranked on the resulting "need and cost-adjusted instructional expenditure" per pupil, and the average of the lowest spending half of these districts was used as the foundation amount. A similar approach was used in the S&P Report. This approach improves upon successful schools studies that ignore costs, but it still does not recognize that some districts meet performance standards only because they have low costs and it does not control for other factors that may help districts meet these standards. For further discussion of the successful schools approach, see W. Duncombe, A. Lukemeyer, and J. Yinger, "Education Finance Reform in New York: Calculating the Cost of a Sound Basic Education," Center for Policy Research Policy Brief No. 28/2004, Syracuse, NY: Syracuse University, March 2004 (available at http://cpr.maxwell.syr.edu/efap/Policy%20Briefs/publications/policy_brief_main_page.htm).

- The cost estimation approach collects information on spending, student performance, and other variables for all the school districts in the state and then uses statistical procedures to determine how spending levels vary with student performance indicators, controlling for factors outside a district's control. The cost of a sound basic education is the level of spending required to meet a selected performance standard in a school district with average characteristics.

These three approaches lead to similar estimates of the per-pupil operating cost of a sound basic education for any given performance standard, so long as they are based on an equally comprehensive definition of operating spending. This point is illustrated in Table 1, which presents various estimates of this cost.[16] The first row presents the cost estimate from the AIR/MAP report. This estimate, $12,890, combines the professional judgment approach and the high performance standard indicated earlier.

Table 1.
Estimated Per-Pupil Operating Cost of a Sound Basic Education in an Average District, by Approach and by Student Performance Standard

	Student Performance Standard				
Approach	130	140	150	160	CFE
Professional Judgment					$12,890
Teacher Cost		$9,510	$9,629	$10,038	
Successful Schools		$10,280	$10,375	$10,812	
Cost Estimation	$8,626	$9,301	$10,027	$10,811	

Note: The estimates in all rows apply to school year 2001-2002.

[16] The estimate in the first row of Table 1 is our estimate based on the AIR/MAP report (which does not actually present results for the average district). The estimates in the second and third rows are updated versions of the estimates in W. Duncombe and A. Lukemeyer, "Estimating the Cost of Educational Adequacy: A Comparison of Approaches," Paper presented at the Annual Conference of the American Education Finance Association, March 2002. Available at http://www-cpr.maxwell.syr.edu/faculty/duncombe/ special%20report/costofeducadeq.pdf. The estimates in the last row are updated versions of those in Duncombe, Lukemeyer, and Yinger, 2003, op. cit.

The second row uses the student performance index described earlier. It provides cost estimates for various performance standards using an approach, which we call the teacher cost approach, that combines features of the professional judgment approach and the successful schools approach. To be specific, it observes staffing ratios in successful schools and calculates how much it would cost to reach those staffing ratios. According to this approach, the estimated cost ranges from $9,510 to $10,038 per pupil, depending on the student performance standard.

The third row is based on the successful schools approach. This approach yields a similar answer to the teacher cost approach when the performance standard is an index value of 160, but with this approach, the estimated cost does not drop very much as the performance standard is lowered. This feature of the results reflects a limitation of the successful schools approach, discussed in more detail below, namely, that it does not adequately account for all the factors that influence school spending.[17]

The final row in Table 1 presents results using the cost estimation approach.[18] These estimates range from $8,626 (with a performance standard of 130) to $10,811 (standard of 160). The results in this row are very similar to those in the second row and, for a performance standard of 160, in the third row, as well.

Overall, these results suggest that legal/political step of defining a sound basic education has a much larger impact on the estimated foundation level in a typical district than does the technical step of selecting an estimating approach for the initial costing-out process. The teacher

[17] This lack of cost variation across performance standards appears to reflect the main flaw of the Successful Schools approach, namely, that it does not examine why a school is successful, which could be for reasons outside the school's control, such as a low wages or a low poverty rate. The set of districts identified as "successful" decreases as the standard is raised. Districts that are successful with a standard of 130 have very different characteristics than the districts meeting a standard of 180. The successful schools approach does not control for these differences. See Duncombe and Lukemeyer , 2002, op. cit. and W. Duncombe, A. Lukemeyer, and J. Yinger, 2004, op. cit.

[18] These numbers are based on Duncombe, Lukemeyer, and Yinger, 2003, op. cit.

cost and cost estimation approach yield similar estimates of the cost of a sound basic education when they are based on the same performance standard. Moreover, extrapolating these results to the higher standard in the CFE report suggests that these two approaches and the professional judgment approach also yield similar cost estimates when the standard and the spending definitions are the same. Finally, the successful schools approach yields a result that is similar to that of the other approaches for a performance standard of 160, but does not appear to be as well suited as the other approaches for estimating how costs change as the performance standard changes.

5. Costing Out, Step 3: Calculating the Added Costs of Attracting Teachers to New York City

Most scholars agree that educational costs vary across school districts due to differences in wage costs. This issue, which is another technical issue, should be considered in any costing-out calculation because some schools must pay more than others to attract and retain teachers at any given skill level.

The focus here is not on actual wages, which are set by school officials, but is instead on the wage each district must pay to attract a teacher of given quality. This wage cost is outside a district's control. To be more specific, wage costs differ from one school district to the next both because of differences in the cost of living and because some districts have more favorable teaching environments than others. A district with high housing prices or with many disadvantaged students, for example, must pay more than other districts to attract and retain teachers of equal quality.

The fact that some districts must pay more than others to attract teachers of a given quality is widely recognized among policy makers, and 11 states include wage or cost-of-living

adjustments in some of their education aid programs.[19] The problem is that wage costs cannot be easily estimated because these costs are not the same as the wages districts actually pay.

Several methods have been developed to estimate wage costs. For the most part, these methods are not directly linked to the three approaches described earlier for estimating the cost of a sound basic education in a typical district. The best method for isolating the underlying wage-cost concept depends on the type of information that is available. Once wage costs are determined, they can be added to any of the three main approaches for calculating the cost of a sound basic education.

One appealing approach is to collect data on wages, teacher quality, local labor market conditions, and the teaching environment for a large sample of teachers and then to estimate, using statistical methods, how these factors affect wages. This approach makes it possible to calculate the wages a district would have to pay to attract teachers of any specified quality, given its overall labor market conditions and teaching environment. The problem, however, is that the data needed to accurately measure teacher quality and other factors are often not available.

This data problem is illustrated in the AIR/MAP costing-out report. This report estimates wage differences based on this type of statistical analysis but ends up with implausible results. To be specific, this report claims that the cost of teachers is only 10 percent higher in New York City than in the average district in the state, and only 1 percent higher in New York City than in the New York City suburbs.[20] It seems unlikely that New York City, with its high cost of living and challenging teaching environment, could attract the same quality teachers as an average district by paying only 10 percent more.

---

[19] See Huang, 2004, op. cit.

[20] These figures are based on a comparison with the simple average of all districts. Using the pupil-weighted average in the AIR/MAP report, New York City has teacher cost only 4 percent above the state average.

Our own version of this approach obtains quite different results. Unlike, the analysis in the AIR/MAP study, our statistical analysis includes a measure of professional salaries and several variables to indicate working conditions, such as the share of students eligible for a free lunch or with limited English proficiency. These variables account for factors that, in our judgment, play a critical role in teacher labor markets. Using alternative methods to account for teacher quality and the cost of living and using much more extensive information on features of the classroom environment, such as concentrated poverty, we estimate that wage costs are 54 percent above the state average in New York City and 13 percent above the state average in downstate suburbs.[21]

Studies of other states have also found extensive variation in teacher wage costs across school districts. See, for example, the analysis of wage costs in Texas conducted for the Texas State Legislature.[22]

Another approach, which appears in a report released by NYSED, is to develop a regional wage cost index based on "median salaries in professional occupations that require similar credentials to that of positions in the education field."[23] This approach indicates that wage costs are 24.1 percent higher in the downstate region than in the rest of the state. This study did not consider the impact of a challenging classroom environment on the wage a school district would

[21] Duncombe, Lukemeyer, and Yinger, 2003, op. cit.

[22] C.D. Alexander, T. J. Gronberg, D. W. Jansen, H. Keller, L. L. Taylor, and P.U. Treisman, *A Study of Uncontrollable Variations in the Costs of Texas Public Education*, a summary report prepared for the 77th Texas Legislature, Austin: Charles A. Dana Center, University of Texas-Austin, 2000 (available at http://www.utdanacenter.org/research/ reports/ceireport.pdf).

[23] New York State Education Department, The State Aid Work Group, "Recognizing High Cost Factors in the Financing of Public Education: The Calculation of a Regional Cost Index," Albany, NY: New York State Education Department, December 2003 (available at http://www.oms.nysed.gov/faru/ new_york_state_education_departm.htm).

have to pay, however, and therefore has the same index value for New York City and its suburbs. Nevertheless, this approach is respectable and worth considering.

The approach we prefer integrates the estimation of wage costs and the estimation of the extra costs of disadvantaged students, which is discussed in section 6. We begin by predicting a district's wage costs for beginning teachers based on factors outside the district's control, including indicators of the private wage level in its region and indicators of the classroom environment, such as concentrated poverty. As part of our district-level cost estimation procedure, we then estimate the impact of this predicted wage on spending, controlling for student performance and other factors. Our results are similar to those obtained by NYSED using a very different methodology, although, unlike NYSED, we are able to estimate wage cost differences within a region. We find, for example, that wage costs are 19 percent higher in New York City than in the average district in the state. This number is not strictly comparable to the wage cost studies discussed earlier because it is combined with a direct estimate of the cost of disadvantaged students.

The range in results from these different approaches highlights the points that different analysts may make different judgments about the details of any statistical procedure and that some process for resolving these technical disagreements is needed. Although we have a preferred approach, we believe that several other approaches are reasonable, and we urge this panel to recommend a process that draws on experts to help obtain a consensus approach to include in education aid calculations.

6. Costing Out, Step 4: Calculating the Added Costs of Educating Disadvantaged Students

The next step in determining the cost of achieving a sound basic education in New York City concerns the costs of educating disadvantaged students. A large literature demonstrates that it costs more to educate students who are poor, who have limited English proficiency, or who have disabilities, than it does to educate a student without any of these disadvantages.[24] As a result, the per-pupil cost at any given performance standard is higher in New York City, where students with disadvantages are concentrated, than in the typical district.

Estimating the added costs of educating disadvantaged students is another technical issue, not a legal/political one. In principle, any statement about the extra costs of disadvantaged students can be tested against the evidence.

Moreover, the Court of Appeals made it clear that this issue should be considered by criticizing the current state aid system because it does not consider "the needs of City students" (p. 50). In addition, the Court explicitly rejected "the premise that children come to the New York City schools ineducable, unfit to learn" (p. 34) because of "socioeconomic disadvantage." As a result, the only remaining issue is the technical one of estimating the extra costs imposed on New York City because it has such a high concentration of disadvantaged students.

Any attempt to calculate the added costs of disadvantaged students faces three challenges:

(1) It is difficult to untangle the effects of the many different factors that influence school spending and student performance.

[24] See the studies listed in Attachment B under the cost estimation approach.

(2) There exists little consistent scientific evidence about the effectiveness of various programs in boosting the performance of disadvantaged students.

(3) Examples of poor, urban school districts in which most students reach a high level of performance are difficult, if not impossible, to find.

In our judgment, the best way to handle these three challenges is to make use of the extensive information currently available on the relationship between spending, student performance, and student disadvantage. As pointed out earlier, this cost estimation approach has been developed by many scholars, including ourselves. We will explain this approach and then turn to an evaluation of the professional judgment approach to this issue, which appears in the AIR/MAP report.[25]

A. The Cost Estimation Approach

The cost estimation approach uses statistical procedures to determine the impact of poverty and limited English proficiency on educational costs, holding student performance and other factors constant. Thus, it is specifically designed to address the first challenge.[26] This strategy does not identify any particular programs for boosting the performance of disadvantaged students; instead, it addresses the second challenge by determining, based on observed spending

[25] The final report of CFE's Sound Basic Education Task Force claims that the AIR/MAP study "uses each of the four predominant methodologies" for costing out (p. 7). This is not true. The AIR/MAP study does not do anything remotely like the cost estimation approach. The Zarb Commission report claims that a costing out model "has not been used officially by any of the states that have attempted a costing-out study" (p. 22). This is also not true. As noted earlier, this approach formed the basis for an aid program in Massachusetts (K. Bradbury, et al., 1984, op. cit) and appears in official reports commissioned by the Nebraska legislature (K. Ratcliffe, B. Riddle, and J. Yinger, "The Fiscal Condition of School Districts in Nebraska*:* Is Small Beautiful?" *Economics of Education Review*, January 1990, pp. 81-99) and the Texas legislature (B. D. Baker, et al., 2004, op. cit). A few states have used the Successful Schools approach to estimate the extra costs associated with disadvantaged students, but this approach is not addressed here because it does not appear in any of the costing-out exercises conducted for the CFE case. For a criticism of this approach, see Duncombe, Lukemeyer, and Yinger, 2004, op. cit.

[26] Statistical methods cannot be used, of course, unless a large number of school districts—and their characteristics—can be observed. This is not a problem in New York, which has almost 700 school districts. Moreover, even states with only a few school districts can make use of extra cost weights for disadvantaged students that have been estimated for similar states.

patterns in the state, the spending needed to achieve any given performance standard with any particular concentration of student disadvantages.

Turning to the third challenge, the statistical procedure on which this approach is based provides direct estimates of the added costs facing schools with disadvantaged students. Because this procedure holds student performance constant, these estimates apply to schools at all performance levels. These are, of course, still estimates, but they are estimates based on current cost experiences in all the state's school districts, including those with both high and low student performance and those with high and low student disadvantage.[27]

These estimates can be used to calculate either a cost index, which indicates how much each district would have to spend, relative to the state average, to reach any performance standard, or a weight that indicates the extra cost of each student in poverty, with limited English proficiency (LEP), or with a disability.[28] A weight of 1.0 for a LEP student, for example, indicates that it costs twice as much to educate a LEP student as it does to educate a student who is proficient in English. Once a performance standard is selected, the cost index or the student weights can be used to calculate how much it would cost each district to reach the standard.

Using this approach, we estimate that the per-pupil cost of education in New York City is 36 percent above the state average based on student needs alone. These estimates correspond to an extra cost weight of about 1.2 for a student in poverty and of 1.0 for a student with limited

[27] When the combination of high student performance and high student disadvantage is not observed, as it is not in New York, one cannot rule out the possibility that the cost impact of an increment in poverty, holding performance constant, is not the same at high performance levels and at low performance levels. This is not a disadvantage of the cost estimation approach relative to other methods, however, because it applies to all methods; the cost estimation approach still makes the best use of available information to estimate the cost impact of an increment of poverty at all observed levels of performance

[28] The formal relationship between cost indexes and student weights is explained in W. Duncombe and J. Yinger, "How Much More Does a Disadvantaged Student Cost?" *Economics of Education Review*, Forthcoming (available at http://www-cpr.maxwell.syr.edu/cprwps/wps60abs.htm).

English proficiency.[29] These weights are close to the weights in the Maryland aid program and, in the case of poverty, in the aid program proposed by the Regents.[30]

An analogy may help to explain this approach. Suppose policy makers want to determine which combinations of fertilizers and equipment could raise the crop yield on some low-yielding acres to a specific target that is significantly higher that the yield produced there so far. In addition, suppose that different plots of land receive different amounts of sunlight, a factor clearly outside farmers' control, and that the lowest-sunlight plots tend to have the lowest yields. The cost estimation approach would address this problem by collecting information on spending, crop yields, fertilizer and equipment use, input costs, sunlight, and other relevant variables. The next step would be to conduct a statistical analysis of spending as a function of these other variables. In effect, this analysis determines the impact of sunlight on the amount a farmer must spend to achieve any given crop yield, holding other variables constant. As a result, this analysis yields an estimate of how much more a farmer must spend on a low-sunlight plot than on a high-sunlight plot to achieve the same crop yield. This is precisely the information needed to complete the fourth step of a foundation spending calculation.

Some observers dismiss the cost approach because it requires advanced statistical procedures, which are not as transparent as the procedures used in the other two approaches. As

[29] See Duncombe, Lukemeyer, and Yinger, 2003, op. cit.

[30] Duncombe and Yinger, Forthcoming, op. cit., investigate several different weighting schemes. Some schemes use a Census poverty variable and others are based on the share of students with free or reduced price lunch. In either case, the weight on a low-income student falls between 1.1 and 1.4. With the poverty variable, but not the lunch variable, we also find a significant weight, equal to 1.0, for students with limited English proficiency. An aid system that places a weight of 1.0 on the share of students with a free or reduced price lunch and a weight of 1.0 on LEP students provides a reasonable approximation to all of these other schemes. This study also estimates an extra weight of 2.0 for students with severe disabilities; this weight should be used, too, if the basic operating aid program is intended to cover the educational costs of these students.

one study put it, the technical complexity of this approach makes it difficult to explain to "reasonably well-educated policymakers.[31]

We do not find this argument compelling. A recent survey finds, for example, that 18 states use extra weights for poor students, students with limited English proficiency, or both in their education aid formulas.[32] Although most of these weights are derived in an ad hoc manner and are far lower than the weights in the scholarly literature, they nevertheless are consistent with the cost estimation approach. Moreover, weights similar to those found in the cost estimation research are included in the state aid program in Maryland[33] and in the aid proposal released by the Regents in 2003.[34] The logic of student weights is clearly not beyond the understanding of state legislators. Moreover, as mentioned earlier, the complexity of this problem did not prevent Massachusetts from implementing a state aid formula based on the cost estimation approach.

To return to the comparison raised earlier, the problem of estimating the costs of disadvantaged students is similar to the problem of estimating state revenues. States around the country base their revenue estimates in part on complex macroeconomic models of the state

---

[31] This quote is from p. 223 of J. W. Guthrie and R. Rothstein, "Enabling 'Adequacy' to Achieve Reality: Translating Adequacy into State School Finance Distribution Arrangements," in *Equity and Adequacy in Education Finance: Issues and Perspectives*, edited by H. F. Ladd, R. Chalk and J. Hansen (Washington, DC: National Academy Press, 1996), pp. 209-259.

[32] This survey is Huang, 2004, op. cit. Some states also use pupil weights for students with handicaps or use some method other than pupil weights to adjust for student disadvantages. Overall, Huang finds that only three states distribute aid to local school districts without any type of cost adjustment.

[33] See Huang, 2004, op. cit. The weights in Maryland come from a report commissioned by the legislature: Maryland Commission on Education Finance, Equity, and Excellence, *Final Report*. Baltimore: Maryland Commission on Education Finance, Equity, and Excellence, 2002 (available at http://mlis.state.md.us/other/education/Full_AM_Report.pdf). They are based on the professional judgment approach. The judgment about the added costs of poor students by the educators who participated in the Maryland panels obviously differed from that by the educators on the New York panels.

[34] See NYSED, 2003, op. cit. In this proposal, each poor student in a high-poverty school district, such as New York City, receives an extra weight of 100 percent. This weight will later be phased down to 80 percent. The NYSED proposal does not include an extra cost weight for students with limited English proficiency, however.

economy. Legislators may not understand the technical details of these models, but they understand the need for accurate revenue estimation. Legislators know that a state will not meet its responsibilities by selecting a simplistic solution to a complex problem.

Critics of the cost estimation approach also claim that it is abstract and disconnected from the everyday decisions of schools because it does not identify a specific set of successful programs or a particular successful school. As pointed out earlier, however, the cost approach makes full use of available information on the relationship between spending and student performance throughout the state. It does not identify specific programs but instead examines current best practice in the state to determine the spending required to reach a performance standard with any given student mix.[35]

Finally, some critics argue that the cost estimation studies are limited because they "necessarily rely on a limited number of outcome (achievement) measures" (Guthrie and Rothstein, 1999, p. 220). These critics go on to say that "many of the desirable outcomes … are not presently measured and cannot be quantified for use in such a statistical model." It is, of course, true that some desirable outcomes, such as good citizenship, cannot be quantified, but if they cannot, then no approach can determine whether any district provides them, let alone how much extra more it would costs to achieve these outcomes in a high-poverty district. The cost

[35] As with any statistical procedure, different scholars may come to different conclusions about the specific variables to include or about other technical issues. An open technical debate is therefore an important part of the process of implementing the cost estimation approach. The range of possible outcomes should not be exaggerated, however. Citing a publication of ours (W. Duncombe, J. Ruggiero, and J. Yinger, "Alternative Approaches to Measuring the Cost of Education," in *Holding Schools Accountable: Performance-Based Reform in Education*, edited by H.F. Ladd (Washington, D. C.: The Brookings Institution, 1996), pp. 327-356), Guthrie and Rothstein, 1999, op. cit., p. 221, claim that an analysis based on the "preferred 'indirect' measure" of education performance leads to "widely divergent" cost results from an analysis based on "'direct' performance measures." In fact, however, our publication makes it clear that the use of "direct" performance measures improves on earlier studies using "indirect" measures. Alternative sets of direct measures lead to fairly similar cost results. Moreover, as noted earlier, the educated guesses in the professional judgment approach sometimes yield widely divergent results themselves.

estimation approach cannot be blamed for the complexity of educational outcomes.[36] Moreover, any outcome that can be measured can readily be included in the cost estimation, and it is possible to measure all the outcomes used to define the standards in the CFE, Regents, and Zarb Commission proposals.[37]

The S&P report also includes extra weights for the share of student in poverty or with limited English proficiency, but these weights are neither estimated nor drawn from the scholarly literature. Instead, they are set equal to roughly the average weight in existing state aid formulas around the country.[38] This procedure results in weights below those estimated by scholars, and we see nothing in the *CFE* decision that would justify the use of other state's political compromises as an estimate of the "needs of City students."

The S&P report claims that it "does not recommend the adoption of one particular weighting." This is disingenuous. All of the calculations in the report, including the estimated costs of reform, are based on the same unrealistically low weights for disadvantaged students. If

[36] Guthrie and Rothstein, 1999, op. cit., p. 221, also argue that the cost estimation approach falls short because it cannot identify the resources each district would have to reach a performance target if those resources were "used efficiently." This is another example of blaming the cost estimation approach for the complexity of the world. Efficiency cannot be directly measured and no approach can fully account for it. Professional educators can, of course, make a guess about the resources that would be needed if "used efficiently," but they can do no more than guess. It is true, as Guthrie and Rothstein point out, that the cost estimation approach must use "indirect" controls for district efficiency, but because efficiency cannot be directly measured, no other method can do any better. Guthrie and Rothstein offer no evidence to support their claim that educator guesses are better than indirect statistical controls. For a thoughtful discussion of the linkages between state education aid and school district accountability, see D. Figlio, "Funding and Accountability: Some Conceptual and Technical Issues in State Aid Reform," in *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. .

[37] Guthrie and Rothstein, 1999, op. cit., p. 220, also argue that "[i]ncorporating additional achievement measures would … inject unknown errors into the results" because of a statistical problem known as multicollinearity. This argument is highly misleading, at best. Multicollinearity arises when two or more variables (in this case, outcome variables) are so closely related that it is impossible to separate their impacts on another variable (in this case, spending per pupil). If it exists (and Guthrie and Rothstein offer no evidence that it does), this problem is a feature of the world, not a problem with statistical procedures. The professional judgment approach and the successful schools approach are even less equipped to solve this problem than is the cost estimation approach.

[38] The S&P report uses a weight of 35 percent for students from poor households and of 20 percent for students with limited English proficiency (Figure 8, p. 20).

weights from the scholarly literature were used, education finance reform would cost a great deal more. Indeed, using S&P's own EdResource Calculator, we find that switching to a weight of 100 percent for both low-income students and students with limited English proficiency would at least double the cost of any reform option.[39]

This misleading approach carries over into the Zarb Commission report, which accepts the pupil weights in the S&P report without even acknowledging that they lead to an underestimate of the cost of reform. Moreover, the Zarb Commission outlines a new basic operating aid formula that does not adjust at all for the extra costs of disadvantaged students. Instead, the commission calls for a supplemental aid program to deal with low-income students and students with limited English proficiency. This misses the point entirely. The extra costs of educating disadvantaged students are part of the basic operating expenses of a school district, not supplemental costs to be handled in an ad hoc manner. This supplemental route is the one currently used by New York State, and hence the one rejected by the Court of Appeals.

B. The Professional Judgment Approach

The AIR/MAP report argues that an estimate of the extra costs of disadvantaged students can be obtained with the professional judgment approach. To be specific, the professional educators involved in this approach are asked to identify a set of extra programs that would bring a school up to the performance target when many of the students come from poor families or speak English as a second language. The extra cost of educating these students is then the cost of implementing these extra programs.

This approach relies on the judgment of educators to overcome the three challenges listed earlier. Educators must draw on their experience to identify the factors that account for the poor

[39] This calculator is available at http://www.spses.com.

performance of students in poor urban schools and then to select a set of programs that will offset those factors.

This is an appealing approach because it draws on the experience of people who are involved in providing elementary and secondary education. It is also, however, an approach that is difficult to evaluate with scientific criteria. To be specific, the approach is built on the implicit hypothesis that the estimates provided by educators are accurate measures of the spending needed to reach the performance target in a school with many disadvantaged students, but this hypothesis is difficult if not impossible to test with data available at the time the analysis is conducted.[40] To the best of our knowledge, no study using the professional judgment approach has ever attempted such a test.

Thus, there is no way to determine whether the estimates provided by the participants in the CFE panels are accurate or not. The point here is not that these estimates are necessarily wrong, it is that no scientific tests are available to evaluate them. Similarly, there are no scientific tests to determine whether the estimates produced by one professional judgment panel are more accurate than the estimates produced by another.

Moreover, despite its intuitive appeal, this approach places the participating educators in a difficult position, both because so many factors influence student performance and because there is little consensus about which programs can successfully offset student disadvantages. In addition, few educators have experience implementing programs that succeed in raising a significant number of students up to a high performance level in a school where disadvantages are concentrated. The AIR/MAP study convened several panels of experienced educators to

[40] In the long run, it would certainly be possible to determine whether the spending numbers obtained through the professional judgment approach (or any other approach) result in the desired student performance outcomes. To the best of our knowledge, this type of research has never been attempted, but it might prove to be very helpful.

examine New York City. The people who participated in these panels are experienced, dedicated professionals, but, through no fault of their own, they may never have observed a set of programs capable of boosting City schools up to a high performance standard and therefore may not be able to accurately complete the task they have been given.

To return to the farming analogy, the professional judgment approach involves assembling a panel of experienced farmers to figure out what combinations of fertilizers and equipment could raise the crop yield on some low-yielding acres to a specific target that is significantly higher that the yield produced there so far—and then to calculate how much these combinations cost. The panel's task is to make an educated guess about the combination of fertilizers and equipment that is needed to reach the target yield on the plots in each sunlight category, including the plots that receive the lowest amount of sunlight. Experienced farmers would have some useful knowledge to draw on to complete this task, but they would have to try to untangle the roles of fertilizers, equipment, and sunlight in raising crop yield, and then to extrapolate to a situation that is outside their experience. They can do no better than an educated guess. Moreover, the higher the target yield, and hence the farther the target from current experience on low-sunlight plots, the harder it will be for these experts to determine what is needed.

One might think that educators can draw on research that demonstrates the impact of various programs on student performance. In fact, however, education programs are difficult to study and evidence of consistent program success is rarely available. There is extensive scientific evidence that class size reduction and pre-kindergarten programs can boost test scores, but it is hard to find a consensus on any other type of program.[41] The AIR/MAP report includes

[41] On class size, see A. B. Krueger, "Experimental Estimates of Education Production Functions," *Quarterly Journal of Economics* 114 (2), May 1999, pp. 497-532; A. B. Krueger "Economic Considerations and Class Size," Working

pre-kindergarten programs for all schools and some modest class size reductions in high-poverty schools. These programs are certainly worth implementing, but based on the results in the scholarly literature, they are not sufficient to bring poor urban schools up to the high performance standard on which this report is based.

The analysis of student needs in the AIR/MAP report is complicated and difficult to untangle. Results for the average district in the state are not reported for most variables and the extra weights for various types of student disadvantages are not presented. Using the data in Exhibits 2-6 and 2-8, we calculated implicit pupil weights for students receiving a subsidized lunch or with limited English proficiency by level of schooling. The weights for subsidized lunch are 0.81 for elementary to 0.37 for middle school to 0.49 for high school. The estimated weights for LEP are approximately 0.18 for all levels. These weights are below the weights in the academic literature. We also use the information in the report to estimate the impact of disadvantaged students on New York City's overall education costs. According to our calculations, the AIR/MAP approach indicates that education costs are 25 percent higher in New York City than in the average district because of the City's relatively high concentration of disadvantaged students.

Paper No. 8875, Cambridge, MA: National Bureau of Economic Research, 2002; A. B. Krueger and D. M. Whitmore, "The Effect of Attending a Small Class in the Early Grades on College-Tes Taking and Middle School Test Results: Evidence from Project STAR," *Economic Journal* 11, January 2001, pp. 1-28; and M. Boozer and C. Rouse. "Intraschool Variation in Class Size: Patterns and Implications," *Journal of Urban Economics*, 50 (1), July 2001, pp. 163-189. On pre-kindergarten programs, see L. A. Karoly, "Investing in the Future: Reducing Poverty Through Human Capital Investments, in Understanding Poverty, edited by S. H. Danziger and R. H. Haveman (Cambridge, MA: Harvard University Press, 2001), pp. 314-358, and L. A. Karoly, P. W. Greenwood, S. M. S. Everingham, J. Hoube, M. R. Kilburn, C. P. Rydell, M. R. Sanders, and J. R. Chiesa, *Investing in Our Children: What We Know and Don't Know About the Costs and Benefits of Early Childhood Interventions.* Santa Monica, CA: RAND Corporation, 1998. There is no consensus on another widely used type of program, called whole-school reform. According to H. F. Ladd and J. S. Hansen, *Making Money Matter: Financing America's Schools*, Washington, D.C.: National Academy Press, 1999, p. 213, for example, these programs "have achieved popularity in spite rather than because of strong evidence of effectiveness and replicability."

C. Conclusion

This discussion shows that estimating the extra costs of disadvantaged students, like estimating wage costs, raises complex technical issues on which experts disagree. All experts agree that the high concentration of disadvantaged student in New York City leads to higher educational costs in the City than in the average district statewide. Experts do not all agree, however, on the magnitude of this cost difference. Using the cost estimation approach, we find that education costs in the City exceed those in the average district by 36 percent solely because of the City's relatively high concentration of disadvantaged students. Using the professional judgment approach, the AIR/MAP team finds that the City's costs exceed the statewide average by 25 percent. Because the extra costs of disadvantaged students have a large impact on the City's estimated foundation spending level (and hence on its foundation aid) and because these costs change every year, some process is needed to formalize a debate about the technical issues that arise in estimating these costs and ultimately to obtain annual cost estimates.

7. Overview of Costing Out

A. The Per Pupil Operating Cost of a Sound Basic Education in New York City

The cost of a sound basic education in New York City equals the cost of a sound basic education in a typical district in the state (Table 1) adjusted for the relatively high wages and the relatively high concentration of disadvantaged students in New York City. There is no reason why different methods cannot be used for the three different steps of this calculation. Thus, for example, the professional judgment approach could be used for the first step (the cost in a typical district), an analysis of wages in comparable occupations could be used for the second step (teacher wages), and estimated weights for pupils in disadvantaged groups could be used for the third step (pupil needs).

Table 2 presents estimates of the cost of a sound basic education in New York City using a variety of different calculations. The first row presents the results based on the student performance standard in the CFE report. All the entries in this row begin with the estimated cost in a typical district from Table 1, namely $12,890, which is reproduced in the first column. The columns then adjust this estimate using various approaches to both teacher costs and student disadvantage. The second and third columns use the wage index in the AIR/MAP report; the second column combines this with the AIR/MAP estimates of pupil needs, and the third combines it with the student need index estimated by Duncombe, Lukemeyer, and Yinger (DLY).[42] The next two columns use the wage estimate by NYSED. The fourth column combines this wage estimate with the AIR/MAP estimate of the cost of disadvantaged students, and the fifth column combines it with the DLY index of student needs. Finally, the sixth column combines the DLY estimate of wage costs and the DLY index of student needs.

As this table makes clear, the choice of an estimating method for wage costs and the costs of student disadvantage makes a significant difference in the estimated cost of a sound basic education in New York City. The approach in the AIR/MAP report, which we believe understates the cost disadvantages of New York City, produces an estimate of $14,039. Bringing in a more reasonable student need estimate (column 3) or a more reasonable wage index (column 4) boosts the estimated cost by about 10 percent. Moreover, introducing reasonable calculations for both wages and student needs raises the cost estimate by about 20 percent, to a figure above $20,000 per pupil.

[42] Duncombe, Lukemeyer, and Yinger, 2003, op. cit.

Table 2.

Estimated Per-Pupil Operating Cost of a Sound Basic Education in New York City, by Approach and by Student Performance Standard

Approach (and standard) for Determining the Cost in a Typical District	No Wage or Student Need Adjustment	Combination of Wage and Student Need Adjustment				
		Wage: AIR/MAP		Wage: NYSED		Wage: DLY
		Need: AIR/MAP	Need: Cost	Need: AIR/MAP	Need: Cost	Need: Cost
Professional Judgment (Regents Learning Standards)	$12,890	$17,724	$19,283	$19,980	$21,738	$20,861
Teacher Cost (Index Value of 160)	$10,038	$13,802	$15,017	$15,559	$16,928	$16,245
Cost Estimation (Index Value of 160)	$10,811	$14,865	$16,173	$16,757	$18,232	$17,497
Cost Estimation (Index Value of 130)	$8,626	$11,861	$12,904	$13,370	$14,547	$13,960

Notes: The figures in this table equal the figures in Table 1 adjusted for the estimated wage costs and pupil needs in New York City. The row labels indicate the starting point from Table 1. The column headings come in two parts. The first part indicates the method for making the wage cost adjustment and the second part indicates the method for making the pupil need adjustment.

The same lesson appears in the other rows. The second row describes the educational cost in New York City when the teacher cost approach is used to estimate the foundation level in an average district. The next two rows start with an initial costing out figure based on the cost estimation approach; row three is based on a student performance index of 160 and row four is based on a student performance index of 130. As shown in row three, for example, the cost of reaching the 160 standard in New York City is estimated to be $17,497 per pupil when the DLY wage and student need adjustments are used, but only $14,865 with the AIR/MAP adjustments.

The main lesson from Table 1 (that the performance standard matters) and this new lesson (that the methods for estimating wage and student need costs matter) interact with each other. Indeed, the estimate of required spending per pupil in New York City is almost twice as high with a high standard and a complete cost adjustment (the first row and one of the last two columns in Table 2) as it is with a low standard and an incomplete cost adjustment (the fourth

row and the second column). In addition, the estimate of required spending per pupil increases by a similar proportion, roughly 50 percent, when the standard is boosted from the lowest to the highest one in this table and full cost adjustments are used (which is equivalent to moving from the last to the first row in the last column) or when full cost adjustments are added to the no-adjustment starting point with a high standard (which is equivalent to moving from the first column to one of the last two columns in the first row). Anyone estimating the cost of education finance reform in New York City must pay careful attention both to defining the performance standard and to estimating the wage and cost adjustments.

B. The Total Cost of Education Finance Reform in New York City

These calculations imply that the estimated annual cost of education finance reform for operating expenses in New York City (a cost to be born by some combination of increased local taxes and increased state aid) depends on both the performance standard and on methods used to adjust for wage costs and student disadvantages.

Consider first the entries in the third row of Table 2, which correspond to a performance standard of 160 using the index discussed earlier. Because there were 1.029 million students in New York City in 2001-2002, the total cost of reaching the standard can be found by multiplying the figures in this row by 1.029 million. Subtracting the current City contribution, $5.08 billion, and current state aid to the city $5.715 billion provides an estimate of the cost of reform.[43] Following this reasoning, the estimated cost of education finance reform in New York City ranges from $4.5 billion if the AIR/MAP wage and student need indexes are used to $8.0 billion

[43] These figures come from the New York City Independent Budget Office, "Settling School Finance Suit May Cost City Millions," Inside the Budget NewsFax Number 130, New York: New York City Independent Budget Office, May 27, 2004 (available at http://www.ibo.nyc.ny.us).

if the NYSED wage and DLY student need indexes are used. These results show, once more, the importance of careful wage and student need calculations.

Table 3 presents this type of calculation for all the cases in Table 2 (except those with no cost adjustments). To see how the cost of reform is influenced by the standard that is selected, let us start with the figures in the last column of Table 3, which are all based on the DLY wage and student need indexes. These figures indicate that the additional cost of reform ranges from $3.6 billion with for the low standard in the last row to $10.7 billion for the high standard in the first row.

Table 3.
Added Total Annual Cost to Achieve a Sound Basic Education in New York City, by Approach, Student Performance Standard, and Cost Estimation Method (in millions)

Approach (and standard) for Determining the Cost in a Typical District	Combination of Wage and Student Need Adjustment				
	Wage: AIR/MAP		Wage: NYSED		Wage: DLY
	Need: AIR/MAP	Need: Cost	Need: AIR/MAP	Need: Cost	Need: Cost
Professional Judgment (Regents Learning Standards)	$7,443	$9,048	$9,764	$11,573	$10,671
Teacher Cost (Index Value of 160)	$3,408	$4,657	$5,215	$6,624	$5,922
Cost Estimation (Index Value of 160)	$4,501	$5,847	$6,448	$7,965	$7,209
Cost Estimation (Index Value of 130)	$1,410	$2,484	$2,963	$4,174	$3,570

Notes: The figures in this table equal the figures in Table 2 multiplied by the number of students in New York City, 1.029 million, less current school revenue raised by the City, $5.08 billion, and the amount of state aid currently received by the city, $5.715 billion.

These calculations also provide some perspective on the cost figures in the various education finance reform proposals for New York. To facilitate comparisons, consider as a baseline the cost of $7.2 billion, which is for a standard of 160 for our index of student performance combined with the DLY adjustments for wages and student needs (the third row and last column of Table 3). In our judgment, this is the best available current estimate of the annual cost of achieving the 160 adequacy standard in New York City.

Consider first the CFE proposal. According to Table 3, the professional judgment standard along with the AIR/MAP wage and student need adjustments results in a cost estimate of $7.4 billion. This estimate differs from our baseline because it has a higher standard, which raises the estimated cost, and because it understates the wage and student need adjustments, which lowers the estimated costs. Switching from the first row and column to the third row and first column in Table 3 adjusts for the difference in performance standards and then moving across the third row from the first to the last column accounts for the differences in cost estimates. The net result is a small change, namely, from $7.4 billion to $7.2 billion.

CFE presents a considerably lower cost for its reform plan, namely, $5.6 billion. The difference between this estimate and the $7.4 estimate in Table 3 is that the CFE proposal follows the AIR/MAP report by assuming City schools face significant economies of scale relative to the average district. We estimate that this assumption lowers their estimated cost by about $1.6 billion. Including this factor therefore lowers our estimate of the cost of the CFE plan to ($7.4-$1.6) = $5.8 billion, which is close to the estimate presented by CFE.[44]

We know of no justification for the assumption that New York City benefits from economies of scale relative to the average district. In fact, according to a large academic literature, including studies estimated for New York State, the cost advantages of larger scale are largely exhausted once school district enrollment reaches 2,000 pupils.[45] There is absolutely no

[44] Due to the complexity of the calculations in the AIR/MAP report, we are unable to determine the source of this small difference in cost estimates.

[45] In fact, a number of scholarly studies, including our own studies on New York, find that large districts face significant *diseconomies* of scale. According to our latest estimate, including these diseconomies of scale in the calculation would *raise* the cost of reform in New York City by $2.3 billion. Indeed, diseconomies of scale were included in our 2003 study (W. Duncombe, A. Lukemeyer, and J. Yinger, 2003, op. cit.), which explains why our estimated cost of reform in that study is higher than the $7.2 billion given here. The literature on economics of size is reviewed in M. Andrews, W. Duncombe, and J. Yinger, "Revisiting Economies of Size in American Education: Are We Any Closer to a Consensus?" *Economics of Education Review* 21 (3), June 2002, pp. 245-262. For recent estimates of the diseconomies of scale facing large districts in New York State, see W. Duncombe and J. Yinger,

scholarly evidence to support the claim that economies of scale lead to a lower cost of education per pupil in New York City than in the state's average district.

Because there exists no compelling evidence that New York City benefits from economies of scale, we believe that the best approach at the current time is to exclude scale economies from the costing-out exercise. This raises the cost of the CFE proposals to $7.4 which is virtually the same as our baseline cost.[46] Further examination of economies of scale would be a legitimate issue to consider in any future process for determining the cost of education in New York City relative to other districts.

The Regents proposal calls for $3.8 billion in extra spending for New York City. This figure is lower than the baseline $7.2 billion primarily because it covers a much smaller share of operating spending. In particular, the Regents proposal, unlike the baseline, does not include spending for the board of education, central administration, instructional spending on special education, community services, or operating and maintenance. In other words, this figure is incomplete, because it does not consider the cost of reform in these other operating spending categories.

Because the standard and the costs adjustments are similar, we estimate that if the Regents proposal applied to the same components of operating spending, its cost for New York City would be roughly the same as our baseline cost. Table 3 shows that using the NYSED wage

---

"Financing Higher Student Performance Standards: The Case of New York State," *Economics of Education Review* 19 (4), October 2000, pp. 363-386; W. Duncombe, and J. Yinger, "School Finance Reform: Aid Formulas and Equity Objectives," *National Tax Journal* 51, June 1998, pp. 239-262; and W. Duncombe and J. Yinger, "Why Is It So Hard to Help Central City Schools?" *Journal of Policy Analysis and Management* 16 (1), Winter 1997, pp. 85-113. The issue of diseconomies of scale facing New York City should not be confused with the fact that there are economies of scale for small rural districts, which are documented by many studies. This small-district issue, which is incorporated into the Regents proposal, is obviously not relevant for New York City.

[46] Although the cost of the CFE proposal with no scale adjustment equals our baseline cost for New York City, the cost of the CFE proposal is much higher than the cost of our baseline proposal for the state as a whole because the CFE proposal is based on a higher performance standard.

cost estimate instead of ours would raise the estimated the cost of reform in New York City by a small amount, but the Regents proposal uses both the NYSED wage index and the NYSED weights for disadvantaged pupils, which are somewhat lower that the weights in our baseline (but are not included in Table 3).

The Zarb Commission proposal and the S&P report on which it is based presents a range of cost estimates for New York City based on differences in the adjustment for wage costs (one similar to the CFE adjustment versus the NYSED adjustment), different adequacy standards, and different assumptions about the cost of reaching adequacy in a typical school. These estimates range from $1.9 billion to $7.3 billion. The $7.3 billion figure is based on a performance standard that reflects the Regents NCLB performance targets that are scheduled to be implemented in 2008 (S&P report, Figure 16, p. 26). This target is considerably higher than the performance standard in our baseline figure. It also uses the S&P report's adjustments for student needs, which are considerably smaller than the DLY adjustments, and a wage adjustment based on the NYSED index, which is similar to the DLY adjustment. By coincidence, therefore, higher cost associated with this higher performance target is almost exactly offset by the lower estimated cost associated with the S&P's understatement of the extra costs of student disadvantages, just as it in for the CFE proposal.

The $1.9 billion figure and, indeed, all the figures referenced in the Zarb Commission Report are much lower because they are based on an initial costing-out step that uses only the lowest-spending "successful school districts." (The lowest figures also use the wage adjustment that is similar to CFE's instead of the NYSED wage adjustment). Using only the lowest-spending schools is equivalent to assuming that the lowest-spending schools are the most efficient and that other schools would be just as efficient if they were better managed. Both parts

of this assumption are highly questionable. The successful schools approach on which these figures are based makes no attempt to determine why some schools spend less per pupil than others; the low spending in the selected schools could be due to low wage costs and a low concentration of disadvantaged students, not to efficiency. Moreover, even if some schools get higher performance for a given spending level than others, controlling for wages and student disadvantage, there is no evidence that the methods they use would be successful at other schools.[47]

In summary, our baseline estimate of the additional cost of education finance reform in New York City, $7.2 billion, is based on a standard equal to the current performance on basic tests in the average district in the state, as well as on our own estimates of wage costs and the extra costs of disadvantaged students. This estimate is close to the estimated cost of the CFE proposal if the inappropriate adjustment for scale economies is removed; it is close to the estimated cost of the Regents proposal if that proposal were extended to cover the same share of operating expenditures; and it is close to the highest estimated cost presented in the S&P report.

In the first and last cases, however, it is important to emphasize that the closeness of the estimates is coincidental, in the sense that both the CFE proposal and the most expensive case in the S&P report are based on higher performance standards combined with procedures that underestimate the extra costs of disadvantaged students in New York City. In our view, accurate estimate of these extra costs would greatly increase the estimated cost of attaining these high

[47] For a more detailed critique of the Successful Schools Approach, see Duncombe, Lukemeyer, and Yinger, 2004, op. cit.

performance standards. For example, we estimate that the additional cost of attaining the standard proposed by CFE would be $10.7 billion.[48]

The cost of reform in New York City would be considerably lower with a lower performance standard. The additional cost for a standard equal to 130 on our index, for example, would be only $3.6 billion, using our wage and student need adjustment. However, CFE, the Regents, and the Zarb Commission all reject such a low standard.

8. Setting the Required Local Contribution

The *CFE* decision focuses on expenditures, not on revenues, and has little to say about the appropriate methods for funding a sound basic education in New York City. Nevertheless, the framework provided by a foundation formula reveals that several aspects of funding need to be considered by this panel.

As noted earlier, a foundation aid program provides the difference between a district's foundation amount and its expected local contribution. Thus, a final step in a designing a foundation aid program is deciding what the local contribution should be. This is another legal/political step. This expected contribution from New York City (or any other district) cannot be determined on scientific grounds, but must instead be selected by the State's policy makers, including this panel, based on a judgment about the share of the financing burden that should fall on the City.

We would like to make three points about the expected local contribution. The first point is that unless this contribution is required, not simply recommended, a district may not achieve the spending level needed to reach the adequacy target. To be more specific, if foundation aid for New York City equals a foundation amount minus an expected local contribution, then total

[48] Moreover, as noted earlier, S&P's own simulation program implies that the cost of reform would at least double if the extra weights for students eligible for a subsidized lunch or with limited English proficiency were raised to 1.0.

spending in the City will be less than the foundation amount unless the City actually raises the revenue "expected" by this formula. Because districts respond to more state aid by cutting their own taxes, cities that receive a lot of education aid sometimes choose relatively low school taxes.[49] To prevent this outcome, most states with foundation plans make the "expected" contribution mandatory.[50] New York State has not taken this step with its (small) existing foundation plan, but the mandate of the Court of Appeals cannot be satisfied without making the local contribution a requirement.

The second point is that in most states this contribution is expressed as a share of the local property tax base. This approach is used because the local property tax is the main source of local revenue for schools, but it causes no difficulty in a city like New York in which the income tax also provides school revenue. The expected contribution is defined as a share of the property tax base, but it need not be collected through the property tax. The measure of a district's revenue-raising capacity that is used in New York State is a combined wealth ratio, CWR, which reflects both income and the property tax base. In our view, CWR is acceptable, but it is a less appropriate measure of a district's revenue-raising capacity than is the property tax base alone.[51]

The third point is that it would not be fair to New York City for the State of New York to set the City's local contribution higher than the local contribution in other school districts. This principle is supported in the *CFE* decision, in which the Court reiterates that one of the purposes of school aid is to

[49] For evidence on the impact of educational aid on local property taxes in New York, see W. Duncombe and J. Yinger, "Alternative Paths to Property Tax Relief," in W.E. Oates, editor, *Property Taxation and Local Government Finance* (Lincoln Institute of Land Policy, 2001), pp. 243-294; W. Duncombe and J. Yinger, 1997, 1998, 2000, op. cit.

[50] According to Huang, 2004, op. cit. Table B4, 30 states impose a minimum required local contribution.

[51] As explained in H.F. Ladd and J. Yinger, *America's Ailing Cities*, updated edition (Baltimore: Johns Hopkins University Press, 1988), the district's capacity to raise revenue should reflect both its income and its ability to shift taxes to nonresidents. The property tax base combines these two elements, but income leaves out the second.

"equalize school revenues by providing State aid in inverse proportion to each school district's ability to raise local revenues" (p. 49). Thus, a reform plan should limit the extent to which the burden of increased educational spending falls on the City's taxpayers. One way to do this would be to set a maximum, as well as a minimum, on the City's required local contribution. The City could exceed this maximum if it wanted to, but should not be required to do so.

9. Reforming Capital Spending

Any education finance reform plan needs to consider capital spending as well as operating spending. Unfortunately, however, the issues that arise in reforming capital spending are difficult to study and many of them are not well understood. We are currently engaged in some research on capital spending in New York State, but this research is not completed and, even if it were, it would not provide a complete picture of capital spending in the City or State.[52] Nevertheless, we believe that three points about capital spending are worth emphasizing.

First, the methods used to estimate required operating spending cannot be applied to capital spending. The link between capital spending and student performance is poorly understood and the long life of school buildings introduces important new issues that need to be considered. A focus on building conditions and classroom requirements is far more sensible, in our view, than any attempt to link capital needs with student performance.

Second, capital spending needs are directly connected with programs to reduce class size and to provide pre-kindergarten programs. This type of connection is explicitly recognized by the Court of Appeals in its discussion of school facilities and classrooms (*CFE* decision, pp. 17-20). As noted earlier, and as recognized by the Court, there is considerable support for the

[52] A preliminary version of our analysis can be found in W. Duncombe "Financing Bricks and Mortar: State Building Aid and the School District Response," paper presented at the annual conference of the American Education Finance Association, March 2003 (available at http://www-cpr.maxwell.syr.edu/faculty/duncombe/special%20report/buildingaid%20.pdf).

effectiveness of the programs as ways to promote student performance, and they obviously cannot be implemented if the necessary classrooms are not available. As a result, the first requirement of any capital spending reform should be to fund the construction of these classrooms. This is exactly the philosophy behind the new BRICK program proposed by CFE, which we endorse.

Third, the current building aid program in New York State has proven to be ineffective in stimulating capital improvements in many urban school districts. This program offers matching funds to school districts for various forms of building construction or rehabilitation. The program is very complicated, however, and despite matching rates that can reach 95 percent, some urban districts have not taken advantage of the program to modernize their facilities. Some of these issues are been examined by CFE and we support their proposed reforms to the State's building aid program. We also urge this panel to recognize that a high matching rate may not be sufficient to encourage needed construction or modernization; capital improvements that are regarded as essential, such as those providing required classrooms, should be obligatory.

10. Designing an Accountability Program

States obviously have an interest in ensuring that their education aid money is well spent, and even before the NCLB was passed in 2001, states around the country were implementing school accountability programs.[53] Most of these programs are based on student test scores (or changes in test scores) and some of them involve rewards and sanctions based on the level or change in a school district's test scores. Concern about effective use of resources is heightened,

[53] Catalogues of state accountability programs can be found in M. E. Goertz and M. C. Duffy with K. C. Le Floch, "Assessment and Accountability Systems in the 50 States: 1999-2000." Consortium for Policy Research in Education CPRE Research Report Series RR-046. Philadelphia: University of Pennsylvania, March 2001, and T. J. Kane and D. O. Staiger, "The Promise and Pitfalls of Using Imprecise School Accountability Measures," *Journal of Economics Perspectives* 16 (4) (Fall 2002), pp. 91-114.

of course, when an education finance reform leads to a large increase in state aid to a particular district.[54]

The key challenge facing any school accountability program is that it is very difficult to separate the impact on student performance of factors inside a school or school district's control, such as its choice of a curriculum or management system, from the factors outside its control, such as the amount of aid it receives or its concentration of disadvantaged students. The share of students passing a standardized test obviously reflects both types of factors, so an accountability system that simply rewards or punishes districts (or schools) based on test scores is inherently unfair and ineffective. It makes no sense, after all, to punish a district because it has a high concentration of disadvantaged students—and therefore has relatively low test scores. Similarly it makes no sense to punish a district because it has a large influx of immigrant children who do not speak English—an influx that leads test scores to decline. As a final example, it makes no sense to punish a particular school with low test scores if that school has not received its fair share of revenue from its district (or its district has not received its fair share of revenue from the state).

Unfortunately, no existing accountability system provides a clear solution to this problem. Some states provide a partial solution by dividing districts into classes based on poverty and enrollment and then basing rewards and sanctions only on within-class comparisons. Attempts by states to move in this direction have been undercut, however, by NCLB, which bases its rankings and sanctions exclusively on changes in test scores. NCLB also imposes target performance levels for many different classes of students, and some scholars believe that "the

[54] Moreover, there is some evidence that increasing a district's state aid will reduce its efficiency. See Duncombe and Yinger, 1997 and 1998, op. cit.

school districts with the highest fractions of minority and low-income students… are the schools projected to lose the most under federal accountability rules."[55]

Overall, therefore, there is widespread agreement that accountability systems are a good idea, but no consensus whatsoever on the best way to design them. Moreover, the scholarly literature does not provide much support for the conclusion that existing accountability systems can raise student performance in a state, holding expenditure constant.[56] Perhaps the main lesson from the scholarly literature is that an accountability system is bound to fail unless it recognizes the role of factors outside a district's (or a school's) control, such as the share of students from poor families or with limited English proficiency.

Another important challenge facing school accountability systems is that knowledge about the best curricular and management programs to implement is limited. In many cases, the problem is not that schools are refusing to select programs that are known to work, but is instead that that nobody knows what programs are needed to bring a particular school or school district up to a performance standard. School districts cannot be expected to solve this problem on their own. They do not have adequate research department, and they are generally not able to conduct well designed program evaluations.

In our view, it is the responsibility of New York State to provide information on existing research, and to conduct new research, concerning the effectiveness of various curricular and management programs, and then to provide this information to school districts. In other words,

---

[55] This quotation is from page 110 of D. Figlio, "Funding and Accountability: Some Conceptual and Technical Issues in State Aid Reform," in *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. 87-110.

[56] One study, H. F. Ladd, "The Dallas School Accountability and Incentive Program: An Evaluation of Its Impacts on Student Outcomes," *Economics of Education Review* 18 (1) (February 1999), pp. 1-16, provides some evidence that one accountability program boosted test scores a small amount, but this accountability system, which adjusted for a school's share of disadvantaged students, is very different from NCLB or anything that has yet been proposed for New York.

any school accountability system must begin by holding the State accountable for the provision of good information. The natural state agency for meeting this responsibility in New York is the State Education Department, which currently does not have the staff or funding to play this role.

This perspective provides another reason to be cautious about imposing rewards and penalties on schools or districts with low test scores or with test scores that do not improve. If a district has implemented every curricular and management program known to boost test scores and is being run in an effective manner, it does not make any sense to penalize it. Instead, it makes sense for the State to search for additional programs that will help that district and districts like it.

This discussion suggests that the accountability system proposed by the Zarb Commission goes way too far. To be specific, the Zarb Commission recommends that schools failing to raise test scores will be closed and then reconfigured, turned into charter schools, or, in extreme cases, taken over by the state. This accountability system does not account in any way for factors outside a school's control and it does not recognize the State's responsibility for providing good information. Moreover, the Zarb Commission's aid proposals do not provide nearly enough money to account for the high costs of teachers and the extra costs of disadvantaged students in New York City. With these aid proposals, therefore, New York City schools cannot be expected to reach the same performance standard as a typical district, and it would be both unfair and ineffective to impose sanctions when they fail to do so.

It is important to reiterate that the scholarly literature does not contain any compelling evidence that a punitive accountability system, such as the one recommended by the Zarb Commission, can be effective in boosting student test scores.[57]

[57] See, for example, D. Figlio, 2004, op. cit.

In our view, therefore, a fair and effective school accountability system for New York would have the following parts, some of which are already in place:

- Continued use of school report cards to provide good information to parents, including information on the performance of each school relative to comparable schools.
- New resources for the New York State Education Department to help it identify curricular and management programs that boost school performance through well designed program evaluations and other research.
- A program that identifies schools that have low scores and have failed to improve and then initiates a collaboration between the school, the school district, and the NYSED to identify programs that would help raise the school's performance.
- A research program to develop and validate accountability measures capable of identifying schools with severe mismanagement. This program should explicitly account for factors outside a school's control, such as a concentration of disadvantaged students or a lack of adequate funding. If valid and reliable measures of this type can be developed, then they can be used in an accountability program that includes sanctions as well as rewards.

11. Conclusions

The Court of Appeals mandate in the *CFE* case comes down to this: New York State must find a way to significantly boost student performance in New York City. This is an enormously difficult task.

Once a student performance standard is specified, the next step is to estimate how much it would cost for New York City to meet this standard. Estimating this cost accurately is an enormously difficult task, and reasonable people can disagree about the best way to proceed. The first key point in this brief is that the challenges that arise in this step are essentially scientific challenges, and an accurate estimate cannot be obtained unless the relevant scientific questions are debated and incorporated into the decision making process.

Existing estimates of the cost of education finance reform in New York City range from an increase of little more than $1 billion per year to an annual increase of $10 billion or more. The second key point in this brief is that these estimates differ primarily for two reasons: they are based on different performance standard and they make different adjustment for wage costs and the extra costs of disadvantaged students. Any proposal that sets a high student performance standard and makes wage and student need adjustments that are close to those estimated by scholars will come in near the high end of this range. In contrast, a proposal that sets a low performance standard and includes only minimal adjustments for wage costs and student needs will come in near the low end.

More specifically, we estimate that the additional cost of bringing New York City up to the current statewide average performance level on the basic elementary, middle, and high school tests administered by the Regents would be about $7.2 billion per year for operating expenses.

Once its illegitimate adjustment for economies of scale is eliminated, the CFE proposal appears to cost about the same amount, even though it sets a much higher performance standard. This apparent similarity in costs reflects the fact that the cost adjustments in the AIR/MAP report on which the CFE proposal is based significantly understate both wage costs and the extra costs of disadvantaged students in New York City.

The Zarb Commission and the S&P report upon which it draws examine a wide range of proposals with different costing-out methodologies. Using the best methodology in the S&P report, the proposal with the highest standard is estimated to cost about $7.3 billion. This estimate is based on a significantly higher standard than the one on which our $7.2 billion cost estimate, but, like the estimate for the CFE proposal, it also builds on methods that severely understate the extra costs of disadvantaged students.

We conclude that the performance standard in the CFE proposal and the highest standard in the Zarb Commission proposal could not be achieved at a cost near $7.2 billion, but would instead require $10 billion or more.

It would be possible, of course, for the state's policy makers to settle for a $7 billion increase and then accept a lower performance standard in the City than the ones specified in the CFE and Zarb Commission proposals. The danger with this approach is that the City will be blamed for not achieving the high performance standards in these proposals even though the failure to achieve these standards results from insufficient funding, not insufficient effort from the City. We believe it would be better to base a program on a more realistic performance standard and a more accurate estimate of the City's relatively high wage and student need costs.

This bring us to our third key point, namely, that an accountability system can be neither fair nor effective if punishes New York City or individual City schools for low student

performance caused by a concentration of disadvantaged students, a lack of knowledge about the most appropriate programs to implement, a lack of adequate funding, or any other factor that is outside its control. Unfortunately, however, the Zarb Commission's accountability proposals involve exactly this type of punishment. The best accountability program, in our view, is one that provides assistance to low-performing schools and that develops new methods for determining which schools are not performing well even though they have all the funding and programmatic information they need.

Dated: September 17, 2004

Respectfully submitted**,**

By:_____

John Yinger
Trustee Professor of Public Administration and Economics
Syracuse University
The Maxwell School
426 Eggers Hall
Syracuse, New York 13244
Telephone: (315) 443-9062
Facsimile: (315) 443-1081
Email: jyinger@maxwell.syr.edu

By: _____

William Duncombe
Professor of Public Administration and Economics
Syracuse University
The Maxwell School
426 Eggers Hall
Syracuse, New York 13244
Telephone: (860) 424-1946
Facsimile: (315) 443-1081
Email: jyinger@maxwell.syr.edu

Attachment A
Selected Publications on Education Finance by William Duncombe and John Yinger

Joint Publications

"Does Whole-School Reform Boost Student Performance: The Case of New York City" (with R. Bifulco). *Journal of Policy Analysis and Management*, Forthcoming.

"How Much More Does a Disadvantaged Student Cost?" *Economics of Education Review*, Forthcoming.

"Financing an Adequate Education: The Case of New York" (with A. Lukemeyer). In *Developments in School Finance: 2001-02*, edited by W. J. Fowler, Jr. (Washington, D.C.: National Center for Education Statistics, 2003), pp. 127-154.

"Revisiting Economies of Size in American Education: Are We Any Closer to a Consensus?" (with M. Andrews). *Economics of Education Review* 21 (3), June 2002, pp. 245-262.

"Alternative Paths to Property Tax Relief." In *Property Taxation and Local Government Finance*, edited by W.E. Oates (Cambridge, MA: Lincoln Institute of Land Policy, 2001), pp. 243-294.

"Financing Higher Student Performance Standards: The Case of New York State." *Economics of Education Review* 19 (4), October 2000, pp. 363-386. [Winner of the award for Outstanding Published Research in Year 2000 from the State Academy for Public Administration.]

"Performance Standards and Educational Cost Indexes: You Can't Have One Without the Other." In *Equity and Adequacy in Education Finance*, edited by H. F. Ladd, R. Chalk, and J. S. Hansen (Washington, D.C.: National Academy Press, 1999), pp. 260-297.

"School Finance Reform: Aid Formulas and Equity Objectives." *National Tax Journal* 51 (2), June 1998, pp. 239-262.

"An Analysis of Two Educational Policies in New York State: Performance Standards and Property Tax Relief." In *Educational Finance to Support Higher Learning Standards*, edited by J. H. Wyckoff (Albany, NY: New York State Board of Regents, 1998), pp. 98-137.

"Why Is It So Hard to Help Central City Schools?" *Journal of Policy Analysis and Management* 16 (1), Winter 1997, pp. 85-113.

"Alternative Approaches to Measuring the Cost of Education" (with J. Ruggiero). In *Holding Schools Accountable: Performance-Based Reform in Education*, edited by H.F. Ladd (Washington, D.C.: The Brookings Institution, 1996), pp. 327-356.

Other Publications by William Duncombe

"Balancing District Needs and Student Needs: The Role of Economies of Scale Adjustments and Pupil Need Weights in School Finance Formulas" (with Bruce Baker). *Journal of Education Finance,* Forthcoming.

"The Impacts of School Finance Reform in Kansas: Equity is in the Eye of the Beholder" (with J. Johnston). In *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. 147-194.

"Evaluating School Performance: AreWe Ready for Prime-Time?" (with Robert Bifulco). In *Developments in School Finance, 1999-2000,* edited by W. J. Fowler (Washington, D.C.: National Center for Education Statistics, 2002), pp. 11-28.

"Identifying Low-Performance Public Schools" (with S. Ammar, R. Bifulco, and R, Wright). *Studies in Educational Evaluation,* 2000, 26: 259-287

"Tax Policy and Public School Finance" (with L. Blanchard). In *Handbook on Taxation*, edited by B. Hildreth and J. Richardson (New York: Marcel Dekker, Inc., 1999), pp. 345-400.

"Balancing Conflicting Policy Objectives: The Case of School Finance Reform" (with J. Johnston). *Public Administration Review*, March/April 1998, pp. 145-166.

"Educational Aid." In *The International Encyclopedia of Public Policy and Administration*, edited by Jay Shafritz (New York: Henry Holt and Company, 1997), pp. 741-746.

"On the Measurement and Causes of Technical Inefficiency in Local Public Service: With an Application to Public Education" (with J. Miner and J. Ruggiero). *Journal of Public Administration Research and Theory*, October 1995, pp. 403-428.

"Potential Cost Savings from School District Consolidation: A Case Study of New York" (with J. Miner and J. Ruggiero). *Economics of Education Review* 14 (3), September 1995, pp. 356-384.

Other Publications by John Yinger

Helping Children Left Behind: State Aid and the Pursuit of Educational Equity, Editor (Cambridge, MA: MIT Press, 2004).

"State Aid and the Pursuit of Educational Equity: An Overview." In *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger, editor (Cambridge, MA: MIT Press, 2004), pp. 3-57.

"Appendix A: A Guide to State Court Decisions on Education Finance" (with Y. Huang and A. Lukemeyer). In *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. 317-330.

"Fiscal Disparities and Education Finance." In *The End of Welfare? Consequences of Federal Devolution for the Nation*, edited by M. B. Sawicky (Armonk, NY: M.E. Sharpe, 1999), pp. 194-227.

"Sorting and Voting: A Review of the Literature on Urban Public Finance" (with S. Ross). In *Handbook of Urban and Regional Economics, Volume 3, Applied Urban Economics*, edited by P. Cheshire, and E.S. Mills (Amsterdam: North-Holland, 1999), pp. 2001-2060.

"The Case for Equalizing Aid" (with H.F. Ladd). *National Tax Journal* 47 (1), March 1994, pp. 211-224.

"The Fiscal Condition of School Districts in Nebraska*:* Is Small Beautiful?" (with K. Ratcliffe and B. Riddle). *Economics of Education Review* 9 (1), January 1990, pp. 81-99.

"State Aid to Offset Fiscal Disparities Across Communities" (with K. L. Bradbury, H. F. Ladd, M. Perrault, and A. Reschovsky). *National Tax Journal* 37 (2), June 1984, pp. 151-170.

Attachment B
Research on Costing Out

The Successful Schools Approach

J. Augenblick, *Determining a Base Student Cost Figure for Use in Ohio's School Foundation Progra*m. Report to The Alliance for Adequate School Funding, 1993.

J. Augenblick. *Recommendations for a Base Figure and Pupil-Weighted Adjustments to the Base Figure for Use in a New School Finance System in Ohio.* Report presented to the School Funding Task Force, Ohio Department of Education, 1997.

Standard and Poor's, *Resource Adequacy Study for the New York State Commission on Education Reform*, New York: Standard and Poor's School Evaluation Services, March 2004. Aavailable at http://www.spses.com.

The Professional Judgment Approach

J. G. Chambers, T. B. Parrish, J. D. Levin, J. R. Smith, J. W. Guthrie, and R. Seder, *The New York Adequacy Study: Determining the Cost of Providing All Children in New York an Adequate Education, Volume I—Final Report*, American Institutes for Research/Management Analysis and Planning, March 2004. Available at http://www.cfequity.org/FINALCOSTINGOUT3-27-04.pdf.

J. W. Guthrie and R. Rothstein, "Enabling 'Adequacy' to Achieve Reality: Translating Adequacy into State School Finance Distribution Arrangements." In *Equity and Adequacy in Education Finance: Issues and Perspectives*, edited by H. F. Ladd, R. Chalk and J. Hansen (Washington, DC: National Academy Press, 1996), pp. 209-259.

Maryland Commission on Education Finance, Equity, and Excellence, *Final Report*. Baltimore: Maryland Commission on Education Finance, Equity, and Excellence, 2002. Available at http://mlis.state.md.us/other/ education/Full_AM_Report.pdf.

The Cost Estimation Approach

K. L. Bradbury, H. F. Ladd, M. Perrault, A. Reschovsky, and J. Yinger, "State Aid to Offset Fiscal Disparities Across Communities," *National Tax Journal* 37 (2), June 1984, pp. 151-170.

P. N. Courant, E. N. Gramlich, and S. Loeb, "A Report on School Finance and Educational Reform in Michigan." In *Midwest Approaches to School Reform*, edited by T.A. Downes and W.A. Testa (Chicago: Federal Reserve Bank of Chicago, 1995), pp. 5-33.

T. A. Downes and T. F. Pogue, "Adjusting School Aid Formulas for the Higher Cost of Educating Disadvantaged Students." *National Tax Journal* 67, March 1994, pp. 89-110.

W. Duncombe and J. M. Johnston, "The Impacts of School Finance Reform in Kansas: Equity Is in the Eye of the Beholder." In *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. 147-194.

W. Duncombe and A. Lukemeyer, "Estimating the Cost of Educational Adequacy: A Comparison of Approaches." Paper presented at the Annual Conference of the American Education Finance Association, March 2002. Available at http://www-cpr.maxwell.syr.edu/faculty/duncombe/ special%20report/costofeducadeq.pdf.

W. Duncombe, A. Lukemeyer, and J. Yinger, "Financing an Adequate Education: A Case Study of New York." In *Developments in School Finance: 2001-2002*, edited by W. J. Fowler, Jr. (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, June 2003), pp. 127-154. Available at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003403.

W. Duncombe, J. Ruggiero, and J. Yinger, "Alternative Approaches to Measuring the Cost of Education." In *Holding Schools Accountable: Performance-Based Reform in Education*, edited by H.F. Ladd (Washington, D. C.: The Brookings Institution, 1996), pp. 327-356.

W. Duncombe and J. Yinger, "How Much More Does a Disadvantaged Student Cost?" *Economics of Education Review*, Forthcoming.

W. Duncombe and J. Yinger, "Financing Higher Student Performance Standards: The Case of New York State," *Economics of Education Review* 19, October 2000, pp. 363-386.

W. Duncombe and J. Yinger, "Performance Standards and Educational Cost Indexes: You Can't Have One Without the Other." In *Equity and Adequacy in Education Finance*, edited by H. F. Ladd, R. Chalk, and J. S. Hansen (Washington, D.C.: National Academy Press, 1999), pp. 260-297.

W. Duncombe, and J. Yinger, "School Finance Reform: Aid Formulas and Equity Objectives." *National Tax Journal* 51, June 1998, pp. 239-262.

W. Duncombe and J. Yinger, "Why Is It So Hard to Help Central City Schools?" *Journal of Policy Analysis and Management* 16 (1), Winter 1997, pp. 85-113.

J. Imazeki and A. Reschovsky, "School Finance Reform in Texas: A Never Ending Story?" In *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*, edited by J. Yinger (Cambridge, MA: MIT Press, 2004), pp. 251-281.

K. Ratcliff, B. Riddle and J. Yinger, "The Fiscal Condition of School Districts in Nebraska: Is Small Beautiful?" *Economics of Education Review* 9 (1), January 1990, pp. 81-99.

A. Reschovsky and J. Imazeki, "The Development of School Finance Formulas to Guarantee the Provision of Adequate Education to Low-Income Students." In *Developments in School Finance, 1997: Does Money Matter?*, edited by W.J. Fowler Jr. (Washington, D.C.: U.S. Department of Education, National Center for Educational Statistics, 1998), pp. 121-148.

A. Reschovsky and Jennifer Imazeki, "Achieving Educational Adequacy Through School Finance Reform." *Journal of Education Finance* 26(Part 4), Spring 2001, pp. 373-396.

A. Reschovsky and J. Imazeki, "Let No Child Be Left Behind: Determining the Cost of Improving Student Performance." *Public Finance Review* 31, May 2003, pp. 263-290.

Comparisons of Various Approaches

B. D. Baker, L. Taylor, and A. Vedlitz, *Measuring Educational Adequacy in Public Schools*. Report prepared for the Texas School Finance Project of the Texas Legislature, 2004. Available at http://www.capitol.state.tx.us/psf/reports.htm

W. Duncombe and A. Lukemeyer, "Estimating the Cost of Educational Adequacy: A Comparison of Approaches." Paper presented at the Annual Conference of the American Education Finance Association, March 2002. Available at http://www-cpr.maxwell.syr.edu/faculty/duncombe/ special%20report/costofeducadeq.pdf.

W. Duncombe, A. Lukemeyer, and J. Yinger, "Education Finance Reform in New York: Calculating the Cost of a Sound Basic Education," Center for Policy Research Policy Brief No. 28/2004, Syracuse, NY: Syracuse University, March 2004. Available at http://cpr.maxwell.syr.edu/efap/Policy%20Briefs/publications/policy_brief_main_page.htm.

J. W. Guthrie and R. Rothstein, "Enabling 'Adequacy' to Achieve Reality: Translating Adequacy into State School Finance Distribution Arrangements." In *Equity and Adequacy in Education Finance: Issues and Perspectives*, edited by H. F. Ladd, R. Chalk and J. Hansen (Washington, DC: National Academy Press, 1996) pp. 209-259.