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A New Constitutional Cost Methodology for Determining the Actual Cost of a
Sound Basic Education

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Abstract

Over the past 25 years, there has been a proliferation of cost studies that estimate the amount of funding needed to provide all students an opportunity for an adequate education. The widespread use of these studies stemmed from court orders that have required states to determine the “actual cost” of providing an adequate education.

Use of the four established methodologies for undertaking these studies (professional judgment, evidence based, successful schools, and cost function) has made education-funding decisions more transparent and more systematic. Nevertheless, there are substantial problems that affect all of these methodologies that can be ameliorated. A constitutional cost methodology that is implemented with systematic research and analytic support can eliminate many of the deficiencies that affect each of the established methodologies, while retaining many of their positive aspects.

The constitutional cost methodology we describe (a) systematically applies constitutional standards, relevant state statutes, regulations, and other legal requirements related to education to the cost-analysis enterprise; (b) incorporates into the analysis evidence of resources and practices that have proved effective; and (c) is overseen by a permanent commission composed of policy makers, educators, and researchers that undertakes systematic cost effectiveness analyses and recommends necessary revisions to the state’s cost analyses every two years.

Introduction

More than 100 cost studies (sometimes called “adequacy studies”) that estimate the amount of funding needed to provide all students the opportunity for an adequate education have been undertaken in 40 states and the District of Columbia over the past 25 years. The proliferation of these studies is directly related to the impact of the school-funding “adequacy cases” that have been brought in 45 of the 50 states. Court decisions in some of these cases have specifically required states to determine the “actual cost” of a “sound basic education” (*Campaign for Fiscal Equity v. State of New York*, 2003)¹ or to identify the “‘proper’ educational package each...student is entitled to have” (*Campbell County School District v. State of Wyoming*, 1995). In other cases, cost studies have constituted important evidence of students’ educational resource needs. Virtually all of these studies have been based on one or more of four established methodologies: professional judgment, evidence based, successful schools, and cost function.

The goal of these court orders has been to ensure that state education finance systems provide adequate levels of funding, based on student needs, to guarantee all students a meaningful opportunity to meet constitutional requirements and/or state standards. Systematic cost analysis would substitute a more transparent and more objective method for calculating students’ educational resource needs for the political negotiations traditionally used to determine state appropriations for the education budget and to distribute the available funds to school district.

¹ The education clauses of virtually all of the state constitutions contain language that requires the state to provide all of its students “an adequate public education,” “a thorough and efficient education,” a “high quality system of free public schools,” or a “sound basic education.” In this paper, we will use “sound basic education” as a generic term to refer to all of these constitutional requirements.

However, experience has demonstrated that each of the established methodologies has a number of weaknesses, some of which are particular to the specific methodology and others of which pertain to all of them. The current approaches to determining the actual cost of an adequate or sound basic education can be improved in their objectivity, accuracy, and responsiveness to students' educational rights.

We seek to improve on existing methodologies by returning cost analysis in education to its constitutional roots. The “constitutional cost methodology” we describe in this paper is designed to calculate the costs of providing the specific resources needed to fulfill students' constitutional rights, while, at the same time, promoting improved outcomes and cost-effectiveness. This approach aims to do so by establishing substantive constitutional input and outcome parameters, promoting the systematic use of evidence of best practices and cost-effective alternatives, and utilizing a transparent process that promotes focused professional and public input under the auspices of a permanent state commission.

The Current Approach to Cost Analysis

Established Methodologies

Cost-analysis methodologies aim to identify and explain the factors that should be considered in assessing resources necessary to provide all students the opportunity for an education that meets stated outcome standards. Each method uses specific evidence and particular assumptions to develop estimates of the appropriate level of funding. They utilize the knowledge and experience of experts (educators, academics, economists, and/or statisticians, depending on the method) to identify the relevant evidence and assumptions. The recommendations that emerge from a costing-out analysis are rarely adopted *per se*, without modification; rather, policymakers use these recommendations as guidelines to make final

decisions about the level and distributions of resources that should be provided to meet student needs.

Four major methodologies for conducting adequacy studies have emerged in recent years: (1) professional judgment, (2) evidence based, (3) successful schools, (4) and cost function. The professional-judgment method, as the name implies, relies on intensive analyses and discussions among representative panels of experienced educators, administrators, and business managers to determine the resources, services, and supports required for schools with varying demographic characteristics (e.g., numbers of English language learners and students living in poverty), the costs of which are then calculated by economists. The evidence-based approach uses certain education research studies to develop educational models from which specific aggregate and per-pupil costs can then be calculated. The successful-schools approach articulates criteria for defining a “successful” school or school district, identifies a number of schools or districts that meet these criteria, and then uses the average expenditure of these schools or districts as a base foundation figure to which calculations for extra student needs and other adjustments are added to develop a statewide formula. The cost-function method uses statistical techniques based on past performance data to determine how many dollars a particular school district would need to spend per student, relative to the average district in the state, to achieve a specific performance target or targets, given the characteristics of the district and its student body.

Professional judgment has been the most widely used of the current cost methodologies, and the predominant pattern in recent years has been for cost studies to rely on professional-judgment processes that are combined with or incorporate elements of the evidence-based, successful schools, and/or cost function approaches. For example, Augenblick, Palaich and Associates (2007) utilize professional judgment, successful schools, and evidence-based

approaches; Odden, Picus, and Fermanich (2003) combine evidence-based and professional judgment approaches; and American Institutes for Research (2008) combine professional judgment with aspects of successful-schools and evidence-based approaches.

Shortcomings of the Established Methodologies

Although each of these methodologies has, in practice, evidenced particular implementation problems, they share four fundamental deficiencies. First, the desired student outcomes on which the analyses focus have often been unclear, indeterminate, or unattainable. Second, the additional costs involved in meeting the educational needs of students living in poverty, students with disabilities, and English language learners have often been calculated based on criteria that are not grounded in actual experience or research. Third, actual cost and systematic cost-effectiveness factors have not been sufficiently incorporated. Finally, though all of these methodologies can produce more analytic, objective, and transparent calculations of the costs of educating students than the largely political deal-making approach for deriving education allocations that has predominated in the past, each of them is vulnerable to and, in practice, has often been subject to, an improper and unnecessary degree of subjectivity and political manipulation.²

² Eric A. Hanushek rejects all of the existing methodologies out of hand because none provides a “scientific” approach that can identify a precise figure that can definitively achieve desired outcomes (see, e.g., Hanushek, 2006; Hanushek & Lindseth, 2009). We do not claim the constitutional cost methodology that we describe in this paper will meet Hanushek’s standard of “scientific” precision, and Hanushek himself offers no alternative that would do so. In fact, the precision that Hanushek seeks is specious. (Duncombe, 2006.) While money clearly matters in education, it is a challenge to establish a definitive causal relationship between a particular funding amount and a specific educational outcome because the educational enterprise inherently involves such a wide array of factors and variables. The real-world aim of cost analysis is to determine which of the reasonably available alternative approaches utilizes evidence most effectively to achieve a fair, efficient, and satisfactory outcome. Hanushek abandons the quest for improved use of social science evidence in cost methodologies and would allow education finance decision-making to revert to traditional unconstrained legislative practices. However, it is clear that in many cases, unbridled legislative decision-making leads to funding systems that are manipulated for political reasons and that ignore students’ actual educational needs (see, e.g., Baker & Green, 2005).

Untenable Outcome Criteria

Early adequacy studies tended to focus on “inputs,” that is, on determining the types and quantities of resources that should be available to all children to provide them an “appropriate” or “adequate” education (Chambers and Parrish, 1994; Guthrie and Rothstein, 1999). The emergence in the 1990s of standards-based reform and then the enactment of the federal No Child Left Behind Act of 2001 (NCLB) provided a fount of data on student performance, especially as measured by test scores in reading and mathematics, that cost analysts began to convert into outcome targets for adequacy studies. However, in the application of existing methodologies, the student outcomes chosen as targets and against which the analysts calibrate their calculations have often been indeterminate, or unattainable. Many, if not most, of the studies during these years tended to adopt outcome goals that were based on NCLB’s requirement that all students (100%) achieve proficiency on state reading and math tests by 2014, and that they make definable progress toward that goal in each of the years between 2002 and 2014.

Reliance on this testing data, despite its obvious appeal for performance-tracking purposes, presented two major problems. First, the focus on a limited number of standardized achievement tests neglected the broader set of outcomes that a successful school experience should encompass. Second, the use of NCLB test score targets, which were calibrated against the mandate that all students be proficient in reading and math by 2014, raised a credibility problem. During the years in which NCLB was in effect, almost no one believed that the 100% proficiency mandate could be met (Rebell and Wolff, 2008), and no state did, in fact, reach the 100% target by 2014. (The 2015 reauthorization of the law, the Every Student Succeeds Act (ESSA), repealed the 100% proficiency requirement.)

Since 2002, many cost studies that used the professional-judgment approach asked their panels to utilize NCLB's 100% proficiency mandate as outcome goals for their deliberations (see, e.g., Augenblick, Palaich and Associates, 2003, 2007). Evidence-based studies also used the 100% proficiency mandate as their target: "the adequacy question today is whether the ... base provides sufficient funding for each school in the state to deploy powerful enough educational strategies to ... have all students performing at or above the proficiency level on the state's student testing system by 2014" (Odden, Fermanich, and Picus, 2003; see also, Odden, Picus, and Price, 2014). The successful-schools and cost-function methodologies, which depend on available statistics, have tended to utilize as their outcome targets percentages of students achieving proficiency on specified achievement tests or the "interim" adequate yearly progress (AYP) goals that NCLB permitted for assessing year-by-year progress.

For example, the successful-schools methodology utilized by the New York State Education Department in 2012 defined a successful school district in terms of whether, throughout the district and over a three-year period, an average of 80% of students achieved "level-3" scores (on a four-level scale) on the fourth- and eighth-grade English language arts and mathematics exams and a 65 or more on six different high-school Regents exams (New York State Board of Regents, 2012, pp. 44-59). There is no explanation of the 80% figure or for the use of an average of 80% across all tests rather than on each test, nor was there any justification based on existing state policy or declared goals. Similarly, in Texas, two cost-function studies reached dramatically different results largely because one of them used the current year's interim AYP target of 55% of students reaching the proficiency level, while the other used that level, as well as the 70% and 90% rates that would be in effect in certain future years (Imazeki and Reschovsky, 2005).

Arbitrary Extra Weights for Students with Extraordinary Needs

Recognizing that, on average, students living in poverty, students with disabilities, and English language learners need extra resources to provide them a meaningful opportunity for a sound basic education, most cost studies purport to take these needs into account. However, they generally calculate these extra costs in a manner that does not draw adequately upon evidence of the relationship between students with these characteristics and desired outcomes.

Professional-judgment studies determine the extra programs and services these students need based on the panelists' professional experience, but the selection criteria for the professional judgment panels do not generally include substantial experience with proven methods of meeting the needs of students with disabilities, English language learners, or students in poverty. Evidence-based studies tend to specify particular additional services that published studies indicate have been used in certain situations to meet the special needs of these populations; however, this evidence consists of information gathered from a range of studies that use diverse methodologies that address a range of research questions, and many of which have little relationship to the particular issue being investigated.

Successful-schools studies establish a base cost figure related to the average expenditures in the schools or districts they have designated as "successful," though these districts generally include few English language learners or students in poverty. They then provide an additional per-pupil percentage of the base amount (i.e., a percentage "weighting") to account for the additional services that students with extra needs in these districts will require.

In 2005, Duncombe and Yinger found that weightings for English language learners varied from 6% in Arizona to 120% in Maryland, and supplemental support for students eligible for free or reduced-price lunch ranged from 5% in Mississippi to 100% in Maryland. These

weightings tend to be derived from the literature on weights that have been used by legislatures or state education departments in the past. Generally, the weightings emerged from political compromises or from the amount of funds available at the time rather than being determined objectively based on the actual needs of these students.

Cost-function studies determine the additional weightings that will be required to achieve a desired outcome for the identified student population from statistical regressions that include students with a range of differing needs. To be accurate and useful, these studies require extensive data to describe the relevant inputs and conditions and desired outcomes and to evaluate the differential effects of various resource levels in a range of school and district contexts. Sufficient, appropriate data to conduct these studies properly are rarely available. For example, these studies use expenditure, not real cost data, which introduces several potential sources of bias and error into their calculations. Moreover, such studies are based on production-function techniques developed in a competitive marketplace, a context that is very different from the education sector.

Lack of Attention to Cost Effectiveness

Most adequacy studies have tended to neglect the issue of cost effectiveness.³ The aim of professional-judgment panels has been to determine the level of resources needed to meet defined outcomes, given current practices and programs. Though members of the panels are usually exhorted to be “prudent,” efficiency considerations are not systematically considered. Evidence-based approaches tend to focus on an assortment of studies of educational practices

³ A recent decision of the Connecticut Superior Court indicated that rather than increasing spending on education, the state needed to adopt “rational” funding policies that focus on “coherently calibrated state spending.” Connecticut Coalition for Justice in Education Funding v. Rell (2016.) This case may be a harbinger of greater emphasis on cost efficiency in education adequacy litigations.

that have had some degree of success, but not on whether these outcomes have been achieved cost-effectively.

Successful-schools analyses identify the schools or districts with the highest rates of producing stated outcomes and then accept their average costs as the base standard for all districts, without probing whether these districts used efficient or cost-effective practices. District selection is not based on controlled studies, so apparent “successes” may be due to socioeconomic or other factors not identified in the selection process. In some cases, an “efficiency screen” is applied to lower average costs that policymakers or analysts consider too high (e.g., New York State Board of Regents, 2012).

The cost function methodology attempts to use variation in spending and student outcomes at the school or district level to ascertain the minimum level of spending required to achieve a certain outcome; in other words, the method attempts to derive a cost function for achieving a particular outcome from observed data on the relationship between outcomes and expenditures, statistically controlling for other factors. Sufficient data to undertake these studies is often not available, and much of the data used are obtained from administrative reports designed for accountability purposes, not for careful and complete measurement of costs.

Another key challenge in this approach is differentiating between differences in district efficiency levels and variation in the cost of achieving particular outcomes due to differences in student population, contextual and economic factors for each district, and differences in desired outcomes and how they are measured. Several approaches have been developed for parsing out these differences, including statistical controls for factors that affect efficiency (see Duncombe, Nguyen-Hoang, and Yinger, 2015) and stochastic frontier analysis (see, e.g., Gronberg, et al., 2004). These methods can accommodate differences in district efficiency levels, but require

detailed data, careful measurement, and often strong assumptions to do so, and thus have been subject to critique regarding potential bias, mis-measurement, and inappropriate extrapolation (Costrell, Hanushek & Loeb, 2008).

Subjectivity and Political Manipulation

The variables used to define successful outcomes, the determination of extra weights for students with extraordinary needs, efficiency screens, and many other aspects of cost methodologies depend on the decisions of the fiscal policy experts or consultants who design and direct the studies, and/or on the policymakers or advocacy groups to whom they report. There are other ways in which these studies can be manipulated or affected by subjectivity as well. With professional-judgment panels, the composition of the panels and selection of their members are key aspects of the process that often get little scrutiny. In addition, although the panel members are often instructed to be “prudent” and to consider whatever evidence of best practices that may be provided to them, the actual decision-making process is largely opaque—as is the way the results of the several panels’ deliberations are aggregated by consultants.

The “evidence” that is used in evidence-based studies is compiled by a small group of individuals and is not peer reviewed or otherwise open to professional or public scrutiny to ensure its validity, reliability, and relevance. Successful-schools and cost-function studies can be manipulated to achieve desired outcomes because changes to any of a large number of statistical variables can dramatically alter the results (*DeRolph v. State*, 2000). The complexity of the analyses involved in these studies heighten the possibilities for abuse.

Duncombe (2006) outlined a number of methods for testing and improving the reliability and validity of the current cost-study methodologies, including techniques for obtaining greater interrater reliability of professional-judgment panels, assessing the accuracy and reliability of the

historical data utilized in cost-function studies, and utilizing predictive validation tests in some circumstances. In addition, Duncombe noted that cost studies should be funded by “neutral parties” like foundations or the federal government to ensure that this work is undertaken as social science research. These are useful suggestions, but in the decade since Duncombe made them, none has been widely adopted. In any event, we believe that more thorough-going reforms of the cost analysis process should be considered.

The Proposed Constitutional Cost Methodology

Overview

The constitutional cost methodology would substantially improve on existing methods in each of the problem areas discussed above for reasons we will describe. Its basic aim is to ensure that the state’s education-finance system meets constitutional standards and affords sufficient funding to provide all students all of the educational resources they need and to which they are entitled in order to have a meaningful opportunity to obtain a sound basic education.

Our proposed constitutional cost methodology emphasizes the use of definitive, legally binding standards for specifying both resource inputs and educational outcomes. The use of existing state requirements reduces possibilities for subjectivity and political manipulation and helps to ensure that an appropriate range of resources will be made available to meet student needs. The methodology systematically incorporates the use of educational research and cost-effectiveness analyses in order to enhance program effectiveness and cost effectiveness.

Although legislators and school officials would retain ultimate discretion to make final appropriation, allocation, and expenditure decisions, the constitutional context and systematic

use of relevant evidence would require them to provide substantial, transparent justifications for variations from the recommendations that emerged from the cost-analysis process.

The types of constitutionally prescribed outcome standards that are set forth in the state court adequacy decisions are exemplified by the decisions of the highest state courts in Kentucky and New York. The Kentucky Supreme Court held that the goal of an adequate system of education must be to provide each child with at least the seven following capacities:

1. Sufficient oral and written communication skills to enable students to function in a complex and rapidly changing civilization;
2. Sufficient knowledge of economic, social, and political systems to enable the student to make informed choices;
3. Sufficient understanding of governmental processes to enable the student to understand the issues that affect his or her community, state, and nation;
4. Sufficient self-knowledge and knowledge of his or her mental and physical wellness;
5. Sufficient grounding in the arts to enable each student to appreciate his or her cultural and historical heritage;
6. Sufficient training or preparation for advanced training in either academic or vocational fields so as to enable each child to choose and pursue life work intelligently; and
7. Sufficient levels of academic or vocational skills to enable public school students to compete favorably with their counterparts in surrounding states, in academics or in the job market. (*Rose v. Council for Better Education*, 1989)⁴

⁴ These standards have been explicitly adopted by courts in Kansas, Massachusetts, and New Hampshire, see *Gannon v. the State of Kansas* (2014), *McDuffy v. Sec’y*, (1993), *Claremont v. Governor* (1997), and have

The New York Court of Appeals has held that every student in the state is entitled to a “meaningful high school education” and the “opportunity for a sound basic education” and has specified that the purpose of these constitutional requirements is to prepare students to

1. Function productively as civic participants with skills fashioned to meet a practical goal: meaningful civic participation in contemporary society, including voting and serving on a jury, and to
2. Compete for jobs that require a high level of knowledge, skill in communication and the use of information, and the capacity to continue to learn over a lifetime. (*CFE v. State of New York*, 2003)⁵

State courts have also specified minimum inputs that state education finance systems must provide. In New York, courts have held that the following resources are essential for meeting the stated outcome goals:

1. Sufficient numbers of qualified teachers, principals and other personnel.
2. Appropriate class sizes.
3. Adequate and accessible school buildings with sufficient space to ensure appropriate class size and implementation of a sound curriculum.
4. Sufficient and up-to-date books, supplies, libraries, educational technology and laboratories.
5. Suitable curricula, including an expanded platform of programs to help at-risk students by giving them “more time on task.”

substantially influenced the constitutional definitions adopted by the courts in Alabama, Arkansas, North Carolina, South Carolina, and Texas, see Alabama Opinion of the Justices (1993), *Lake View Sch. Dist. No. 25 v. Huckabee* (2002), *Leandro v. State* (1997), *Abbeville Co. Sch. Dist. v. State* (1999), *Neeley v. West Orange Cove Consol. Indep. Sch. Dist.* (2005).

⁵ These purposes were also substantially adopted by the Connecticut Supreme Court in *Conn. Coalition for Justice in Edu. Funding v. Rell* (2010).

6. Adequate resources for students with extraordinary needs.

7. A safe, orderly environment. (*CFE v. State of New York*, 2003, pp. 114-115)

A number of states, including Montana (MCA §20-9-309), Tennessee (TCA § 49-1-302(a)(4)(B); T.C.A. §49-3-307), and Washington (RCWA §§ 28/A.150.220-28AA.150.275), have enacted statutory “basic education programs” that spell out the education essentials required by their state constitutions in response to state court adequacy rulings. In other states, like Nebraska and Rhode Island, state boards of education have also developed programs articulating essential resources for all schools through state regulations (Nebraska State Board of Education, 2006; Rhode Island Board of Regents for Elementary and Secondary Education, 2009).

A cost methodology based on constitutional standards, and the state laws and regulations that emanate from them, can ensure that the range and quantity of resources provided to students is consistent with their right to a sound basic education. At the same time, this approach enhances the rigor, validity, and legitimacy of the cost methodology itself. In the pages that follow, we will describe how the proposed constitutional cost methodology would deal more effectively with each of the specific problem areas that have plagued the existing cost methodologies.

Over the past four decades, there has been a surge of litigation in the state courts regarding the “equity” or “adequacy” of state education finance systems. Such litigations have, in fact, been filed in 45 of the 50 states. To date, the highest state courts in 23 states have held that students have a right to a sound basic education under their state constitutions.⁶

⁶ For a detailed discussion of the history of these state court litigations, see Rebell, 2009, and the 2015 Supplement, available at http://schoolfunding.info/wp-content/uploads/2015/11/COURTS_AND_KIDS_2015_Supplement.pdf-rev.pdf . For up-to-date information about the status of these cases, see www.SchoolFunding.Info, maintained by the Campaign for Educational Equity at Teachers College, Columbia University.

In each of these 23 states, the constitutional cost methodology described in this paper would apply directly. In other states where the courts have not yet ruled on education adequacy, and even in the 13 states where the courts have held that they will not enforce such a right, the methodology could also be relevant and useful. Virtually all states have a set of statutes and regulations that define input and outcome requirements for the public schools. Utilization of these statutes and regulations in accordance with the proposed methodology would afford most of the benefits we describe below, even in the absence of a constitutional mandate.

In the discussion that follows, we will illustrate how the methodology would work primarily by applying the constitutional outcome and input standards articulated by the New York Court of Appeals, and that state's statutes and regulations. The New York courts have articulated both useful outcome and input standards, and these standards are generally in accord with the constitutional standards articulated by the courts in other states.

The constitutional cost methodology that we will describe primarily utilizes a professional-judgment approach but adds rigor to that process by requiring the professionals to exercise their judgment within specific parameters established by the state's constitution, statutes, and regulations, and to focus more directly on necessary programs and services for students with extra needs. It also incorporates elements of the evidence-based and cost-function methodologies within a larger framework that promotes constitutional compliance and systematic attention to cost effectiveness. We omit any use of the "successful schools" methodology because this approach, which defines "success" in arbitrary and abstract terms that do not relate resources to the actual needs of children in a school, fundamentally lacks validity and reliability. Utilizing that method provides no information about or insight into whether the

constitutional rights of all students in the school, and applicable statutory and regulatory requirements, are being met.⁷

While the constitutional cost methodology we outline can be deployed in a number of different ways, for New York State and other states that do not have standing legislative research bureaus or similar non-partisan research entities, we recommend that the methodology be implemented and overseen by a permanent state commission, with a rotating membership composed of both policymakers and representatives of major stakeholder interests. The commission would have a small permanent staff, and would also have access to the resources of the state education department and other state agencies. We further recommend that the commission adopt procedures for promoting extensive public engagement to maximize transparency and to encourage citizen input and support.

Application

We believe that each of the major shortcomings of the existing methodologies can be ameliorated substantially by 1) substantially revising the professional judgment process to incorporate constitutional and statutory standards, 2) focusing more directly on necessary programs and services for students with extra needs, 3) systematically incorporating evidence-based and cost-functions to promote cost effectiveness and 4) having an independent commission oversee the process.

⁷ Other researchers have come to the same conclusion: “Successful Schools (or districts) analysis simply involves taking the average expenditure of those schools or districts which currently achieve average outcomes that meet or exceed desired, perhaps adequate levels. ...[T]he method is little more than a cost function a) without any controls for student characteristics, context or input price variation, and b) devoid of any sufficient controls for inefficiency or missing these controls altogether. Put bluntly, Successful Schools analysis, in its usual application, is of negligible use for determining costs” (Levin & Baker, 2014).

Utilizing Constitutional and Statutory Standards

To provide substantive outcome and input criteria for determining costs, the constitutional cost methodology employs the constitutional standards articulated by the state courts to define the expected outcomes of education, the state statutes and regulations issued by the state department of education to implement the constitutional standards; and the essential programs and supports that students need to obtain the opportunity for an education that is consistent with these standards and statutes. This approach provides a more comprehensive and accurate declaration of the actual purposes and expected results of public education than the test-score-based proficiency standards that have been used to set outcomes and derive inputs in most cost studies in recent years. A sound basic education requires schools to provide more than what students need to achieve adequate scores on standardized tests in math and reading. The New York court's emphasis on preparing students for civic participation and employment reflects the enduring understanding of the basic purposes of education that date back to the 19th-century common-schools era and continues to represent the views of educators, parents, and the general public today.

Reliance on a constitutional standard that focuses on civic functioning and employment skills clarifies for professional-judgment-panel members, researchers compiling evidence of effective educational practices, and policymakers and the public at large that a sound basic education must deliver not only proficiency in reading and math, but also the broad range of knowledge and skills in history, civics, science, the arts, technology, and other areas, as well as critical-thinking, communication, problem-solving, self-management, interpersonal, and other skills and attitudes that students need to be successful in today's dynamic, competitive world (Heckman and Kautz, 2012; Levin, 2012; Ryan, 2010). These emphases also highlight the

importance of experiential curricular and co-curricular or extracurricular activities, career and technical education, internships, and the range of other experiences that students need to become capable citizens and competitive workers.

The constitutional approach uses both the existing quantitative assessments and additional quantitative and qualitative measurements that evaluate broader dimensions of the educational experience. Scores on standardized exams in reading and math are relevant to an assessment of a student's knowledge base, as are test scores and other quantitative measures of student progress in the other academic content and skills areas that students should be learning. Use of a constitutional standard would, in addition, encourage educators and policymakers to develop and adopt a richer range of valid quantitative and qualitative assessments of relevant but currently unassessed knowledge, skills, and attitudes. The recently enacted federal Every Student Succeeds Act specifically encourages states to develop such broader measures by including in their accountability systems one or more indicators of "school quality or student success" other than standardized test scores (20 U.S.C. A §6311(c)(4)(B)(v)), and a number of school districts, the CORE districts in California (which include Los Angeles, San Francisco, Oakland and six other school districts) have already made significant progress in developing such indicators.

The use of constitutional standards also provides more structure, objectivity, and appropriate breadth to the inputs that are considered in the cost-analysis process. Currently, the range of educational programs and resources considered by professional-judgment panels depend solely on the knowledge and experiences of the individuals who sit on these panels, or on summaries of evidence or other materials that are prepared by consultants who organize the panels. Since the number of people that can sit on these panels, and the number of those who choose the materials that are used in the evidence-based model, are limited, current procedures

do not encompass the full range of necessary educational experiences and the full range of professional perspectives on how best to provide these experiences. Among other things, this limitation means that programs geared to the needs of particular subgroups of students often are overlooked or neglected.

The seven essential resource areas that the New York courts articulated provide a substantive framework that can help organize both the selection of professional-judgment panelists and the range of evidence that must be considered in their deliberations. The essential resources provide a checklist that those selecting panel members can use to ensure that individuals who are experienced with resource needs in each relevant category are represented on the panels. Once panels are convened, the list provides a framework for organizing the evidence that the group will consider and the discussions that will be initiated in order to ensure that the needs of all students are considered in a comprehensive manner.

There are, of course, many ways that the judicial requirements for “sufficient numbers of qualified teachers,” “sufficient and up-to-date books, supplies, libraries, educational technology and laboratories,” for “an expanded platform of programs to help at-risk students” can be met. In New York, as in most states, these general standards are supplemented by state statutes and detailed regulations issued by the state board or the commissioner of education that deal with all of these issues. These regulations provide specific subcategories for the panels to consider under each major heading. For example, in New York there are specific regulatory requirements regarding teacher qualifications, and for adequate libraries and science labs (8 NYCRR, Part 100), and New York has implemented the requirement for an “expanded platform of programs to help at-risk students” by creating detailed regulations concerning “academic intervention services”

that school districts must offer to all students who are not meeting state proficiency standards in core subject areas (8 NYCRR §§ 100.1 (g), 100.2 (ee), 100.2 (ii)).

Some past studies have instructed professional-judgment to consider summaries of some of the state's legal requirements, but these instances have not been systematic. The constitutional cost methodology builds in reliance on the full range of relevant legal requirements. The responsibility to ensure that resources in all of the seven basic categories are available to all students is intended to compel panelists to consider in detail resource needs in each of these areas.

Furthermore, the use of the regulations for these purposes provides an impetus for legislatures and state boards of education or state commissioners to review state education laws and regulations for alignment with the constitutional standard, and to eliminate outdated provisions and fill in any gaps in current coverage.⁸ For example, New York does not currently have any requirements regarding appropriate class-size ranges except in certain special education categories and does not give any guidance on numbers of computers or other technology that schools should be making available to students. To ensure that all schools have the resources to provide students a meaningful opportunity for a sound basic education, state policymakers need to clarify requirements in these areas.

Although professional-judgment panels, the commission, and ultimately the legislature would be expected to comply with the state's constitutional, statutory, and regulatory requirements in each of the essential resource areas, they would still have substantial discretion

⁸ The Campaign for Educational Equity (2012a) has compiled a compendium of the constitutional, statutory and regulatory requirements regarding essential resources in effect in New York State at this time. This compendium was developed as a model and with the expectation that the Regents and the state education department would issue an official version of a similar document. This review revealed that many of the current regulations are out of date or unnecessarily complex and that the current regulations are not adequately addressing a number of important constitutional requirements.

with respect to programmatic issues and resource-intensity questions. For example, there are numerous ways that appropriate “academic intervention services” can be provided or that technology needs can be met. By emphasizing the resource needs in each of the areas that the state constitution and the state’s laws and regulations have deemed important, the constitutional cost methodology would induce policymakers and educators to prioritize and determine best practices in these areas. This has the potential to increase the efficiency of the decision-making process,

Appropriate Costs of Necessary Programs and Services for Students with Extra Needs

The legal framework required by the constitutional cost methodology will substantially enhance the validity of the process for determining the cost of providing extra services for students who are “at risk,” students with disabilities, and English language learners. It compels the professional-judgment panels to determine the full range of resources required to meet the needs of each of these groups of students. There are, of course, a vast array of available resources, services, and supports that could be considered (Gándara and Rumberger, 2008). The complexity of meeting these students’ needs has led many professional-judgment and successful-schools studies in the past simply to borrow a percentage weighting or add-on figure from other states rather than examining the actual needs of the particular students whose education is being considered.

Evidence-based studies have generally relied on analyses from other states, without demonstrating their relevance to the specific constitutional requirements in the state under consideration; cost-function studies have often used average input and outcome statistics for their analyses, without showing that the needs of each category of students are being sufficiently addressed. Neither of these practices would pass muster under a constitutional cost methodology.

All students with extra needs have a constitutional right to appropriate services. Using a constitutional cost methodology will, therefore, require selecting panel members with the appropriate expertise and experience for identifying and costing out a range of specific resources, services, and supports that would meet the actual needs of students in the particular state. Because state laws and regulations in many cases spell out the types of resources, services, and supports policymakers in the state have chosen to meet the constitutional requirements for “an expanded platform of services” for “at-risk” students, “adequate resources” for English language learners and an appropriate education for students with disabilities , the panel’s programmatic review can focus on the costs of implementing what the state has already deemed to be most appropriate approach for its students in each of these categories.

For example, as noted above, New York State regulations require that the “expanded platform of services” that school districts provide to “at risk” students include “academic intervention services” (AIS) for all students who are failing or are at risk of failing to meet proficiency standards in four core subject areas. School districts can choose to provide AIS in a variety of ways and levels of intensity depending on students’ needs, including offering small-group instruction, one-on-one tutoring, counseling, and study-skills support.

In the past, school districts in New York State that serve large numbers of high-needs students have tended to provide some services or supports to some of their students in some subjects, but not to provide all of the required services to all of their students, especially during times of fiscal constraint (Campaign for Educational Equity, 2012b). Students with the greatest needs in low-wealth school districts have tended to be shortchanged most significantly. Under the constitutional cost methodology, the costs of complying fully with this regulation would have to be taken into account.

This methodology would require the panels to identify the programs and services they deem most appropriate and most effective and the average intensity of the services that should be provided. (The panels might also consider whether more intensive services need to be provided for schools with very high concentrations of poverty and build that factor into their weighting recommendations.) Once these determinations are made, an appropriate weighting of the relationship between these costs and over-all educational costs can be calculated and used in an over-all cost calculation formula. A similar approach would be followed for determining the actual costs of providing appropriate services for English language learners and students with disabilities. New York law favors bilingual education programs as well as English as a Second Language programs for English language learners (8 NYCRR §154.3(g)(1)), and certain types of inclusion programs and special class settings for students with disabilities (8 NYCRR §200.6(g)(1); 200.6(h)). As with the academic intervention services for at risk students, calculations of the extra costs of educating these students can be made based on the presumption that all students who need these services will in fact receive them in accordance with the stated requirements of state constitutions, statutes, and regulations.

Cost-Effective Practices

The constitutional cost methodology requires an analysis of the full costs of constitutional compliance, that is, of providing all students meaningful opportunities to receive a sound basic education. Providing all students all of the elements of a sound basic education entails not only the human and material resources necessary for academic services but also adequate counseling and other support services as well as important extracurricular activities. This will likely result in inclusion in the analysis of a broader range of programs and services and more thoroughgoing

understanding of the resources required for their implementation than most cost studies have involved in the past.

To safeguard students' rights and contain costs appropriately, cost-effectiveness analysis is built into the constitutional cost methodology. Past studies have generally neglected or minimized the consideration of cost effectiveness; making cost effectiveness an integral part of the cost-analysis process is necessary to maximize the impact of education dollars on students' educational opportunities.

For example, the latest available figures indicate that 16.6% of New York State's students are receiving special education services compared with a national average of 12.9% (National Center for Education Statistics, 2013). New York, like many other states, has mandated that all school districts employ a Response to Intervention (RTI) approach to ensure all students receive appropriate instruction and necessary intervention, and to curb unnecessary special education placements, which are not in the best interest of students and tend to be costly. RTI identifies students at risk for poor learning outcomes, assesses their needs, provides them appropriate evidence-based instruction and interventions, and then monitors their progress and adjusts the interventions, as necessary (N.Y. Comp. Codes R. and Regs. tit. 8, §200.4(j)(4), 2012).

Since, on average, the per-capita costs of providing special education services are more than double the costs of providing regular education (Citizens Budget Commission, 2011), and average per capita costs for general education in New York State are approximately \$20,000 (U.S. Census Bureau, 2012), reducing New York's incidence of special education to the national

average would result in total savings in the range of \$2 billion each year.⁹As reflected in the perpetuation of very high special education referral rates in New York State, in New York City and many other school districts in the state, investment in RTI has been minimal and implementation has weak. Appropriate implementation of existing RTI mandates could substantially reduce New York’s extraordinarily high incidence of special-education referrals and thereby reap substantial cost savings.

The Oregon Quality Education Commission has been incorporating cost-effectiveness considerations into its basic procedures since 1999. The applicable statute specifically provides that

In determining the amount of moneys sufficient to meet the quality goals, the commission shall identify best practices that lead to high student performance and the costs of implementing those best practices in the state's kindergarten through grade 12 public schools. Those best practices shall be based on research, data, professional judgment and public values. (Oregon Revised Statutes §327.506)

.Every two years, the commission submits a report to the governor and legislature that sets forth the amount of money needed to meet the state’s “quality goals” (Oregon Revised Statutes §327.506). These goals are defined broadly to include academic content standards, and, among other things, providing students an education that will prepare them to be capable in a “participatory democracy and a multicultural nation,” and “to succeed in the world of work” (Oregon Revised Statutes §329.025).

⁹ There would, of course, be additional costs for providing RTI services to additional students, but these costs would be substantially lower than the costs of providing them expensive special-education evaluations, related services, and instructional services.

To prepare each biennial report, the commission's staff (personnel assigned by the state education department) undertakes detailed analyses of new educational needs and also carries out specific research assignments regarding best practices and comparative costs for improving educational services. For example, in its 2014 report, the commission discussed the first phase of the staff's multi-year study of college and career readiness issues. The report contained an extensive review of studies identified in the What Works Clearinghouse database maintained by the U.S. Department of Education,¹⁰ as well as a wide range of other national and international sources on best practices for improving high school graduation rates. It also featured detailed "matched pairs" analyses of practices in high schools with higher than predicted graduation and postsecondary enrollment (PSE) rates as compared with high schools with similar student characteristics but lower than predicted graduation and post-secondary enrollment rates. The commission proposed a new student achievement model that would better promote high school graduation, as well as further cost-effectiveness studies that should be done, and then specified the specific amount of funding statewide that would be needed to implement its model fully over the next two years (Quality Education Commission, 2014).

The Washington State Institute for Public Policy (WSIPP) similarly regularly undertakes detailed analyses of program effectiveness and cost effectiveness in education as well as other areas. Its analyses estimate the probability that various public policies and programs can achieve desired outcomes, such as improving high school graduation rates or student test scores. For each topic, WSIPP analyzes studies from the What Works Clearinghouse and other national and

¹⁰ The Clearinghouse identifies studies that provide credible evidence of the effectiveness of a given practice, program, or policy and disseminates summary information and free reports on its website. It utilizes research protocols to identify the relevant studies, and to review the validity and reliability of their methodologies. To date, the Clearinghouse has reviewed over 10,500 studies. See *What Works Clearinghouse, Procedures and Standards Handbook Version 3.0* (2014), available at <http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=19>.

international sources to identify interventions that have been tried, tested, and found to either achieve or not achieve improvements in outcomes. They then undertake a benefit/cost analysis to determine whether the lifetime benefits of the program exceed the fiscal costs of the program to the state legislature (Washington State Institute for Public Policy, 2014a, p. 3).

WSIPP's recent analysis of the state's Learning Assistance Program for underachieving students provides an example of how this research is done. This program includes a variety of supports, including tutoring, extended learning time, professional development, consultant teachers, parent outreach, and community-based partnerships. WSIPP reviewed 33 specific interventions in these areas and constructed an inventory that summarizes its findings for each of them. For example, the benefit/cost analysis of tutoring by certified teachers found that the program cost was \$1,406 per student, and the benefits to participants, taxpayers, and others was \$11,211; this resulted in a positive benefit minus cost factor of \$9,804 and a benefit to cost ratio of \$7.98. WSIPP (2014b) assessed the probability of a positive net present value emerging from this initiative at 96%.

Our constitutional cost methodology incorporates mechanisms for on-going program effectiveness and cost-effectiveness reviews, as in Oregon and Washington. As we discuss in more detail in the next section, for New York, we envision a permanent commission overseeing such studies, which would be undertaken by its own professional staff, working with staff at the state education department, as necessary and appropriate. Such a commission, if established in New York and other states,¹¹ could, like the Oregon Commission and the Washington Institute, identify major areas of potential program improvements and cost savings and examine a number of these issues each year or each biennium. For example, the improvements in RTI

¹¹ Other types of independent entities that may exist in other states should also adopt the cost effectiveness approaches discussed in this section.

implementation and potential cost savings discussed above could be studied by the commission's staff. If their work showed that major savings could be realized while maintaining or improving the quality of legally mandated services for the affected students, their recommendations would then be considered by the professional judgment panels and the members of the commission.

To the extent possible, we would expect the commission staff to undertake even more rigorous analyses of the programs on which it focuses than is generally the case with the Oregon and Washington groups. In many cases the effectiveness data they use comes from sources such as the What Works Clearinghouse (WWC), which compile results of educational interventions within specific program areas across a range of programs, studies, samples, and settings. The WWC generally endeavors to ensure that the studies it compiles utilize similar outcome measures and are applied to similar demographic groupings, but the studies that it evaluates are designed and implemented independently, so there is no requirement that they actually do provide comparable definitions and measurements of ostensibly equivalent outcomes.

For example, one might expect that the effectiveness of dropout prevention programs would best be measured by high school completion. But the 13 WWC interventions in the dropout prevention category that are listed as having positive or potentially positive effects are arrayed under three different outcomes: staying in school, progressing in school, and completing school. Even within these categories, the specific measurement of outcomes is different. For example, assessments of staying in school and progressing in school are conducted at different grade levels using different criteria among studies.

Unless it can be confirmed that details of program implementation and student population are similar in target areas as they were in studies employed to ascertain effectiveness, average effectiveness may not generalize to a new setting, implementation, and sample of students.

Therefore, to the maximum extent possible, the commission should use cost effectiveness analysis (CEA) techniques to provide the most accurate direct comparisons of the full costs of various options. CEA is used in education settings to compare alternative interventions with similar educational goals such as gains in reading or math achievement or completion of courses or other educational outcomes. Measures of outcomes among alternatives must be similar for making comparisons. When costs are compared with outcomes, priority of adoption should be given to those interventions that show the highest effectiveness relative to cost.

Most educational outcomes are stated in terms of educational effectiveness, such as learning results, rather than their monetary benefits such as earnings, and so are more amenable to CEA than the cost benefit analysis (CBA) approach used by WSIPP. Also, CEA can be applied to the evaluation of educational interventions designed to improve both cognitive and non-cognitive outcomes such as test scores, attitudes, and behaviors; many of these cannot be easily monetized. Therefore, both in terms of directness and wider applicability, CEA is more appropriate than CBA for many research questions in education.¹²

The CEA approach utilizes “the ingredients method” that assesses the true full costs of an educational program. Conventional accounting practices in the educational sector were designed for purposes other than accounting for costs of instructional or other interventions. Budgetary information, therefore, rarely accounts for all of the ingredients of an intervention and their true costs. In contrast, cost estimation using the ingredients method builds on evaluators’ understanding of the details of the treatments or interventions and uses that knowledge to construct direct estimates of costs. The ingredients method of cost estimation involves three main steps to ascertain accurate and consistent measures of costs: identifying and specifying the

¹² For a full discussion of cost effectiveness analysis, see Levin & Belfield, 2014.

ingredients required to obtain the evaluation results, identifying their costs, and calculating total program costs and average costs per participant. The cost burden can then be distributed among multiple constituencies.

The Center for Benefit-Cost Studies of Education at Teachers College, Columbia University, has developed *Cost Out*, a new online tool to help educators, researchers, and policymakers estimate the costs and cost effectiveness of educational or other social programs. The tool prompts the user to list all ingredients required to implement an intervention, from teachers to facilities to equipment, and to assign appropriate prices based on the quantity and quality of ingredients needed. The system then calculates the total costs and cost per student of the intervention. If the user has ingredients and effectiveness data on several interventions that aim to improve the same educational outcome, the system can generate cost-effectiveness comparisons that can inform resource allocation decisions.¹³

Example of Cost-Effectiveness Analysis

To demonstrate how cost-effectiveness analysis using the ingredients method could be utilized as part of a constitutional cost methodology in New York State, we have undertaken a preliminary, illustrative comparative cost estimate, using the *Cost Out* tool, of three of the most common forms of providing academic intervention services (AIS) to “at risk” students in accordance with the New York State regulations. The intervention services we have considered in this demonstration are small-group instruction in an afterschool program, reduced class size, and additional instruction time.¹⁴ For the purposes of this illustration, we assume that each of

¹³ *Cost Out* can be accessed at <http://www.cbseccosttoolkit.org/>.

¹⁴ For these programs, the necessary ingredients (although their exact amounts would vary substantially between schools and districts based on different levels and types of need and different AIS program), would likely be:

- The principal, who would lead the development and oversight of the AIS plan
- Other administrators, counselors, teachers, parents, and possibly students, who would serve on the committee to develop the AIS plan

these approaches is equally effective, in promoting student learning, but, at the present time, we do not have any evidentiary basis to know that this, in fact, is the case.

Small-Group Instruction After School. For this program, we assume that 267 students out of 800 in a large elementary school will receive AIS services, that an AIS committee comprising the principal, assistant principal, a counselor, and a teacher meet one hour per week to analyze data, refer students to AIS, and monitor and oversee AIS operations, and that fully certified teachers provide small-group instruction to groups of ten students for two hours per day, four days per week, for 36 weeks.¹⁵ Under these assumptions, the costs of providing AIS for one year are \$568,570 per school, or \$2,140 per student, using national average prices in 2015 dollars.

Reduced Class Size for AIS Subjects. The comparative per school costs for the reduced class option would be \$412,590 and per AIS student cost would be \$1,550,¹⁶ applying the same

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- Costs for professional service providers who execute the plan, which may include hiring additional teachers for reduced class sizes, paying teachers overtime for before- or after-school tutoring, counselors to provide non-academic support services, and community agencies, to whom students may be referred for additional non-academic services. Note that AIS teachers may require special training, experience, and licensing (*e.g.*, as a reading specialist).
 - Office/conference room space for AIS committee meetings
 - Classroom space for additional small classes, before/after school tutoring, and other service provision
 - Computers and internet access for data analysis to assess students for AIS and monitor progress
 - Books, supplies, curricula, and any other materials necessary to implement additional instruction, including, *e.g.*, supplementary reading curricula such as Wilson Reading or Reading Recovery
 - Training for teachers and other service providers on any new curricula or other services provided as part of AIS

¹⁵ The calculations for this program, and for the other three that follow, use national average teacher salaries according to the National Education Association (\$57,379) in 2015 dollars, with 48.8% of salary added as fringe benefits. Note that average prices for many educational ingredients, especially personnel, are likely to be somewhat higher in New York State than the United States average. For instance, the Bureau of Labor Statistics reports mean annual salaries for teachers in New York that range from \$67,070 to \$76,770, depending upon subject area and grade level, in 2015 prices (see http://www.bls.gov/oes/current/oes_ny.htm#25-0000). We use national prices because larger samples reduce idiosyncratic noise in the data and reliable sources of state/local prices are not available for all ingredients. As long as it is made consistently across programs, the choice of prices should not affect relative comparisons between programs, but local or state prices may need to be considered or adjustments made for geographic price differences if these analyses are used for budgetary projections.

¹⁶ Teacher costs here are assumed to be set by a large market, such that no individual school's decisions will be of sufficient magnitude to change the equilibrium price of existing teacher salaries and benefits. If a large enough group of schools within a geographic area that might constitute a single labor market were to implement this change, it could shift the market demand curve for teachers and raise the equilibrium salary necessary to attract a sufficient

assumptions that were used for the school-level AIS costs for small-group instruction, with the following additional assumptions:

- The 267 AIS students in the school of 800 currently are in ELA and math classes of about 26 students each, roughly the average class size in elementary and middle schools in New York City in 2015-16.
- Math and ELA each meet for five 45-minute periods per week.
- A math or ELA teacher can teach 5 class sections within a standard, 25-period per week program
- At the initial class size of 26 students, there are the equivalent of 2 math and 2 ELA teachers needed to teach the 267 students eligible for AIS (note that the students do not necessarily need to be sorted into the classes of four specific, individual teachers by strict ability tracking)
- Therefore, to cut ELA and math class sizes in half for AIS students necessitates hiring four additional teachers and finding four classrooms (since classes will be quite small, at 13 students each, on average, they may be half-size classrooms if they exist in the school).
- The costs of classroom construction are amortized over 30 years at an interest rate of 3.5%.

Additional Instructional Blocks. The costs of additional math and ELA blocks for AIS students are \$251,580 per school, or \$950 per AIS student, based on the following additional assumptions:

- Students will have an extra block of three periods of math and three periods of ELA. Each extra class will be taught to groups of 26 students for three, 45-minute periods per week. To

number of teachers with appropriate qualifications. In the long run, though, we would expect to see general equilibrium effects, i.e., a shift in supply that would moderate the price increase.

cover the ten groups of students in a school of 800, 30 additional class sessions of math and 30 additional class sessions of ELA will need to be opened each week, requiring 1.2 math and 1.2 ELA teachers.

- Students will take the extra math and ELA classes in average-sized, 900 square foot classrooms, with their new construction costs amortized over 30 years at a 3.5% interest rate.

In sum, then, under this illustrative demonstration, the per-student costs for small-group instruction after school would be \$2,140, for reduced class sizes \$1,550, or for additional instructional blocks \$950. Extra instructional blocks would appear, then, to be the most cost effective AIS alternatives—but *only if it were established that each of these methods achieved equivalent outcomes*. Therefore, the constitutional cost commission would need to ensure that its application of cost effectiveness analysis is combined with rigorous research on program outcomes.¹⁷

One way to conduct such program analyses would be to use focused cost function analyses that would identify comparable schools that are utilizing each of the alternative AIS approaches and then compare their outputs on test scores and other measurable outcomes. With that information, researchers could then investigate the full scope of the school's offerings and determine whether (a) the inputs for the AIS program are comparable to the ingredients used in the CEA analysis; (b) whether other important outcomes are also being achieved, or are being neglected, and (c) whether all subgroups of students within the school are demonstrating

¹⁷ In order to schedule 6 extra periods per week for block instruction, it might be necessary to lengthen the school day in order to avoid depriving students of other constitutionally mandated instruction. For example, studies have indicated that to provide extra time for English language arts and math instruction, many schools have reduced time spent on social studies. The Center on Education Policy (2005) found that 33% of diverse school districts in a nationally representative selection of 299 reported that they had reduced social-studies instruction (history, geography, civics) somewhat or to a great extent in order to devote more time to English and/or math, in response to NCLB accountability systems. In any event, with this analysis in particular it is critical to analyze what is being displaced by an intervention, both to estimate the net resource and effectiveness implications accurately and to ensure that other obligations and opportunities are not being sacrificed.

adequate progress. Experimental or randomized control trials or quasi-experimental studies might also be undertaken for school functions that have large cost consequences. The increasing national base of evidence and WWC would also provide instructive information on effectiveness, although these estimates would need to be supplemented by strong cost effectiveness studies for New York and its various regions. The results of those studies would provide substantial, valid evidence of both program effectiveness and cost effectiveness that could then be factored into the overall constitutional cost analysis.¹⁸

We recognize that, because of the extensive amount of information and analysis needed to undertake a suitable CEA study, for the foreseeable future only a limited number of the cost issues that the commission and the professional judgment panels undertake each biennium can be undertaken through this methodology. It is important, however, to implement the CEA approach to the maximum extent that time and resources permit so that eventually this rigorous methodology can become a “gold standard” toward which all cost studies should aspire. CEA provides accurate measurements of the costs of resources that led to a particular measured effect.

¹⁸ New York State regulations include “support services” among the approaches that schools may use to provide academic intervention services. A program with which we are familiar that provides a well-coordinated set of such support services is City Connects, which currently operates in Boston and Springfield, Massachusetts, and Dayton, Ohio. The City Connects model involves the coordination of assessments of student need, referring of students to appropriate school and community-based service providers, and assessing and monitoring their progress in order to make service adjustments as necessary. A study recently published in the *American Educational Research Journal* found significant positive effects of six years of program participation on 8th grade math and ELA scores (Walsh et al., 2014).

Using assumptions similar to those in our New York City AIS illustration (and some additional assumptions like dividing the support services fixed costs among 267 students rather than the full school population), we calculated that the present value cost of delivering City Connects to the students performing in the lowest third academically in an elementary school of 800 students for six years, from kindergarten through fifth grade, would be \$1,705,060 per school, or \$6,400 per student. Since this total represents the present value sum at kindergarten using a 3.5% discount rate, the annual costs in future value terms are approximately \$1,160 per year. Further study of programs like City Connects can be particularly beneficial from a constitutional cost methodology perspective, as the program provides a comprehensive range of academics, social/emotional development, mental and physical health, and family services to students at varying intensity and dosage based on needs, and thus student-level variation in service provision can be used to determine empirically appropriate funding weights for high-needs students. See, e.g., Parrish, Harr- Robins, & Chambers, 2015, for a discussion of the determination of funding weights for disadvantaged students.

Empirically tying effectiveness measures to detailed cost accounting, which separates measurement of total resource use from issues of how those costs are financed, thereby has two benefits: greater applicability of effectiveness and cost-effectiveness to a particular setting and a clearer understanding of how resources, implementation, and costs are related to effects.

Where data and/or resources do not presently permit application of the CEA methodology, the commission and the professional judgment panels should still incorporate program effectiveness and cost effectiveness criteria into their deliberations to the maximum extent possible. One example, of how this might be done is provided by the Rapid Cycle Evaluations that Mathematica Policy Research has applied to the evaluation of educational technology interventions. This technique has been used successfully in the health field and researchers are considering adaptations to other fields, such as education (see, e.g., Cody and Asher, 2014).¹⁹ Under Rapid Cycle Evaluations, practitioners with some familiarity with research methods and design can conduct short, small-scale randomized controlled trials (RCTs) or propensity score matching studies to obtain estimated effectiveness for a specific sample in a specific context. They can provide suggestive evidence on program effects that have the benefit of being tied to a particular empirical setting. While such studies may not have the same statistical power or external validity as larger-scale, multi-year, multi-site RCTs, they have the advantage of providing useful information to policymakers at relatively low cost and in relatively little time. Further, while the results may not generalize, a number of such small-scale studies can be done that each match a particular implementation and sample. This approach to program evaluation is relatively new, however, and thus results should be interpreted with caution until they can be cross-validated with those from larger-scale studies to test their robustness.

¹⁹ In a memorandum to federal department and agency heads, White House officials encouraged the development of rapid, low-cost evaluation methods to improve the provision of evidence to guide decision-making (Burwell, Muñoz, Holdren, & Krueger, personal communication, July 26, 2013).

Minimizing Political Manipulation

Ultimate authority for adopting state school aid formulas and making school funding appropriations necessarily lies with the governor and the legislature. Conducting regular cost analyses can help to ensure that these decisions are research based, transparent, and provide the public with information useful for holding policymakers and school officials accountable for educational outcomes. Subjectivity and political manipulation in the costing-out study can be minimized by grounding the analysis in the requirements of the state law and the state constitution, and maximizing the use of evidence and data, as we discussed in the previous sections and, in addition, by utilizing transparent deliberative processes that solicit input from both knowledgeable specialists and the public at large, and appropriate judicial review.

As discussed above, for New York and other states that do not have standing independent entities that can undertake these tasks, we recommend overall responsibility for undertaking biennial cost analyses be lodged in a permanent Sound Basic Education (SBE) commission, whose members should fill designated slots for staggered three-year terms. Following the model of the Massachusetts Foundation Budget Review Commission, we recommend that the committee's membership consist of both state officials and representatives of major education and business groups (MGLA ch. 70, §4, as amended by ch. 165 of the Acts of 2014). These members should be representative of all regions of the state, and, at all times, at least one member of the commission should be a person who has extensive professional knowledge of and experience with the educational needs of English language learners, at least one should have extensive professional knowledge of and experience with students with disabilities, and at least

one should have extensive professional knowledge and experience with students living in poverty.

The SBE Commission would be responsible for developing and revising on a regular basis a constitutional cost model for ensuring that the state's education-funding system provides all schools with the essential resources needed to offer all students a meaningful opportunity to obtain a sound basic education, in a cost-effective manner. The commission would issue biennial reports to the governor and the legislature who would maintain ultimate responsibility for making final determinations on school-funding matters. The commission would hire its own staff, but, on specific projects, its staff would work closely with staff from the state education department and other state and local agencies, as appropriate. When necessary, the commission would also be authorized to hire qualified expert consultants.

Between commission reports, the commission staff, working with the state education department and independent consultants as necessary, would undertake analyses of best practices and cost-effective alternatives in major areas identified by the commission. These analyses would be presented to professional judgment panels who would consider these data and the staff recommendations, as well as the applicable constitutional standards and state laws and regulations in their deliberations on resource needs for the ensuing two year period. The recommendations that emerge from the professional judgment panels would also be reviewed by statewide public engagement forums before being presented to the commission for its consideration. Such professional and public involvement will both expand the range of information and perspectives that are considered in developing the model and engage educators and the public in understanding best practices and in supporting expenditure increases that may result from the process.

After each review, the commission would present a report to the governor and the legislature setting forth and explaining their recommendations regarding the specific amount of funding statewide that would be needed to provide all students the opportunity for a sound basic education over the next two years. The report would summarize the professional judgment processes it used and the findings of the professional judgment panels, as well as input received from public engagement forms. It would also include a return on educational investment analysis to demonstrate the benefits to the individuals involved and to society at large of providing major additional services called for by the model.

The governor and the legislature should give serious consideration to these recommendations in their budget analysis processes, and explain in writing any substantial differences between the appropriations they have adopted and the commission's recommendations. If parents or stakeholders believe that the funding system or annual appropriations that are finally adopted are unreasonable or do not meet constitutional or statutory requirements, they may, of course, seek judicial review. Courts in a number of states have proved adept at closely analyzing cost-analysis methodologies, approving sound practices, and invalidating arbitrary judgments and political manipulations (Rebell, 2007).

Conclusion

The constitutional cost methodology that we describe has the potential to overcome the major shortcomings of the four existing methodologies by providing clear standards for both "input" and "outcome" criteria, taking full account of the needs of students living in poverty, English language learners, and students with disabilities, and systematically considering cost effectiveness. Like the other methodologies, the constitutional cost methodology does ultimately

depend on professional judgment, both of the educators and finance experts involved and the sponsoring entity, but it substantially constrains manipulation by requiring adherence to constitutional requirements, by utilizing a transparent process that maximizes use of professional judgment and public engagement processes, and by subjecting legislative decisions under some circumstances to judicial review.

We recognize that all of the potential benefits of the model we are proposing could not be realized immediately. State statutes and regulations need to be fully aligned with constitutional requirements. A greater investment in educational research and regular evaluation of education programs are needed to further our knowledge of best practices and their resource requirements to create the basis for cost-effectiveness analyses. And the establishment of the type of independent commission or other entity that is needed to oversee regular cost analyses would require substantial political will and public support. Nevertheless, we think it important to initiate a conversation about these themes and to implement improved cost studies based upon them to the maximum extent feasible in the near future. Such discussions and demonstrations will lead to improvements of the model and to more valid mechanisms for determining the constitutionally compliant level of funding needed to ensure that all students are provided a meaningful opportunity for a sound basic education.

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