Financing Online Education and Virtual Schooling

A Guide for Policymakers and Advocates

Bruce D. Baker

Rutgers University

Justin Bathon

University of Kentucky

October 2013

National Education Policy Center

School of Education, University of Colorado Boulder
Boulder, CO 80309-0249
Telephone: (802) 383-0058
Email: NEPC@colorado.edu
http://nepc.colorado.edu

This is one of a series of briefs made possible in part by funding from The Great Lakes Center for Education Research and Practice.

http://www.greatlakescenter.org
GreatLakesCenter@greatlakescenter.org

Briefs published by the National Education Policy Center (NEPC) are blind peer-reviewed by members of the Editorial Review Board. Visit http://nepc.colorado.edu to find all of these briefs. For information on the editorial board and its members, visit: http://nepc.colorado.edu/editorial-board.

Publishing Director: **Alex Molnar**

Suggested Citation:

Baker, B.D. & Bathon, J. (2012). Financing Online Education and Virtual Schooling: A Guide for Policymakers and Advocates. Boulder, CO: National Education Policy Center. Retrieved [date] from http://nepc.colorado.edu/publication/financing-online-education.

Financing Online Education and Virtual Schooling: A Guide for Policymakers and Advocates

Bruce D. Baker, Rutgers University
Jason Bathon, University of Kentucky

Executive Summary

This policy brief addresses considerations for state and local policymakers as they decide whether and how to finance supplemental online education alternatives and/or full-time virtual schools. We begin with a discussion of the sparse and inconsistent literature regarding the financing of new online models. Then, to help inform price setting or subsidy rates, we present empirical illustrations for determining costs. We start with a top-down example, isolating typical cost components of brick-and-mortar schooling and then matching them to cost components of virtual models considered all-inclusive (although they typically provide far fewer services than their traditional counterparts). Next, we offer an alternative cost analysis framework that can be used to add individual cost components in order to calculate total overall costs for virtual schools. After discussing general analytic issues that policymakers should consider as they develop finance policy, we conclude with model legislation for a uniform financing and accountability policy applicable to both supplemental and full-time online education.

Recommendations

This backdrop leads us to what we might refer to as *School Finance 2.0—Flexible Financing for a Virtual World*. Our central recommendations are:

1. OE/VS alternatives should be funded based on the instructional units provided to students to advance their progress toward program completion. Using brick-and-mortar rates as the basis for funding online offerings is inappropriate; the scope of services provided by OE/VS alternatives varies so greatly that an offering is rarely, if ever, equivalent to that provided in a traditional setting offering a full complement of services.

2. Maximum subsidy rates for online instructional units should not exceed the costs of producing the same unit in the brick-and-mortar setting.

3. States should consider determining the average costs for various units of traditional brick-and-mortar courses, particularly at the secondary level, to provide a base for calculating state subsidies for full-time online program as well as for calculating for school district subsidies for supplemental online courses.

http://nepc.colorado.edu/publication/financing-online-education

4. School districts continuing to provide services to full-time online students should be compensated for their costs.

5. States and local public school districts should conduct longitudinal studies to determine the relative effectiveness of OE/VS versus brick-and-mortar services to ensure that outcomes are at least comparable.

These five central tenets of a reformed online school financing system can serve as a practical guide for state and local subsidies. State Education Agencies may provide both regulatory controls over and technical support for local district online contracting, including but not limited to statewide evaluation of the relative effectiveness of specific online alternatives and a statewide database of existing negotiated contracts.

Financing Online Education and Virtual Schooling: A Guide for Policymakers and Advocates

Introduction

This policy brief addresses considerations for state and local policymakers as they decide whether and how to finance supplemental online education alternatives and/or full-time virtual schools. Online education has created a vast new range of learning options for students, ranging from individual students enrolled in a brick-and-mortar school taking a single online course to students enrolled full-time in virtual charter schools. Depending on the state, details of programs vary widely. Some students may take online courses while attending a traditional school, others while they are at home, and still others may gather at private sites leased by their virtual charter schools. In short, online education opens a wide range of new formal learning opportunities that did not exist when typical finance formulas—organized around geography and the physical location of students—were formulated. These new learning structures thus create a demand for updated funding models for state-supported education.

As states have begun to respond to this challenge over the past decade, state and local officials have found it difficult to determine the fair price, contract value, or subsidy rate for any child or group of children participating in alternative education models. The problem is especially difficult because students enrolled full-time in virtual schools may require additional services or resources from local districts—transportation, for example, or (in some states) special education services.

To provide policymakers and advocates some guidance on these complex funding questions, we present a new, unified conceptual approach to funding online education; in addition, we offer model legislative language for consideration. We begin with a discussion of the sparse and inconsistent literature regarding the financing of online education and virtual schooling. In the next section, we provide an instructive overview of perspectives on the cost of online education; price setting in local district contracts; and considerations when determining direct and indirect government subsidy rates.

To help inform price setting or subsidy rates, in the subsequent section we present empirical illustrations for determining "costs." We start with a top-down example, isolating typical cost components of brick-and-mortar schooling and then matching them to cost components of virtual models considered all-inclusive (although they typically provide far fewer services than their traditional counterparts). Next, we offer a "cost" analysis framework that can be used to add individual cost components in order to calculate total overall costs for virtual schools.

An accompanying brief sets forth a proposed unified approach to the funding of online education, which we call School Finance Policy version 2.0. We first discuss general analytic issues policymakers should consider as they develop finance policy for online alternatives. Then, we offer extensive model legislative language implementing our unified approach to provide policymakers with a starting point for next steps.

Sparse and Inconsistent Literature

The literature on financing online education and virtual schooling (OE/VS) is, at best, sparse and inconsistent. There exists little, if any, credible peer-reviewed analysis of the costs and benefits of online education alternatives. The literature that does exist has been produced mostly by policy advocacy organizations, and most of this literature has focused specifically on the rate at which governments subsidize OE/VS alternatives, not on analysis of actual costs, cost-benefits, or cost-effectiveness. To clarify what is and is not known, we first illustrate how literature on online funding typically develops, using a single state as an example. Then, we offer an overview of the sparse existing literature on the costs of online schooling. Finally, we detail a recent report that provides some of the groundwork for our own efforts in developing a new model of financing online education alternatives.

Emerging Concerns over State Subsidy of Cyber-Charters

Given the exceedingly tight state budgets of recent years, state policymakers have been driven to find more and more ways to reduce state spending. Because education remains among costs consuming the largest share of state budgets—despite steady reductions in recent years—education is the often-debated target of spending cuts. In the current climate, state policymakers have many sources for empirical validation of their pre-established policy preferences. One recent state controversy over education spending provides a relevant example of how such debates impact online education and virtual schooling.

A recent report by the Auditor General of the Commonwealth of Pennsylvania declared "Charter and Cyber Charter Education Funding Reform Should Save Taxpayers $365 Million Annually."[1] The auditor's report suggested both that Pennsylvania was presently "overfunding" its brick-and-mortar district schools and overpaying for existing online alternatives. This claim was built on the assertion that: "Because of a flawed charter school funding formula, PA continues to pay excessive costs to fund charter and cyber charter schools."[2]

Looking deeper into the study, though, one finds the headline-grabbing assertion was based on simple comparisons of Pennsylvania's rates for subsidizing online schooling and its rates for subsidizing brick-and-mortar charter schools with national averages:[3]

> PA spends about $3,000 more per student to educate a child in a brick-and-mortar charter school and about $3,500 more per student to educate a child in a

> cyber-charter school compared to the national average, which adds up to $315 million in annual savings. [4]

The policy implication, as outlined in the report, is that Pennsylvania could simply cut $3,000 per pupil from its cyber-charter subsidy rate and save hundreds of millions of dollars. A logical extension of this analysis is that the Commonwealth could also cut its brick-and-mortar spending. But this analysis fails in two ways. First, the analysis fails to take into account that Pennsylvania may experience real costs higher than national average. Second, it fails to take into account the quality of outcomes expected or delivered by either brick-and-mortar or cyber schools in Pennsylvania and elsewhere. It is possible that lower costs may be obtained at the expense of lesser outcomes. In short, the average subsidy rates for either cyber or traditional charter schools nationwide provide little or no basis for understating the costs of providing adequate educational services in Pennsylvania.

In the present politically volatile context, where any one group has an argument that OE/VS alternatives are overfunded, there is likely be another group that argues the opposite. Pennsylvania is typical. The recent report *Searching for the Reality of Virtual Schools,* presented by a group called the Center for Public Education, summarizes the alternative response over subsidies and costs of virtual schooling in Pennsylvania:

> However, the Pennsylvania pro free-market think tank Commonwealth Foundation argues such virtual charter schools should receive 100 percent of the per pupil funding (Abraham & Benefield, 2010). They base their argument on a 2006 BellSouth Foundation report that found that even though virtual charter schools do not offer the same breadth of services as districts, the costs of operating a virtual school are about the same as operating a brick-and-mortar school. According to the report, the cost of providing a full-time virtual program is between $7,200 and $8,300 per pupil compared to the national average of $7,727 (excluding capital and transportation costs) for traditional brick-and-mortar schools (Anderson et al., 2006). The study's authors arrived at this figure by conducting panels of experts of online learning (both from private and public sector) as well as state policymakers from around the nation with direct knowledge of online learning to elicit their professional judgment on what resources are needed to run a virtual school and how much those resources would cost.[5]

The Commonwealth Foundation's arguments, although presenting an alternative to state auditor's view, are equally illogical. If in fact cyber-charters do not offer the same breadth of services as brick-and-mortar schools but those services have equal costs, there would be little reason to subsidize them at all. Compensating 100 percent of per pupil funding would amount to the state consciously choosing to pay the same for less. Why would one buy the same car, with fewer options, or with only three wheels, for the same price?[6]

This debate over how to link subsidy rates to the relevant scope of services provided is not unique to online education. Nor is the politicization of questions about who is being over

or under-subsidized—and thus being treated "unfairly"—and to what extent. For example, brick-and-mortar charter school advocacy organizations frequently levy claims that charter schools are being subsidized at an unfairly low rate compared with traditional district schools; and, they have produced reports to support their claims.[7] In some states, based on these politicized reports, charter advocates have succeeded in lobbying for increased charter subsidy rates, while holding constant district funding as if to correct some inequity.[8]

These studies of supposed egregiously unfair funding for charter schools often similarly err by comparing apples to oranges, or more specifically, apples to apple slices. That is, they frequently fail to consider that host public districts in many cases incur additional costs, such as transportation for students within their boundaries who attend charter schools. In some cases such as New York City, as discussed by Baker, Libby and Wiley (2012), districts also heavily subsidize facilities costs for charter schools. Therefore, comparing the revenues allocated directly to both is inappropriate, since some of the revenues allocated to the district schools must be used to pay costs incurred at the charter schools.

While much of the recent debate has centered specifically on Pennsylvania cyber charter schools, other states have adopted a variety of models that have received less attention. Huerta and King Rice (2013) explain that some states, like Minnesota, have adopted models similar to Pennsylvania, but others like Florida, Texas and Maine have based online schooling subsidies on numbers of students completing specific courses, an arguably more precise allocation.[9] We give significant attention later in this report to models that provide financing based on the numbers of students actually participating in and completing specific courses—or specific slices of the apple, so to speak. Clearinghouses such as the Education Commission on the States (ECS) also maintain databases summarizing state policies, including financing, regarding OE/VS alternatives.[10]

Incomplete Information on Costs

However, relevant literature contains few attempts to carefully parse the "costs" of providing education online. As we elaborate in a later section, there are two general approaches researchers might use to determine the "costs" of OE/VS alternatives, where "cost" (defined in more detail in the next section) refers to the minimum level of expenditure required to achieve a given quality and breadth of outcomes. Taking such an outcome-oriented approach, a researcher might, for example, gather data on multiple providers of a common scope of services—such as core secondary academic curriculum. The researcher might then statistically evaluate the relationship between various providers' expenditures and the quality of outcomes achieved. Such a process might identify efficient spending levels associated with certain outcomes. But, this approach is data intensive and requires spending and outcome information on large numbers of providers who offer comparable sets of services.

The alternative to this data intensive approach is to tally the various inputs required to provide a given set of services designed to achieve a specific range and quality of outcomes.

The basic model for conducting this *input-oriented* analysis is the "resource cost model" or "ingredients method." The method can be applied to existing providers by tallying various components of their operating model and summing their prices. Or, the method can be applied under hypothetical circumstances, with estimates provided by focus groups of participants having expertise in the industry.

One of the few more thoroughly documented analyses of virtual schooling costs was conducted by Augenblick, Palaich and Associates (APA) and authored by Anderson, Augenblick, DeCesare & Conrad (2006). Using focus groups of professionals largely from within online education industry (referred to as professional judgment, or PJ panels), Anderson and colleagues found:

> Results from the PJ panels suggest that the operating costs of online programs are about the same as the costs of operating brick-and-mortar schools. It is important to note, however, that APA did not look at costs related to building facilities or transportation in this study. Such costs are worthy of future study because, if they were factored in, the benefit/cost ratio of virtual schools would likely increase and the costs per pupil, as compared to brick-and-mortar schools, would likely be lower since virtual schools spend little, if anything, on transportation and capital.[11]

In other words, in this attempt to parse comparable service breadth, the authors found operating costs between brick-and-mortar and OE/VS alternatives to be quite similar, but that "savings" may exist in transportation and capital expenditures. Notably, however, for home based OE/VS alternatives, some of this cost is simply passed along to parents/families. Anderson and colleagues also discuss differences in costs associated with start-up versus annual operations:

> Results from the PJ panels suggest that a new state-led supplemental program, designed to serve approximately 500 students full time equivalents, or provide 3,000 units of instruction in year one, will require about $1.6 million to adequately fund start-up activities before providing instruction. This first year is used by the program to develop its educational program and infrastructure, and nearly 80% of start-up costs are in management and course development.[12]

Further, they explain that annual costs relative to quality control and ongoing development (or lack thereof) may generate substantial variation in operating costs after startup costs have stabilized:

> The estimated base cost for serving students with no special needs range [sic] from about $7500 per FTE for a state-led, supplemental online program that has high levels of quality assurance and instruction and is growing, down to as low as about $3650 per FTE for a program that is large, not growing, and not investing in significant professional development for teachers and similar quality measures. Funding at the lowest level would allow a program to operate

> day-to-day but would not allow the program to invest in research, development, innovation, quality assurance, and planning for growth. (p. 13)

Two particularly relevant concepts can be drawn from this analysis. First, introduction and early expansion of OE/VS alternatives may generate significant upfront costs, requiring additional public subsidy. This is an additional cost, which may or may not pay for itself down the line, or may find its break-even point several years out. Second, annual operating costs of reasonably regulated OE/VS alternatives are similar to operating costs of brick-and-mortar schooling. To the extent that outcomes are of equal breadth and quality, cost-effectiveness analysis produces a break-even result. As Anderson and colleagues note, districts may realize some savings down the line in transportation and overhead (capital) costs—but some of this cost is simply being transferred to consumers.

A much less well documented but more recent "cost" analysis applying input-oriented methods was released in 2012 by the Thomas B. Fordham Institute.[13] In a report on "The Costs of Online Learning," the authors found the costs of full time secondary offerings to range from about $5,100 per pupil to $7,700 per pupil. This finding was absent any particular context in time or place, however, which severely limits the usefulness of the analysis. Similarly, the authors found the costs associated with a blended middle school model to range from about $7,600 to $10,200 (p. 62).

The authors then compare these figures to a national average figure for brick-and-mortar per pupil expenditures of approximately $10,000 and suggest that OE/VS alternatives are on average substantively less costly. No attempt is made at identifying the relevant breadth of services provided. Nor does there exist any detailed documentation of how the OE/VS costs were determined. In a review of the study, King Rice (2012) explains:

> The data sources used to support the study are unclear and appear to be inappropriate to accomplish the stated goal of "attempt[ing] to estimate average costs—and a range of costs—for online learning as currently practiced in the U.S." (p. 1). Its cost estimates are based on interviews with only about "fifty entrepreneurs, policy experts, and school leaders" (p. 2). Given the proliferation of education technology and online learning, this modest selection of 50 individuals seems insufficient for estimating the costs of online learning in the U.S. Further, no additional information is given on the interviews or the respondents. How were these 50 people selected? Were they associated with "promising" online programs? Were they just a convenient sample? What were they asked in the interviews? A more rigorous research design aimed at understanding the costs of online instruction in current practice might have surveyed all districts in a state to understand the dominant approaches and related costs. Without more information on the interviews and the programs represented, it is impossible to judge the accuracy or representativeness of the cost estimates presented in the report. (p.4)[14]

To summarize, except for some useful detail provided in the 2006 Augenblick and Palaich report, the existing literature on the "costs" of online schooling is of limited use for

informing state policies regarding appropriate subsidy levels for OE/VS alternatives or local district contractual negotiations to determine competitive pricing for a quality product/service.

Recent Guidance on Finance & Accountability

Having touched on much of the same sparse and incomplete literature, Huerta, King Rice & Shafer (2013) have offered preliminary recommendations for policymakers navigating the terrain of financing and regulating online providers and virtual charter schools. In considering how states might best approach the problem of determining subsidy rates for virtual schooling, Huerta, King Rice and Shafer suggested that "Policymakers should develop new funding formulas based on the actual costs of operating virtual schools."[15] They further encourage financing linked to accountability so that cost-effectiveness can be determined. That is, ***subsidies for the cost of virtual schooling alternatives should be equal to or less than those for achieving comparable outcomes in brick-and-mortar schooling***. Huerta ,King Rice and Shafer suggest that to accomplish these goals, significant accountability structures and requirements must be in place. They also assert that it may be appropriate to regulate the level of profit providers may earn from providing virtual schooling services. We agree with many of the points made in this recent report—including its calls for newer and better funding mechanisms, a need we address in the following sections. After illustrating the ways in which costs unavoidably vary as online program structures vary, we outline a unified, course-based approach that may provide a substantial first-step toward the new funding formulas encouraged by Huerta, King Rice and Shafer.[16]

Understanding Cost, Spending & Subsidies

The financing of online education is unavoidably complex because online offerings take so many different forms, each with its own set of associated costs. In this section, we first illustrate this key point; then, we demonstrate how a context specific cost analysis can address the knotty problem of devising a finance system applicable to a wide range of structural alternatives.

Public Subsidy, Spending Reduction or Transfer

Table 1 provides a summary illustrating the interplay between subsidies, spending, outcomes, and efficiency. Assume we are considering at what rate to subsidize OE/VS alternatives relative to brick-and-mortar schooling. Also assume for the purposes of this hypothetical example that we are comparing alternatives that provide exactly the same breadth of services—say, both provide only the core academic curriculum. If each receives the same per pupil annual subsidy, neither receives additional funding from anywhere, both have equal spending, and both produce the same quality of outcomes, then their efficiency is considered equal. Financially, it's a break-even scenario. The underlying assumption in such a system is that the cost of producing the same outcomes is the same

for each alternative. That is, the same outcomes can be produced, with the same level of efficiency, with the same level of spending.

However, consider the possibility that one or the other alternative relies more heavily on additional sources of funding. Perhaps the online option requires substantial additional parent supervision, costly high-speed home internet service, and high quality hardware at parent expense. When factored in, these additional contributions would yield a higher total spending for the OE/VS alternative. If outcomes were still equal, then efficiency would be reduced (since the same outcome had a higher overall cost for the online option). However, it's also possible that the increased total spending might lead to higher average outcomes. Importantly, this would still be a break even on efficiency (higher cost producing better outcomes). Still: we might decide the gain in outcome is worth the extra cost—particularly if that additional cost is not paid out of public tax monies. The obvious point here is that efficiency is properly calculated based not simply on government subsidy; calculations must take into account whether a program receives supplemental income from other sources, whether services provided are equal, and how outcomes compare.

Table 1. Interaction Among Subsidies, Spending, Outcomes, and Efficiency

OE/VS Subsidy Compared with Brick & Mortar	Supplement?	Relative Spending	Outcome	Efficiency
Constant/Equal	None	Equal	Equal	Equal
Constant/Equal	Supplement	Higher	Equal	Reduced
Constant/Equal	Supplement	Higher	Increased	Equal
Reduced	None	Lower	Equal	Increased
Reduced	Supplement/ Offset	Equal	Equal	Equal

In the current policy context, it seems likely that the emphasis will be on reducing the subsidy rate for one option or the other. Some argue that funding cuts, or subsidy reductions, can be effectively used to squeeze schools into producing the same outcomes more efficiently.[17] Let's assume for a moment that in fact there were some unnecessary inefficiencies embedded in our online provider's model. Thus, if we reduce the subsidy rate, and no one picks up the difference, spending will be lower. If the provider can continue to produce the same outcomes while spending less, it will have increased its efficiency.

However, there exists little, if any, evidence that cuts can in fact induce such efficiencies.[18] If $500 per pupil were cut from the state subsidy, but private philanthropists stepped in to replace that $500 per pupil, spending per pupil would remain constant. So would the efficiency.

The baseline efficiency consideration for policymakers when subsidizing OE/VS alternatives is to avoid paying the same, or more, for options that provide fewer services or lesser outcomes.

Parsing Online versus Brick & Mortar Schooling

The many flavors of online programs have been characterized in numerous schematic diagrams by other authors. The annual *Keeping Pace with K-12 Online Learning* reports, from *kpk12.com*, recently recast Gregg Vanourek's 2006 map of the "electronic frontier" along the dimensions below.[19] Many of these same dimensions are particularly relevant to parsing the cost structure and appropriate subsidy rate for virtual schooling:

- Comprehensiveness: Supplemental to Full-Time
- Geographic Reach: Local District to Global
- Location: School to Home to Other
- Synchronicity: Synchronous/Asynchronous
- Control: Local board, consortium/regional authority, university, state, private vendor
- Delivery: Fully online, Blended, Face to Face
- Level: Elementary to Secondary
- Teacher-Student Interaction
- Student-Student Interaction (p. 10)[20]

Comprehensiveness matters because it varies widely, ranging from students engaged in a specific course to students enrolled in a fully online program for degree completion. Location also matters, because it affects costs for overhead and transportation. Delivery structures—fully online or blended, for example—also affect cost, as do various grade levels, as we will discuss below. Synchronicity is tied to these delivery structures, in that some do and others don't permit asynchronous alternatives. Control matters to the extent that alternative governance structures have different overhead costs. Separately control matters in terms of legal issues pertaining to transparency as well as employee, student, and parent rights. These tradeoffs should not be overlooked.[21] How much interaction students have with a teacher or with each other affects not only cost, but potentially also the quality of student outcomes; in fact, it may be necessary to establish minimum thresholds of interaction to ensure quality outcomes.

Figure 1 provides our attempt to map the costs for delivery of a full complement of online curriculum and other services online students may receive—and to identify where financial

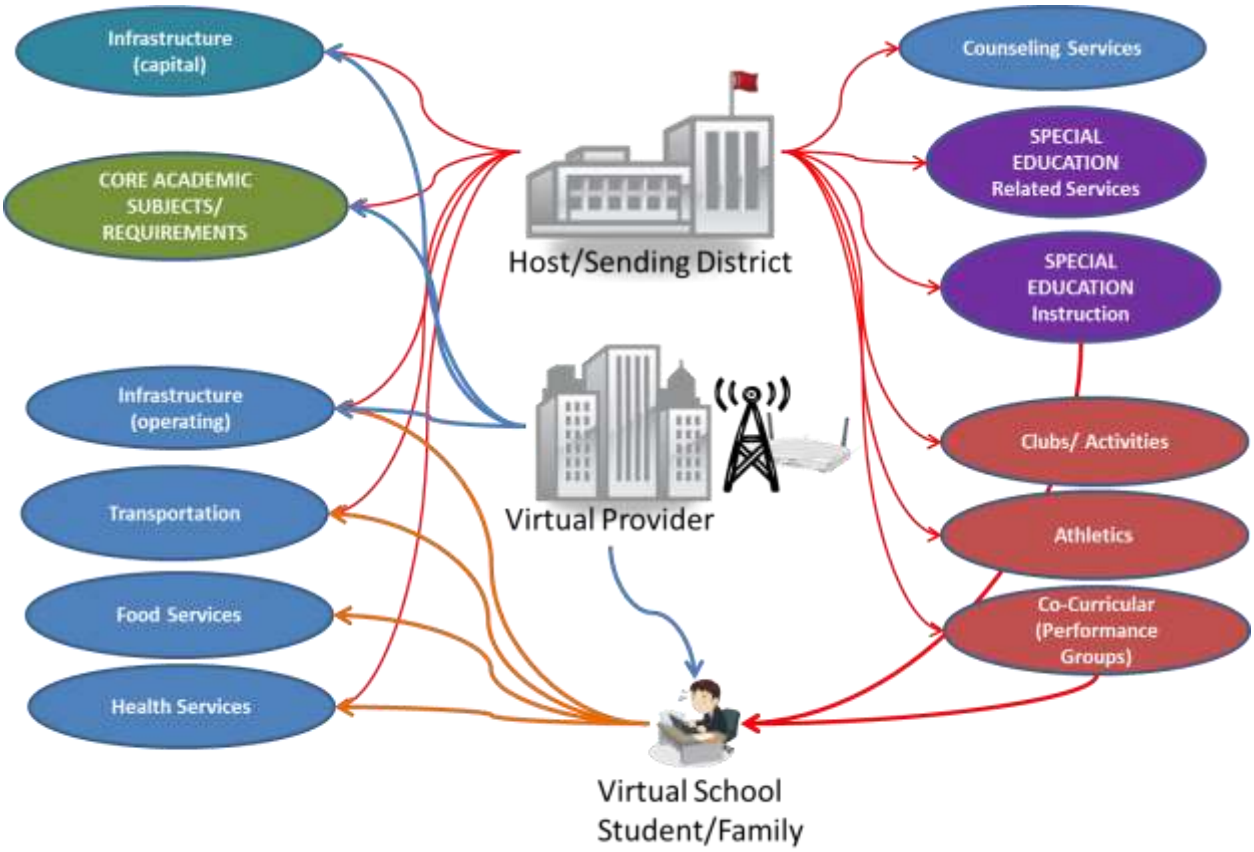

Figure 1. Mapping the Costs and Financial Responsibility for Curriculum and Services for Online Students

responsibility for each lies. In this example, we assume the student is working from home, as compared with the brick-and-mortar setting for the host district of that student. Any such hypothetical will necessarily be incomplete and/or vary by context. Our point, however, is that mapping these responsibilities is a crucial, context-specific step in the process of determining how to best finance OE/VS alternatives.[22]

A brick-and-mortar local public school district is responsible for the construction, maintenance, and ongoing operations of its capital infrastructure. It is also responsible for the provision of transportation services, food services, student health, and counseling services. Further, the typical brick-and-mortar district school provides for numerous organized activities and athletics programs. Within this package of services the brick-and-mortar district is also responsible for the provision of the core academic curriculum. Notably, this responsibility includes the provision of individualized educational programs, which may include high-cost assistive technologies and related services for children with disabilities.

Consider the alternative scenario of the child taking a full complement of courses through an online provider. The provider does indeed have operational costs. It must develop and deliver content, employing staff to do so, including qualified teaching staff to interact with a reasonable number of students. The online provider likely also incurs some overhead expense, at the very least consisting of the technology required for delivering content and likely for enabling teacher-student interaction. The extent to which some of these costs may be passed on to the teaching staff who contract with online providers is not well understood. Questions remain such as the extent to which online teachers, on average, finance their own technology or office space either in their own homes or in a provided location. Further, the scope of these services is commonly limited to coursework required for completion (including elective credits) of the given grade level or final degree. The online provider requires some administration and some support services, but those support services may be limited to providing online tools for navigating degree requirements with limited one-on-one direct personal assistance.

Assuming the child is being educated at home, significant costs are passed along to the student and her family. These include the non-subsidized costs of home meals, transportation costs that may be required for gaining full access to the educational program, and, perhaps most importantly, the home overhead costs of providing the required space and technology. These family-borne costs may also include parental supervision, particularly in full-time virtual education (a potentially highly significant cost if it requires a parent sacrificing employment income).

In some states, local public school districts remain responsible for ensuring the development and implementation of federally mandated individualized educational programs (IEPs) for special needs students within their boundaries, even if they are enrolled in an online program. Moreover, districts provide access to various activities and sports teams to students completing online programs at home. In such cases, the host brick-and-mortar district may incur significant costs in support of the home-schooled online school student for which it may not receive any compensation from the state funding formula.

Given Figure 1 as a prototypical model, it would make little sense to provide the same subsidy to the online provider as to the brick-and-mortar school, even if the same quality of core curricular outcomes could be achieved.

As complex as Figure 1 appears, there are a multitude of varying structural arrangements that make distilling fiscal issues of OE/VS schooling even more complicated—even potentially overwhelming. Differences in state laws allow for differences in structures among states, and most states are already home to multiple alternative structures. Because local districts arrange contracts for supplemental online education, contracts for services may vary among districts both within and among states. Given that each district may have multiple contracts with different providers, the existing and potential variations in the online education economic model are boundless. A full analysis of the price of online education, the cost to the various systems, the spending among the parties, the efficiency achieved, and ultimately the subsidy required to achieve online efficiency comparable to

the traditional alternative is a monumental task, especially considering that such an analysis would have to precede the actual instruction and outcomes.

Therefore, a unified financing model that can accommodate the full range of complexities is essential to determining appropriate funding levels for various structures. We begin to dissect those complexities and propose alternative financing strategies in the next section.

Empirical Examples

In this section, we take two approaches to parsing school district financial data to illustrate the issues involved in identifying the components of spending in traditional schools that might be matched to components of online services. As we did earlier, we take brick-and-mortar schools that are fully subsidized with public monies as the "status quo" for comparison, and we proceed on the assumption that the goal of such comparisons is to determine whether the online alternative can provide the same range of services and the same quality of outcomes at lesser cost. ***Subsidies for online alternatives should not be higher than the cost of providing the same scope and quality of services, with comparable outcomes, in existing traditional schools.***

In our first example below, we parse New York City school and district level expenditures data to isolate costs associated with providing a high school general education program; we exclude certain expenditures that would clearly not be the responsibility of an online provider, such as transportation and food. This top down approach, however, falls short. It does not allow us to easily parse the remaining general program expenditures and exclude such expenses as student activities, athletics, arts, libraries and other expenses that may not be covered by online providers. More fine grained expenditure reports may allow for this greater precision, but such highly detailed expenditure reports are not commonly available for many districts, though they may be produced from existing accounting systems.

In our second example, we provide a framework for understanding the costs of completing educational programs from a bottom up perspective, based on a costing model developed for understanding relative costs of degree completion for college undergraduates. We believe that this model ultimately provides the greatest promise for accurately and precisely financing OE/VS alternatives. In particular, it provides a unified approach that may be applied across the various structures of OE/VS instruction.

Top Down: By Process of Exclusion

Here we use data from the New York City School Based Expenditure reporting system[23] to isolate grade level specific general education spending (excluding special education spending). In part, our goal here is to illustrate why it is inappropriate to use a simple, district-wide, average per-pupil spending as a basis for determining the subsidy rate for OE/VS alternatives (as do Pennsylvania and Minnesota). While this type of analysis works

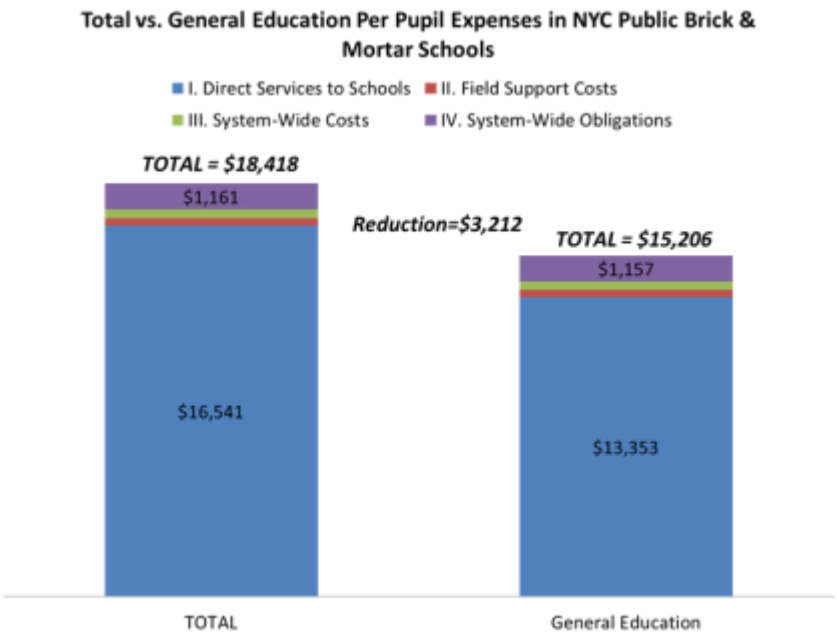

Figure 2: Expenditure Per Pupil In NYC Pulic Brick-and-Mortar Schools

from the top down and does not always get down to the level necessary to make accurate, precise comparisons, it is nevertheless instructive.

Figure 2 shows the total expenditure per pupil of New York City schools at $18,418.[24] In line with the debate over Pennsylvania subsidies discussed above, virtual schooling advocates might argue that virtual schools providing options to children in New York City should be subsidized at that full per-pupil rate. However, Figure 2 shows that even if we take only the first step of excluding special education and focusing solely on "General Education," a cut of over $3,000 per pupil results.

Moreover, per-pupil expenditures in New York City schools and elsewhere also vary by grade level, and most participants in online alternatives are at the middle or secondary level. (New York City is somewhat different than other locations, however, because its per-pupil spending is lower at the secondary level than at the middle or elementary level per pupil, likely because of large class sizes in New York City high schools.) Figure 3 shows that direct

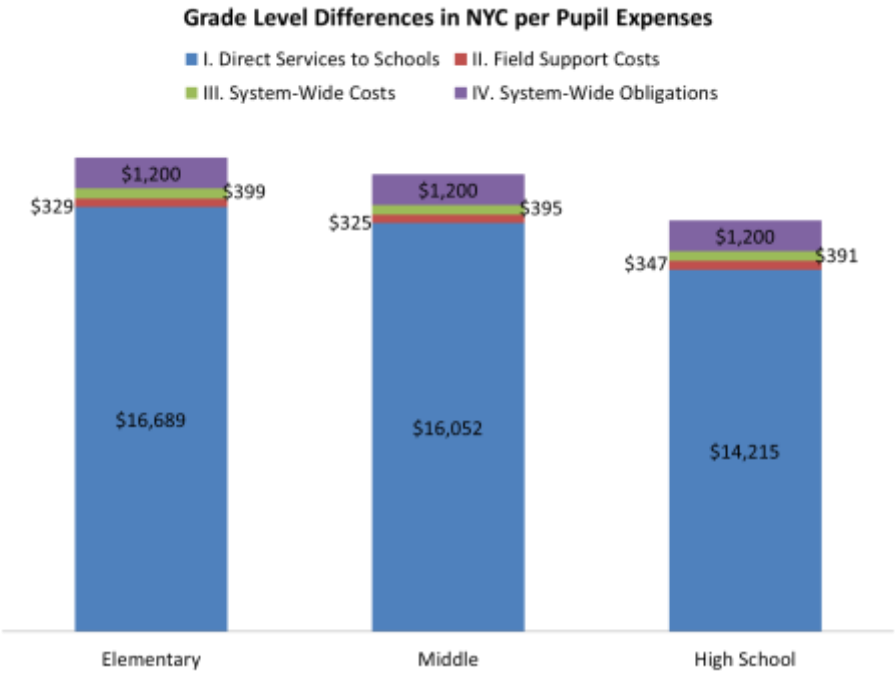

Figure 3. Grade-Level Differences in Expenses per Pupil in NYC

services expenditures in New York City high schools are $14,215, with other expenses adding about $2,000 per pupil. However, this figure includes special education. That is, we have not yet cumulatively parsed the grade level and general education expense differences.

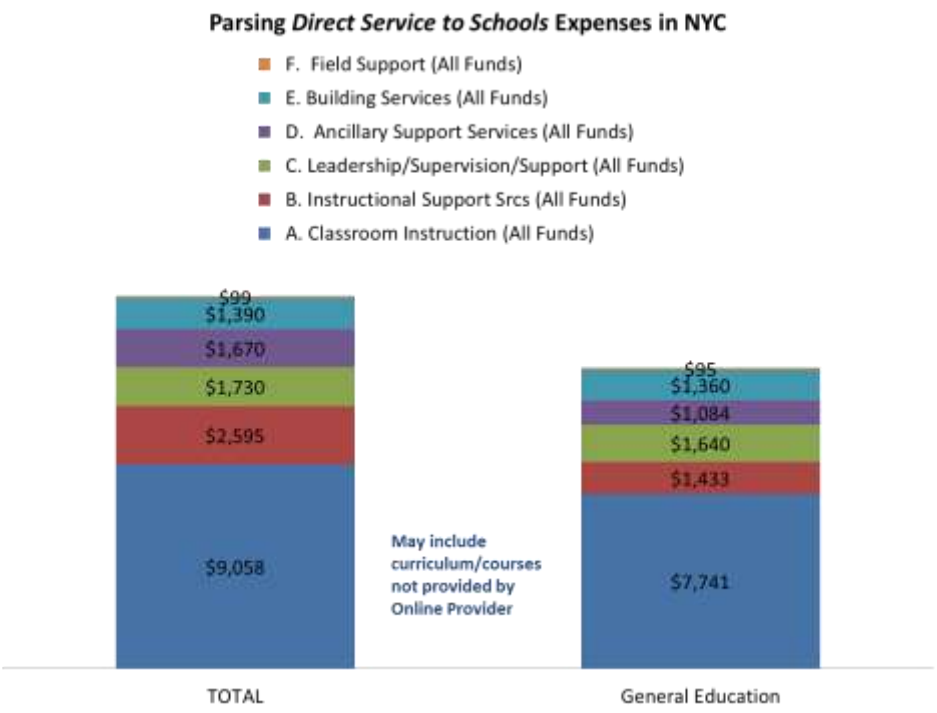

Figure 4. Parsing Direct Service to Schools Expenses in NYC

We also have not yet parsed the direct service expenses; some may apply to some online providers, while others may not. For example, direct service expenditures include classroom instruction, which would be replicated by the online provider, as would instructional support and administration.

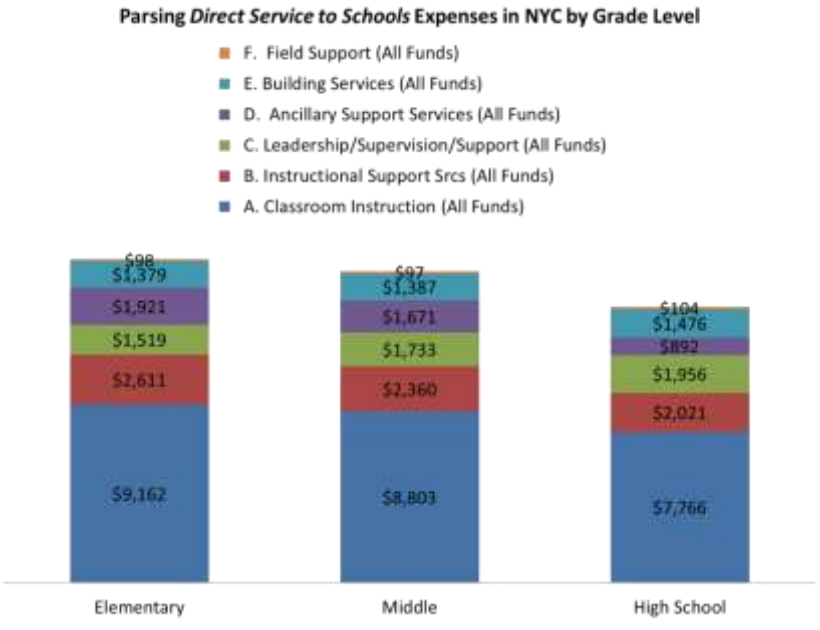

Figure 5. Parsing Direct Service to Schools Expenses in NYC by Grade Level

However, the instructional support expenses are not necessarily directly comparable. They also include support for student activities, which may not be provided by the online provider; in fact, children enrolled in virtual schooling may also access activities in the brick-and-mortar school (Figure 4). Other spending categories are equally difficult to sort out. Ancillary support services coupled with leadership support include the costs of food

and transportation—not part of online expenses for the provider. And, the expenses for building services category, while relatively straightforward for physical plants, may be shared by two parties under online programs: the provider pays its facilities overhead while the parent/student often provides workspace for the child. The classroom instruction component of direct expenditures for general education is $7,741 per pupil, or only about 42% of total expenditures—but portions of the other expenditures should be added back in to more accurately reflect actual total cost, as indicated in Figure 4.

Figure 5 shows that direct service expenses also vary by grade level. The classroom instruction expenses are lowest for the secondary grades. But we still have to sort out the intersection of grade level differences and general vs. special education differences.

Figure 6 parses the general education expenses for high schools, providing perhaps a better estimate of core spending to use in comparisons with costs of providing a complete online high school program. Here, the classroom expense is $7,339; when expenses from other relevant budget categories are added in, that figure rises to a cumulative total of direct school level expenses of $13,609. Adding in district level expenses raises the total to $15,202. Even that estimate, however, is well short of the original district-wide average of $18,414. Moreover, it still includes components that should not be funded for online programs (notably extra-curricular activities, food and transportation).

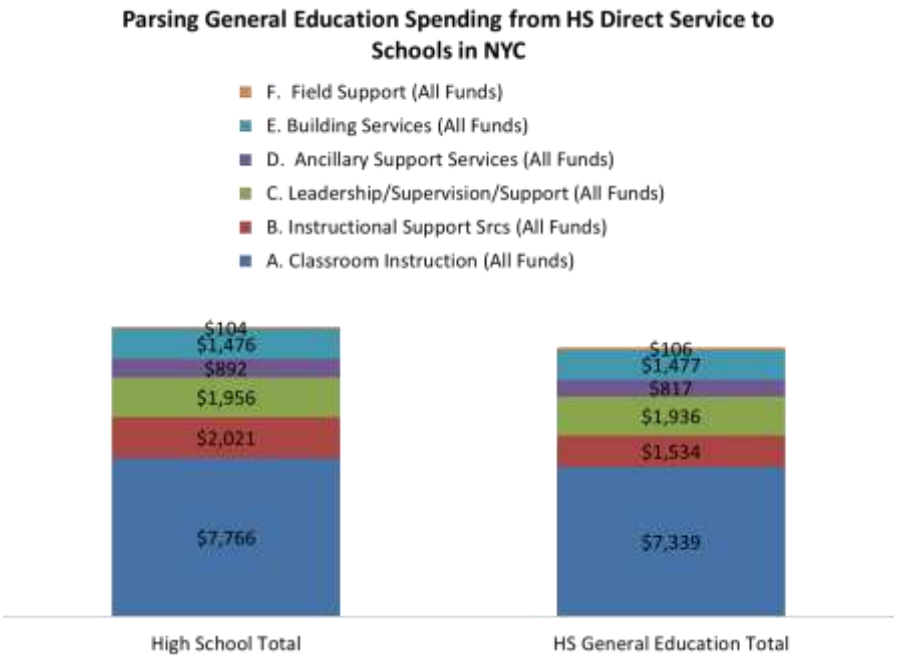

Figure 6. Parsing General Education Spending from HS Direct Service to Schools in NYC

Note that such calculations of actual cost result in substantive reductions of the original citywide average spending of $18,414 per pupil. Focusing on secondary level only brought the figure to $16,152 while focusing on both middle and high school brought that figure down to $15,202.

The next step toward a more accurate estimate is to parse specific components of the direct expenditures and overhead that may or may not be fully applicable to the online setting:

that is, to exclude such expenses as food and transportation, or spending on student activities and sports.[25] Figure 7 calculates reductions for each exclusion to arrive at a reasonable estimate of the expenditures for a basic program of instruction, with overhead included, for secondary education in New York City. A detailed list of included and excluded items used in this calculation appears in Appendix A. It excludes, for example, allocations for after school and student activities. On the whole, we believe the estimate is generous. For example, it includes allocations for music and arts programs, even though some might not be feasible in an online setting. It also funds building maintenance and operations support at 50%, even though an online provider's operating costs would likely be much less than 50%.

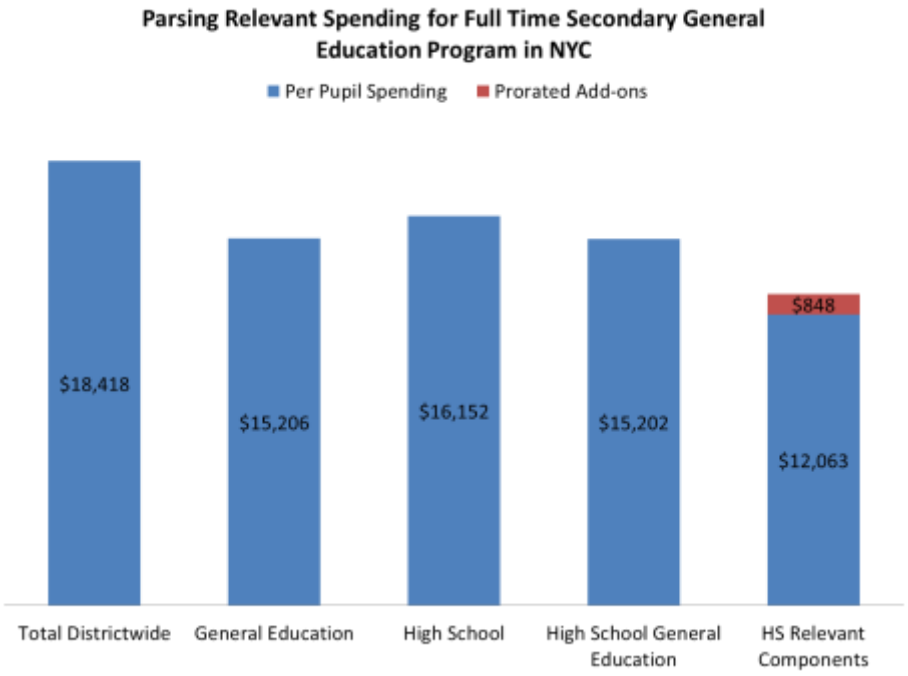

Figure 7. Parsing Relevant Spending for Full-Time Secondary General Education in NYC

This generous estimate is only about 70% of our starting figure. This difference is consistent with previous empirically shallow suggestions that online schooling might operate at about $7,000 per pupil compared with an average brick-and-mortar expenditure of $10,000 (T.B. p. 62).[26] However, it is important to look closely at the import of this estimate. We have calculated that the cost for general education services in the online environment is some 70% of the cost for comparable services in a brick-and-mortar setting. However: the same instructional services consume only about 70% of the brick-and-mortar total per-pupil expense, since the total cost includes services typically not provided by online providers. Therefore, the online cost per pupil is not less, but similar: about 70% of expenses in the traditional schools, which use about that percentage of their budget for comparable instructional services. However, the online provider leaves a substantial percentage of services to be provided by the district, the parents—or not provided at all. Thus, if any efficiency is gained in such a model, it is gained only by reducing services overall or by placing additional unsubsidized burdens on traditional schools or parents. Again, this is only one such model and the relevant, comparable share of spending likely varies by district and location. More precise local estimates would require a similar analysis of local

costs and services. What does seem clear, however, is that it is unwise to assume that if online providers appear to be operating at lower cost, then efficiency has been increased.

While this top down analysis of expenditures is an approach that allows better estimates for comparable subsidy rates for providing a core online secondary curriculum, it is likely that even this estimate is too generous. Real costs for the online instruction may well be even less than the 70% of district expense per pupil that we have estimated here because it is unlikely that routine providers would provide all of the services we generously included in our estimate. To move still closer to a precise estimate, an alternative bottom-up approach is useful.

Bottom Up: By Unit Production Costs

Rather than stripping out some expenses from an overall total, a bottom-up approach identifies the cost of individual factors and then totals them to determine costs of partial or complete educational programs. Even the most comprehensive online programs are, for the most part, a collection of individual instructional units across a limited curriculum of required courses and electives, and they do not routinely include the additional services

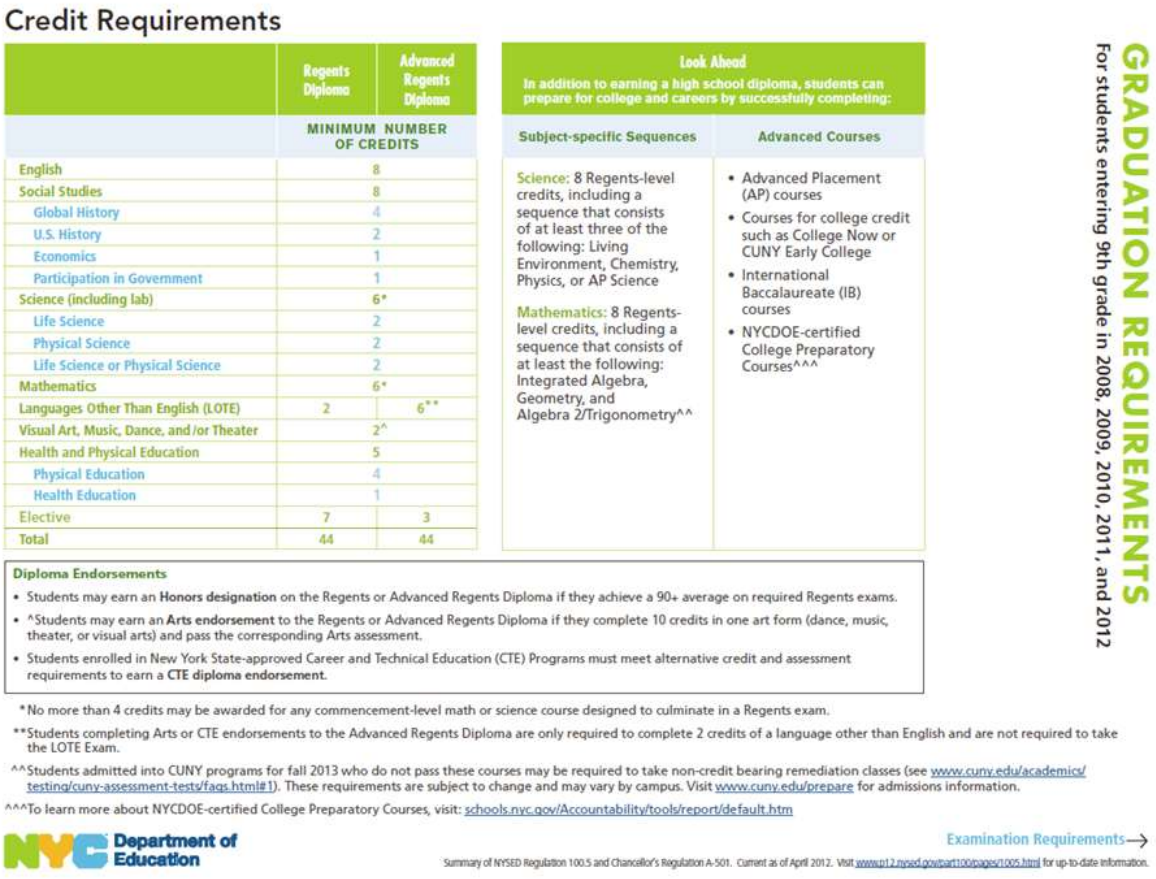

Figure 8. Graduation Requirements for NYC Public Schools

and opportunities of brick-and-mortar schooling. Secondary students enroll most frequently, and full time programs typically seek to provide them with an array and sequence of courses that allow them to meet state requirement for high school graduation and, if they choose, to enroll in college. To an extent, state requirements mean that the building blocks of the core curriculum in brick-and-mortar secondary schooling are analogous. Figure 8 summarizes the curricular requirements for degree completion in New York City public schools. In effect, this is all that an online provider would have to guarantee in a program considered complete.

Secondary education programs typically provide a menu of courses that allow multiple pathways to accommodate student interest and ability, but with certain core requirements for degree completion.[27] In that aspect, secondary education is similar to college undergraduate education, where students complete required courses and choose among designated electives. Therefore, we can draw from recent work studying costs and efficiencies in undergraduate programs to inform our analyses of OE/VS high school programs.

In an effort to estimate the *costs of degree completion*, Morphew and Baker (2007) attempted to distill the unit costs of providing specific courses in undergraduate programs and to track undergraduate course-taking behavior.[28] This research was spurred in part by increased college and university interest in charging differentiated tuition levels for students in different degree programs. Earlier analyses examined the expenses of degree granting units (salary and overhead expenses of university/college academic departments). Morphew and Baker, however, argue that *costs of degree completion* are more complex, because students take a mix of courses across units to complete a degree in any one field; these varied pathways lead to different average costs of completion for degrees by field. Thus, determining the common pathways to degree completion for different fields makes it possible to determine the unit cost of providing each course in a pathway and then adding the unit costs to determine its average total cost.

Because of the precision this approach allows, and because of similarities between online secondary programs and undergraduate education, legislation proposed at the end of this brief embraces this bottom up approach, which calculates the costs of individual educational units. Establishing such a system would then permit more accurate analyses of the costs of program completion via alternative pathways. Again: online alternatives should be funded at no more than the cost of comparable services in a brick-and-mortar school.

The first step, then, is to determine the average or expected brick-and-mortar costs of completing the requirement components of a high school program, or more specifically, the unit costs of each component within that program. Figure 9 presents a simplified diagram representing student course taking behaviors toward completion of a high school diploma. While the diagram is structured as four years of different course collections, there exists significant flexibility in time-to-completion. There need not be four chunks of time allocated, especially where larger shares of courses are asynchronous. Students navigate different pathways toward their degrees, illustrated by the red lines moving through menus of year to year courses, taking different sequences of required credits in

math, English, science and social studies as well as elective credits to fill their course loads and graduation requirements.

Each course, or unit of instruction may be pulled from this mix, from these pathways, and the costs of providing that unit of instruction may be calculated under the brick-and-mortar alternative. Unit costs vary because, as Figure 10 illustrates, each course has various direct and indirect costs associated with its delivery to an individual student.

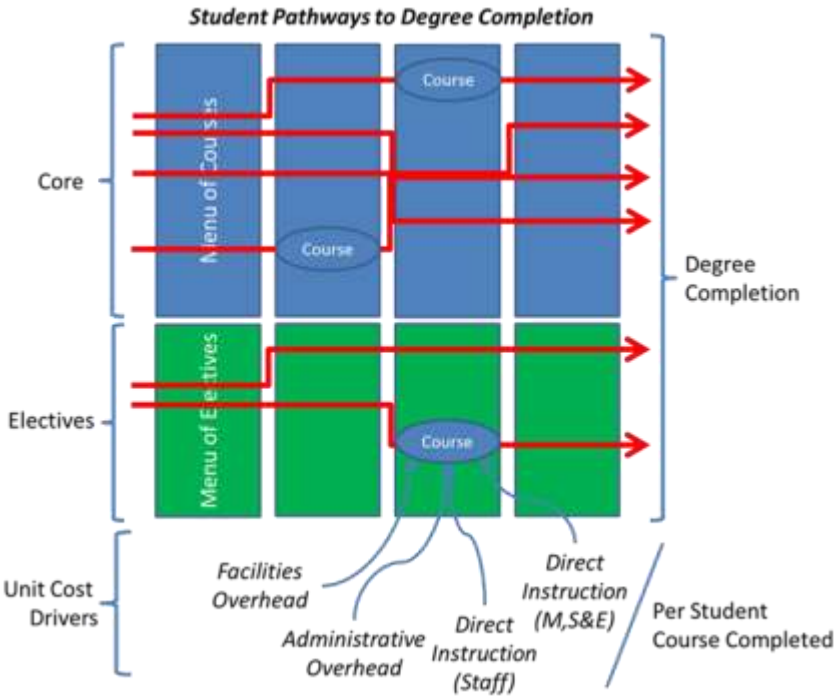

Figure 9. Student Pathways to Degree Completion

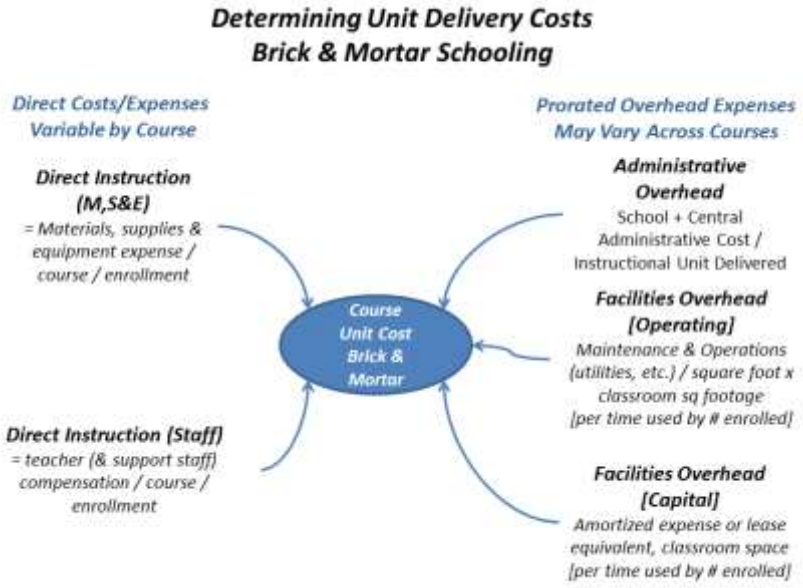

Figure 10. Determining Unit Delivery Costs

First, there are direct instructional personnel costs, which include teacher salaries and benefits divided by the total number of students instructed by that teacher. This calculation can be done either of two ways. First the teacher's contract might be divided into 6 parts if she teaches six courses; then, for each 1/6th of total compensation, divide by the course/section enrollments to determine compensation per student, per course. This approach would indicate whether an AP calculus section has a higher unit cost than an introductory algebra class taught by the same teacher. It may be appropriate to identify higher costs of courses that require greater

intensity of teacher-student interaction (smaller total student load to be well managed/delivered), and to use those higher cost estimates as a basis for differentiating the subsidy rate for different types of courses taken online.

Estimates should likely be based on the **average teacher compensation** rather than the actual compensation of a teacher for a given course, since variations associated with individual teacher's experience levels don't necessarily reflect real variation in the average costs over time of delivering a specific course. The simplest approach is to take the average salary and benefits divided by the average total student load (or load per course), or some fixed upper threshold, for a given teacher. Such averaging is reflected in our legislative recommendations below, across various courses and levels of the education system, as a way to determine average per unit costs for each course.

Another way to calculate the salary cost of each unit of instruction for a bottom-up analysis is to use state teaching maximum limits. In New York State, for example, regulations dictate that "The number of daily periods of classroom instruction for a teacher should not exceed five. A school requiring of any teacher more than six teaching periods a day, or a daily teaching load of more than 150 pupils, should be able to justify the deviation from this policy."[29] Thus, if the average salary of a teacher in New York City is $70,000 per year, the direct salary cost of one unit of instruction for one pupil is $70,000/150 = $467. Other direct expenses include materials (M), supplies (S) and equipment (E), where M,S&E expenditures likely either show up as school-wide or academic department expenditures. These expenditures may be distributed on a prorated basis across all units of instruction delivered. That is, school-wide MS&E expenditures might be divided by the total number of courses in the school, or an academic department's MS&E expenditures might be divided by the total number of courses the department offered. And again, these figures can be divided by enrollment to yield a cost per student, per course.

Administrative and facilities overhead expenses can be similarly calculated to make the resulting cost estimate more precise; such calculations take into account not only direct costs but also the indirect costs that have too frequently been absent from consideration. Again: It is necessary to begin with such detailed analyses of traditional schools because the baseline objective in setting an OE/VS subsidy rate is that it shall not be greater than the costs of providing comparable services in a traditional school—unless some other benefit is achieved.

Knowing the instructional cost estimates of similar courses in brick-and-mortar schools substantially inform the subsidy determination for OE/VE options. The following suggestions point to particular considerations in determining appropriate subsidy rates:

1. Exclude overhead costs if children remain in district brick-and-mortar facilities while taking online courses.
2. Use a maximum allowable student load or class size rather than actual averages.

While either might be reasonable, we note that actual average total student load and actual average class sizes for classes by type better represent the actual unit costs in the brick-and-mortar setting. But, maximum allowable loads and class sizes may more appropriately reflect costs where physical space and scheduling constraints are not at issue.

3. Permitting course loads or class sizes to be differentiated by course type.

   It is possible that in the online setting, either remedial or advanced courses require smaller instructor loads to be equally effective, and that the smaller loads are likely to substantively enhance the quality of the students' experience and ultimately their outcomes. Identifying which courses produce desired outcomes with small total student loads can thus be important for determining how subsidy rates might differ for those courses.

4. Use average salaries, or average salaries by course type, to estimate unit costs of providing certain courses.

   For budget planning purposes, if we were planning to offer an additional course, or sections of a course, we should assume those courses or sections to be assigned an average cost teacher, or perhaps more precisely an average cost teacher in that subject area and/or for that grade level. We should not assume, for example, that Calculus costs less to offer simply because this year's Calculus teacher is fresh out of college. Instead, sufficient sample sizes of upper level math teachers should be used for determining average costs for similar offerings.

Underlying this entire framework for guiding OE/VS subsidy policy is an assumption of "all else equal" regarding the quality of outcomes produced. That is, the subsidy to the online provider should be up to, but not exceeding, the unit costs of providing the same quality experience in the brick-and-mortar setting.

Because quality is an important indicator, states and local districts must take steps to evaluate the quality of student outcomes in supposedly similar courses. Given advances in statewide longitudinal data systems, doing so may be much easier than it has been in the past. Because of the increased emphasis on "college readiness" in publicly financed secondary education, it seems reasonable to suggest that states as well as local districts implement determine whether *otherwise similar* students taking equivalent online courses are as likely to succeed in related courses later as their counterparts in traditional schools. For example, if 100 students took a calculus course in a traditional school and a similar 100 took an online calculus course, did they achieve similar rates of success in comparable mathematics courses in their first two years of college? Similarly middle school courses might be assessed by determining whether students taking a particular online course succeeded in a related high school course at the same rate as their counterparts who took the course in a traditional school.

Of particular interest are laboratory science courses, which at face value appear less than comparable. A critical question is whether students who engage only in computer

simulated laboratory activities at the secondary level are equally prepared to succeed in college laboratory courses. It may be that these experiences simply are not equivalent and thus require serious rethinking. For instance, an online Advanced Placement science course that cannot meet the requirement for a "hands on" lab experience is only conditionally AP authorized; a note appears in the course ledger indicating the lab requirement was not met and that colleges should do their own research on the student's work in the course to determine credit or placement.[30]

Unfortunately, there is little credible research on outcome quality. Existing sponsored studies of effectiveness of online alternatives typically have failed to establish relevant comparison groups, or to measure more relevant long run outcomes. For example, various Florida Virtual School efficacy studies have focused only on whether students in those courses achieve a higher post-test score than pre-test score.[31] In other words, did they learn something? But these studies fail to ask whether they learned the same or more than students taking the equivalent brick-and-mortar course or whether they were comparably prepared to succeed in subsequent coursework. To get at the crucial question of quality, states and districts will need to begin making their own comparisons of outcomes in traditional and online alternatives.

Recommendations

This backdrop leads us to what we might refer to as *School Finance 2.0—Flexible Financing for a Virtual World*. Our central recommendations are:

1. OE/VS alternatives should be funded based on the instructional units provided to students to advance their progress toward program completion. Using brick-and-mortar rates as the basis for funding online offerings is inappropriate; the scope of services provided by OE/VS alternatives varies so greatly that an offering is rarely, if ever, equivalent to that provided in a traditional setting offering a full complement of services.

2. Maximum subsidy rates for online instructional units should not exceed the costs of producing the same unit in the brick-and-mortar setting.

3. States should consider determining the average costs for various units of traditional brick-and-mortar courses, particularly at the secondary level, to provide a base for calculating state subsidies for full-time online program as well as for calculating for school district subsidies for supplemental online courses.

4. School districts continuing to provide services to full-time online students should be compensated for their costs.

5. States and local public school districts should conduct longitudinal studies to determine the relative effectiveness of OE/VS versus brick-and-mortar services to ensure that outcomes are at least comparable.

These five central tenets of a reformed online school financing system can serve as a practical guide for state and local subsidies. They are the base of the legislative findings (Sec. 101) in the model legislation that accompanies this report and that more fully

articulates policy implications. State Education Agencies may provide both regulatory controls over and technical support for local district online contracting, including but not limited to statewide evaluation of the relative effectiveness of specific online alternatives and a statewide database of existing negotiated contracts.

APPENDIX A

OP=Online Provider
PD = Public District
PA = Parent
NA = Non-Applicable

General Ed: 310,128		TOTAL	Payer	Running Total (Full OP Expenses)	Prorated Add-Ons
	Total Expenditure	Per-Pupil Expenditure		Per-Pupil Expenditure	Per-Pupil Expenditure
I. Direct Services to Schools	$4,096,412	$13,209			
A. Classroom Instruction (All Funds)	$2,276,103	$7,339			
i. Teachers	$1,882,506	$6,070	OP	$6,070	
ii. Education Paraprofessionals	$20,397	$66	OP	$6,136	
iii. Other Classroom Staff	$14,016	$45	OP	$6,181	
iv. Text Books	$36,897	$119	OP	$6,300	
v. Librarians and Library Books	$26,457	$85	OP	$6,385	
vi. Instructional Supplies and Equipment	$58,386	$188	OP	$6,574	
vii. Professional Development	$105,042	$339	OP	$6,912	
viii. Contracted Instructional Services	$102,500	$331	OP	$7,243	
ix. Summer and Evening School	$29,902	$96	OP	$7,339	
B. Instructional Support Srcs (All Funds)	$475,828	$1,534			
i. Counseling Services	$177,237	$571	OP	$7,911	
ii. Attendance & Outreach Services	$58,679	$189	OP	$8,100	
iii. Related Services	$57,569	$186	OP	$8,286	
iv. Drug Prevention Programs	$8,939	$29	NA		
v. Referral and Evaluation Services (All Funds)	$27,016	$87	PD		
vi. After School and Student Activities	$105,803	$341	PD		
vii. Parent Involvement Activities	$40,585	$131	OP/PD		$65
C. Leadership/Supervision/Support (All Funds)	$600,399	$1,936			
i. Principals	$100,013	$322	OP	$8,608	
ii. Assistant Principals	$203,583	$656	OP	$9,265	
iii. Supervisors	$16,952	$55	OP	$9,319	
iv. Secretaries, School Aides & Other Support Staf f	$226,465	$730	OP	$10,049	
v. Supplies, Materials, Equipment, Telephones	$53,387	$172	OP	$10,222	
D. Ancillary Support Services (All Funds)	$253,364	$817			
i. Food Services	$85,748	$276	PA		
ii. Transportation	$45,744	$148	PA/NA		
iii. School Safety	$94,203	$304	NA		
iv. Computer System Support	$27,669	$89	PA/OP	$10,311	$45
(School Level)		$0			
E. Building Services (All Funds)	$457,913	$1,477			
i. Custodial Services	$186,556	$602	PA/OP		$301
ii. Building Maintenance	$120,287	$388	PA/OP		$194
iii. Leases	$67,524	$218	PA/OP		$109
iv. Energy	$83,546	$269	PA/OP		$135
F. Field Support (All Funds)	$32,805	$106			

General Ed: 310,128		TOTAL	Payer	Running Total (Full OP Expenses)	Prorated Add-Ons
	Total Expenditure	Per-Pupil Expenditure		Per-Pupil Expenditure	Per-Pupil Expenditure
i. Additions to Salary / Projected Expenses	$32,805	$106	OP	$10,417	
II. Field Support Costs	$106,996	$345			
A. Instructional Support and Administration (All Funds)	$88,220	$284			
B. Other Field Support Costs (All Funds)	$18,777	$61			
i. Sabbaticals, Leaves, Termination Pay	$17,300	$56	OP	$10,472	
ii. Additions to Regular Salary	$1,243	$4	OP	$10,476	
iii. Projected Expenses	$234	$1	OP	$10,477	
III. System-Wide Costs	$119,804	$386			
A. Central Instructional Support (All Funds)	$14,674	$47			
i. Instructional Offices	$14,674	$47	OP	$10,524	
B. Central Administration (All Funds)	$105,130	$339			
i. Instructional Offices	$20,621	$66	OP	$10,591	
ii. Operational Offices	$72,392	$233	OP	$10,824	
iii. Central Leadership	$12,117	$39	OP	$10,863	
IV. System-Wide Obligations	$372,134	$1,200			
A. Other System-Wide Obligations (All Funds)	$372,134	$1,200			
i. Debt Service	$231,527	$747	OP	$11,610	
ii. Retiree Health and Welfare	$138,103	$445	OP	$12,055	
iii. Special Commissioner for Investigation	$2,503	$8	OP	$12,063	
V. Pass-Throughs	$19,137	$62			
A. Non-Public Schools (All Funds)	$3,354	$11			
ii. Special Education	$3,354	$11			
B. Fashion Institute of Technology	$15,783	$51			
D. Charter Schools	N/A				
Total	$4,714,483	$15,202			

Notes and References

1 Wagner, J. (2012). *Charter and cyber charter education funding reform should save taxpayers $365 million annually*. Harrisburg: Office of the Auditor General, Commonwealth of Pennsylvania., 1. Retrieved October 14, 2013, from http://www.auditorgen.state.pa.us/Department/Press/CyberCharterSpecialReport201206.pdf/.

2 Wagner, J. (2012). *Charter and cyber charter education funding reform should save taxpayers $365 million annually*. Harrisburg: Office of the Auditor General, Commonwealth of Pennsylvania., 1. Retrieved October 14, 2013, from http://www.auditorgen.state.pa.us/Department/Press/CyberCharterSpecialReport201206.pdf/.

3 For another look at the Pennsylvania system of financing for virtual schools, *see* Carr-Chellman, A. A., & Marsh, R. M. (2009). Pennsylvania cyber school funding: Follow the money. *Tech Trends, 53*(5), 49-55.

4 Wagner, J. (2012). *Charter and cyber charter education funding reform should save taxpayers $365 million annually*. Harrisburg: Office of the Auditor General, Commonwealth of Pennsylvania., 1. Retrieved October 14, 2013, from http://www.auditorgen.state.pa.us/Department/Press/CyberCharterSpecialReport201206.pdf/.

5 Barth, P. , Hull, J., & St. Andrie, R. (2012, May). *Searching for the reality of virtual schools*. Alexandria, VA: Center for Public Education, National School Boards Association, 12.

6 Others, including Barbour (2012), summarize the literature with similar findings on the unfulfilling nature of arguments for "equal" funding:

Barbour, M. K. (2012). Virtual schools are more cost-effective compared to traditional, brick-and-mortar schools? In K. P. Brady (Ed.), *Technology in Schools: Debating Issues in American Education* (84-90). Thousand Oaks, CA: Sage.

7 A study frequently cited by charter advocates, authored by researchers from Ball State University and Public Impact, compared the charter with traditional public school funding deficits across states, rating states by the extent that they under-subsidize charter schools. The authors identify no state or city where charter schools are fully, equitably funded.

But simple direct comparisons between subsidies for charter schools and public districts can be misleading because **public districts may still retain some responsibility for expenditures associated with charters that fall within their district boundaries or that serve students from their district**. For example, under many state charter laws, host districts or sending districts retain responsibility for providing transportation services, subsidizing food services, or providing funding for special education services. Revenues provided to host districts to provide these services may show up on host district financial reports, and if the service is financed directly by the host district, the expenditure will also be incurred by the host, not the charter, even though the services are received by charter students.

Drawing simple direct comparisons thus can result in a compounded error: Host districts are credited with an expense on children attending charter schools, but children attending charter schools are not credited to the district enrollment. In a per-pupil spending calculation for the host districts, this may lead to inflating the numerator (district expenditures) while deflating the denominator (pupils served), thus significantly inflating the district's per-pupil spending. Concurrently, the charter expenditure is deflated.

Correct budgeting would reverse those two entries, essentially subtracting the expense from the budget calculated for the district, while adding the in-kind funding to the charter school calculation. Further, in districts like New York City, the city Department of Education incurs the expense for providing facilities to several charters. That is, the City's budget, not the charter budgets, incurs another expense that serves only charter students. The Ball State/Public Impact study errs egregiously on all fronts, assuming in each and every case that the revenue reported by charter schools versus traditional public schools provides the same range of services and provides those services exclusively for the students in that sector (district or charter).

Charter advocates often argue that charters are most disadvantaged in financial comparisons because charters must often incur from their annual operating expenses, the expenses associated with leasing facilities space. Indeed it is true that charters are not afforded the ability to levy taxes to carry public debt to finance construction of facilities. But it is incorrect to assume when comparing expenditures that for traditional public schools, facilities are already paid for and have no associated costs, while charter schools must bear the burden of leasing at market rates – essentially and "all versus nothing" comparison. First, public districts do have ongoing maintenance and operations costs of facilities as well as payments on debt incurred for capital investment, including new construction and renovation. Second, charter schools finance their facilities by a variety of mechanisms, with many in New York City operating in space provided by the city, many charters nationwide operating in space fully financed with private philanthropy, and many holding lease agreements for privately or publicly owned facilities.

New York City is not alone it its choice to provide full facilities support for some charter school operators (http://www.thenotebook.org/blog/124517/district-cant-say-how-many-millions-its-spending-renaissance-charters). Thus, the common characterization that charter schools front 100% of facilities costs from operating budgets, with no public subsidy, and traditional public school facilities are "free" of any costs, is wrong in nearly every case, and in some cases there exists no facilities cost disadvantage whatsoever for charter operators.

Baker and Ferris (2011) point out that while the Ball State/Public Impact Study claims that charter schools in New York State are severely underfunded, the New York City Independent Budget Office (IBO), in more refined analysis focusing only on New York City charters (the majority of charters in the State), points out that charter schools housed within Board of Education facilities are comparably subsidized when compared with traditional public schools (2008-09). In revised analyses, the IBO found that co-located charters (in 2009-10) actually received more than city public schools, while charters housed in private space continued to receive less (after discounting occupancy costs). That is, the funding picture around facilities is more nuanced that is often suggested.

Batdorff, M., Maloney, L., May, J., Doyle, D., & Hassel, B. (2010). *Charter school funding: Inequity persists*. Muncie, IN: Ball State University.

Baker, B.D. & Ferris, R. (2011). *Adding Up the Spending: Fiscal Disparities and Philanthropy among New York City Charter Schools*. Boulder, CO: National Education Policy Center. Retrieved [date] from http://nepc.colorado.edu/publication/NYC-charter-disparities/.

NYC Independent Budget Office (2010, February). *Comparing the level of public support: Charter schools versus traditional public schools*. New York: Author, 1.

NYC Independent Budget Office (2011). *Charter schools housed in the city's school buildings get more public funding per student than traditional public schools*. New York: Author. Retrieved April 24, 2012, from http://ibo.nyc.ny.us/cgi-park/?p=272/.

NYC Independent Budget Office (2011). *Comparison of funding traditional schools vs. charter schools: Supplement*. New York: Author. Retrieved April 24, 2012, from http://www.ibo.nyc.ny.us/iboreports/chartersupplement.pdf/.

Note: The average "capital outlay" expenditure of public school districts in 2008-09 was more than $2,000 per pupil in New York State, nearly $2,000 per pupil in Texas and about $1,400 per pupil in Ohio. Based on enrollment weighted averages generated from:

U.S. Census Bureau (2008-09). *Fiscal survey of local governments, elementary and secondary school finances, 2008-09* (variable capout). Washington, DC: Author. Retrieved October 1, 2013, from http://www2.census.gov/govs/school/elsec09t.xls/.

8 Connecticut Coalition for Achievement Now (ConnCAN) (2013, March). *March 2013 Progress Report*. New Haven, CT: Author. Retrieved March 5, 2013, from http://conncan.org/sites/default/files/MarchProgressReport.pdf (no longer available).

9 Molnar, A. (Ed.); Miron, G., Huerta, L., Cuban, L., Horvitz, B., Gulosino, C., Rice, J.K., & Shafer, S.R. (2013). *Virtual Schools in the U.S. 2013: Politics, Performance, Policy, and Research Evidence*. Boulder, CO: National Education Policy Center, 39. Retrieved October 13, 2013, from http://nepc.colorado.edu/publication/virtual-schools-annual-2013/.

10 Education Commission of the States (n.d.). Online learning--virtual schools/courses. *ECS State Policy Database*. Denver, CO: Author. Retrieved October 14, 2013, from http://www.ecs.org/ecs/ecscat.nsf/WebTopicView?OpenView&count=-1&RestrictToCategory=Online+Learning--Virtual+Schools/Courses/.

11 Anderson, A. H., Augenblick, J., DeCescre, D., & Conrad, J. (2006). *Costs and funding of virtual schools*. Denver, CO: Augenblick, Palaich, and Associates, Inc., 13.

Others, including Barbour (2012), cite various additional sources, which largely include state audit reports and advocacy reports (such as Florida Tax Watch analysis of Florida Virtual Charter School-FLVS). Such reports rely largely on average subsidy rates, or aggregate reported financial statements (expenditures). Barbour also cites these sources, which we have identified as better documented, more relevant and more credible. See:

Barbour, M. K. (2012). Virtual schools are more cost-effective compared to traditional, brick-and-mortar schools? In K. P. Brady (Ed.), *Technology in Schools: Debating Issues in American Education* (pp. 84-90). Thousand Oaks, CA: Sage.

12 Anderson, A. H., Augenblick, J., DeCescre, D., & Conrad, J. (2006). *Costs and funding of virtual schools*. Denver, CO: Augenblick, Palaich, and Associates, Inc., 13.

13 Finn, C. E., & Fairchild, D. R. (2012). *Education reform for the digital era*. Thomas B. Fordham Institute.

14 Rice, J.K. (2012). *Review of "The Costs of Online Learning."* Boulder, CO: National Education Policy Center. Retrieved June 1, 2013, from http://nepc.colorado.edu/thinktank/review-cost-of-online/.

15 Molnar, A. (Ed.); Miron, G., Huerta, L., Cuban, L., Horvitz, B., Gulosino, C., Rice, J.K., & Shafer, S.R. (2013). *Virtual Schools in the U.S. 2013: Politics, Performance, Policy, and Research Evidence*. Boulder, CO: National Education Policy Center, iv. Retrieved October 13, 2013, from http://nepc.colorado.edu/publication/virtual-schools-annual-2013/.

16 Molnar, A. (Ed.); Miron, G., Huerta, L., Cuban, L., Horvitz, B., Gulosino, C., Rice, J.K., & Shafer, S.R. (2013). *Virtual Schools in the U.S. 2013: Politics, Performance, Policy, and Research Evidence*. Boulder, CO: National Education Policy Center. Retrieved October 13, 2013, from http://nepc.colorado.edu/publication/virtual-schools-annual-2013/.

17 Baker, B.D. (2013, January 12). The efficiency smokescreen "cuts cause no harm" argument and the 3 Kansas judges who saw right through it (Blog posting). *School Finance 101*. Retrieved October 14, 2013, from http://schoolfinance101.wordpress.com/2013/01/12/the-efficiency-smokescreen-cuts-cause-no-harm-argument-the-3-kansas-judges-who-saw-right-through-it/.

18 Baker, B. D. (2012). *Revisiting the age-old question: Does money matter in education?* Washington, DC: Albert Shanker Institute.

19 Vanourek, G. (2006). *A primer on virtual charter schools: Mapping the electronic frontier*, Issue Brief #10. Chicago: National Association of Charter School Authorizers. Retrieved May 7, 2012, from http://www.nasdse.org/Portals/0/Documents/Primer_IssueBriefNo10.pdf/.

20 Watson, J., Murin, A., Vashaw, L., Gemin, B., & Rapp, C. (2010). *Keeping pace with K-12 online learning: An annual review of policy and practice, 2010*. Durango, CO: Evergreen Education Group.

21 Green, P.C., III, Baker, B.D., & Oluwole, J. (in press). Having it both ways: How charter schools try to obtain funding of public schools and the autonomy of private schools. *Emory Law Journal*

22 Barbour (2012) also provides a breakout of what he perceives to be the financial responsibilities of online vs. brick-and-mortar schooling.

Barbour, M. K. (2012). Virtual schools are more cost-effective compared to traditional, brick-and-mortar schools? In K. P. Brady (Ed.), *Technology in Schools: Debating Issues in American Education* (84-90). Thousand Oaks, CA: Sage.

23 New York City Department of Education (2012). School Based Expenditure Reports, School Year 2010-2011. New York City: Author. Retrieved October 14, 2013, from https://www.nycenet.edu/offices/d_chanc_oper/budget/exp01/y2010_2011/function.asp/.

24 For readers from states such as Iowa, Arizona, or Texas these figures may seem high, so some context is in order. Clearly, the costs of operation are much higher in New York City than on other parts of the country or even other parts of the region. Further, while these figures seem high, they are actually much lower than spending of affluent suburban school districts in the immediate area.

25 Florida High School Athletic Association (2011). Board allows Florida Virtual High School students to compete in interscholastic sports (Press release). Gainesville, FL: Author. Retrieved October 14, 2013, from http://www.fhsaa.org/news/2011/0926/.

26 Finn, C. E. & Fairchild, D. R. (2012). *Education Reform for the Digital Era*. Washington, DC: Thomas B. Fordham Institute.

27 While elementary programs are not similarly menu driven, in terms of selecting each individual course, core curricular content most likely to be offered via online alternatives is separable from other services and overhead costs in the elementary setting. In many ways, accounting for the costs of delivering core content in elementary schools is much simpler since fewer (if any) alternatives exist and because core content areas are combined into a single large block (subdivided by the teacher or teams of teachers).

28 Morphew C. & Baker, B. (2007). On the utility of national datasets and resource cost models for estimating faculty instructional costs in higher education. *Journal of Education Finance, 33*(1), 20-48.

29 New York State Department of Education (2010). 100.2-General School Requirements. *Part 100 Regulations*. Albany, NY: Author. Retrieved October 14, 2013, from http://www.p12.nysed.gov/part100/pages/1002.html/.

30 College Board (2010). Online/Distance Learning AP Courses (policy). Princeton, NJ: Author. Retrieved October 14, 2013, from http://www.collegeboard.com/html/apcourseaudit/online_learning.html/.

See also:
Davis, M. R. (2009, June 17). Simulated v. hands on lab experiments: New model is likely to require more actual lab work for those taking Advanced Placement courses online. *Education Week Digital Directions 2* (4), 32-33. Retrieved October 14, 2013, from http://www.edweek.org/dd/articles/2009/06/17/04simulated.h02.html/.

31 Educational Research Institute of America (2012). *An Efficacy Study of the Algebra II,Version 10 Course, Florida Virtual School*. Bloomington, IN: Author. Retrieved October 14, 2013, from http://www.flvs.net/areas/aboutus/Documents/Research/Algebra%20II%20Efficacy%20Report.pdf/.