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ABSTRACT

This study weighs the validity of current arguments about the efficiency of public versus private schooling by critically examining the research that has compared the expenditures of public and private schools and by questioning common assumptions in the debate. Simple comparisons of per-pupil costs are found to be misleading as indicators of educational services because they do not include the publicly-mandated programs required of public schools, nor the donated resources by which private schools often supplement their services, nor the specialized instruciton and facilities often found in public schools. In addition, the author finds that those measures of relative effectiveness of education that generally favor private schools do not account adequately for the difficulties in accurately comparing student performance and in identifying the part of an outcome attributable to school resources. Assumptions found in most analyses of educational costs and productivity are then examined, including the views that the outputs and educational processes of public and private schools are identical and therefore comparable, and that the issues of efficiency and equity are independent. Concluding that current comparisons of public and private schools may not be valid, the paper suggests criteria for aid to private schools and topics for further research. (JW)

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COMPARING EFFICIENCY BETWEEN PUBLIC AND PRIVATE SCHOOLS

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Abstract

Increased attention has recently been given to the relative costliness of public and private elementary and secondary schools. It stems partly from the more severe fiscal constraints now facing public schools and partly from the growing number of families seeking private alternatives to what they perceive as "failing" institutions. Often this attention is focused on very crude expenditure comparisons--comparisons which typically show private school expenditures to be significantly less than those of public schools. One reason for the popularity of such comparisons, and for the willingness of large numbers of policymakers and other interested parties to readily accept them at face value, is that the data are consistent with the conventional wisdom now prevalent that there is considerable waste and inefficiency in government-operated institutions. This paper attempts to make clear what the existing disagreements are and then suggests a different focus to the discussion, one which hopefully will be of greater use to policymakers. The utility of even making comparisons of public and private school efficiency based on currently available data is assessed. Finally, consideration is given to implications for the general debate on aid for private schools, with particular emphasis on what comparisons might be appropriate as criteria for such aid.

Increased attention has been given, in recent years, to the relative costliness of public and private elementary and secondary schools. It stems partly from the more severe fiscal constraints now facing our nation's public schools and partly from the growing number of families seeking private alternatives to what they perceive as "failing" institutions. Often this attention is focused on very crude expenditure comparisons--comparisons which typically show private school expenditures to be significantly less than those of public schools. Nationally, for example, average per pupil expenditures for private schools were estimated to be about $1,000 in 1979-80 while average public school expenditures per pupil exceeded $2,000.[1] For many church-affiliated private schools, budgetary expenditures were even less--nearly one-third of Catholic elementary schools, for example, had expenses amounting to less than $500 per pupil.[2]

One reason for the popularity of such comparisons, and for the willingness of large numbers of policymakers and other interested parties to readily accept them at face value[3] is that the data are consistent with the conventional wisdom, now prevalent in this country, that there is considerable waste and inefficiency in government-operated

institutions. Moreover, in the writings of such scholars as Milton Freidman and E.G. West, these comparisons have been legitimized as evidence that education can be more efficiently provided by the private sector.[4]

These comparisons of public and private school expenditures and the suggestion that they imply greater efficiency on the part of private schools in the provision of educational services, have not gone unchallenged. For the most part, however, these challenges have been on empirical, or "accounting" grounds. In general, the issue has been put as:

(1) Are we really measuring the same thing in the two sectors?

Some critics have gone somewhat furhter, contending that regardless of the numbers, there are serious methodological problems with such comparisons. For these individuals, the central issue becomes:

(2) How valid (for this application) are the statistical methods underlying comparisons?

Both of these issues have been debated for several years, without any resolution. A major reason is the complexity of the policy context within which they are most often raised--namely, the question of public support for private schools. While both arguments are focused on the delivery of <u>educational</u> services, they are offered as inputs to a debate where the primary concern of those favoring aid

is the fiscal condition of private school parents and objections to such aid are based largely on a legal concern that such aid violates the First Amendment's guarantee of the separation of church and state.[5] The result is that the two sides simply talk past one another.

This paper is intended to contribute to this debate by attempting to make clear what the existing disagreements are and then suggesting a different focus to the discussion, one which hopefully will be of greater use to policymakers. More specifically, the paper reviews the existing discussions of these issues, assessing both the evidence and the arguments related to them. Then it goes beyond these two issues to address a third, and perhaps more important, question:

> (3) How appropriate is the conceptual framework itself which underlies these first two questions?

In so doing, the paper assesses the utility of even making comparisons of public and private school efficiency. Finally, these two discussions are pulled together and consideration is given to their implications for the general debate on aid for private schools--with particular emphasis on what comparisons might be appropriate as criteria for such aid (particularly if tuition tax credits were the vehicle for aid).

First, however, it seems appropriate to make clear two additional aspects of the context within which this

paper is written. It is important to recognize that the efficiency issues being considered here are actually one part of a broader argument as to whether or not additional aid for private schools would increase the overall efficiency of education. That is, it is argued that private schools impact on the efficiency with which educational services are provided through a number of interrelated channels.[6] In addition to providing the same output with fewer inputs, supporters claim that their existence as an alternative to public education (i) forces the public schools themselves to be more efficient, (ii) provides for greater choice and diversity in the educational services available, and (iii) stimulates innovation in the delivery of these services. At times, these other dimensions of the general efficiency argument can creep into discussions of the relative production efficiency of public and private schools.

Closely related to the above point, the reader should also understand that these various arguments actually incorporate two distinct notions of efficiency. One, generally termed "production" or "technial" efficiency, focuses on the quantity of inputs needed to produce a given output. The other, termed "allocative" or "economic" efficiency, focuses on the value of the output produced with a given set of inputs. These two concepts are closely related, but not identical as some authors seem to imply. Technical efficiency can be viewed as a component of allocative efficiency; but the latter concept also reflects the

appropriateness of the total amount of education produced and of the mix of services comprising that output.[7] Moreover, while the former concept is essentially a positive (or empirical) one, the latter concept is largely normative. When the two concepts are treated as one, this subjective nature of economic efficiency is frequently forgotten. In general, this paper is concerned with the narrower concept of technical efficiency. Where the discussion shifts to consideration of economic efficiency, the change will be explicitly identified.

I. Accounting for the Costs of Public and Private Schooling

As noted earlier, there is no doubt that, on average, private schools expend less per pupil than do their public counterparts. What is disputed, however, is what these differences imply about the relative efficiency with which the two groups of institutions deliver educational services. To begin with, it should be made clear that both groups include highly diverse institutions, with a wide range of spending levels. In the private sector, for example, about 20 percent of schools spend less than $500 per pupil, while nearly 10 percent spend over $3,500 per pupil (and some as much as $6,000 per pupil). Moreover, this variation is found even withn relatively small geographic areas. In the greater Boston area, for example, there are private schools spending less than $300 per pupil

and others spending close to $6,000. What is required, as a first step, to adequateely describe these variations, as well as to relate them to the provision of education is a simple typology of school costs.[8] Table 1 presents the average per pupil expenditures for selected types of schools broken down into the common major budget categories.[9]

Table 1

Composition of Current Operating Expenditures Per Pupil for Selected Types of Institutions, 1977-78

Institutional Type	Total	Instruction	Administration	Plant and Equipment/ Debt Serv.	Other Services
Public:					
All Elem. and Secondary	$1739	$1043	$108	$233	$356
Large City School Dist.	2420	1620	96	290	414
5 Highest Spending City Districts	3250	2165	155	338	592
Private:					
Catholic:					
Elementary	$ 509	$ 385	$ 15	$ 46	$ 63
Secondary	898	663	21	110	104
NAIS Schools:					
Elementary	$2469	$1221	$309	$353	$586
Secondary	2843	1322	366	426	729

This table makes clear that expenditure differences cut across all budget categories; and while the largest absolute differences are in instruction-related expenditures, the largest percentage differences occur in non-instructional

categories. The table also shows that while the various types of schools differ in the share of total budget allocated to instruction, these differences are relatively small. Moreover, the rank ordering of expenditure shares is the same for all groups.

The significance of these patterns is much less clear than the patterns themselves. Looking at the non-instructional categories, the table suggests that Catholic schools typically provide two very limited arrays of ancillary services such as transportation, community programs, or security. However, students are still transported to school,[10] community programs are generally not part of a private school's mission, and Catholic schools tend to have very little need for security services.[11] Catholic schools are also much less likely to be in debt, something which is a major item for many large city public systems. It should be added that frequently debt service for Catholic schools is borne by the Church rather than by the school.[12] Similarly, part of the difference in plant and equipment expenditures is likely due to the fact that such expenditures may come out of the parish budget rather than the school's budget. The reported differences, however, also reflect the greater amount of vandalism at public schools. Finally, many Catholic schools report almost no expenditures for administration. To some extent such services may be donated to the school (e.g., clerical or bookkeeping work); but for smaller schools with no ancillary services (and virtually no

legal obligations), there may simply be no need for administration beyond a part-time secretary and what a teacher doubling as principal can do (such a pattern is also common in small rural public schools).[13]

In effect, the reported expenditure differences, among the various groups of schools, for non-instructional items, reflect price as well as quantity differences (i.e., some resources are not utilized by Catholic schools and some are provided to Catholic schools at a price of zero). The reported differences in instructional expenditures also reflect both price and quantity factors. Table 2 below breaks down instructional expenditures into its major price and quantity components.[14] Clearly the major differences

Table 2

Composition of Per Pupil Expenditures for Instruction, for Selected Types of Institution, 1977-78

Type of Institution	Personnel				
	Classroom Teachers Per Pupil	Average Salary	Other Instructional Personal Per Pupil	Average Salary	Other
Public:					
All Elem. Schools	.049	$13,902	.003	$16,710	$110
All Second. Schools	.060	$14,680	.004	$16,710	$195
Large City Districts	.065	$18,610	.007	$20,220	$266
Private:					
Catholic:					
Elementary	.038	$ 8,420	.0005	$ 8,600	$ 65
Secondary	.062	$ 8,680	.001	$ 8,800	$106
NAIS Schools:					
Elementary	.112	$ 8,889	.013	$ 9,600	$111
Secondary	.106	$11,457	.016	$12,000	$163

between the public and private sectors are in the salaries paid both to classroom teachers and to other instructional staff: public school teachers tend to be paid about 50 percent more than their private counterparts.[15]

Also contributing to the large differences in instructional expenditures between public schools and Catholic schools is the fact that the latter schools tend to have many fewer ancillary instructional staff (e.g., librarians, music and art teachers, or various learning specialists). The table also shows differences in non-personnel costs for instruction, but these differences are relatively small. Finally, one fact which is masked by the table is the relative rate at which schools use instructional personnel. For example, while the City of Boston has an overall pupil/teacher ratio of 17:1, it reports a median class size of 24. Such differences occur, for the most part, for two reasons: a large amount of diversity in the curriculum (and a corresponding high specialization of teacher staff) or changes (declines) in enrollments, either of which can leave some teachers less than fully utilized. In some large urban districts, court-ordered desegregation plans can also contribute to this problem. Moreover, the effect of any of these factors on class size can be greatly increased by the presence of a strong teachers' union.[16]

What the patterns described above tell us about the comparability of public and private school spending is largely a function of two factors:

- To what extent are differences in spending voluntary; and
- To what extent do differences in resources imply differences in educational services.

Schools may differ both in the prices they are required to pay for resources and in the quantity of resources they are required to purchase. Much of the public schools' relatively higher outlays for teachers, for example, may be the result of factors beyond the control of those schools. Most states require all public school teachers to be certified, a requirement that does not apply to private schools. Similarly, concerns about discrimination usually result in hiring and promotion decisions having to be based on concrete criteria (such as education or years of experience) rather than "softer" measures (such as "teaching quality") which private schools can employ. Moreover, teachers themselves may only be willing to each in certain districts if they are paid a premium, either because of the cost of living in or near those districts, or because of the relative attractiveness of working conditions in those districts--there is strong evidence that many teachers require a substantial premium to work in large central city school districts.[17] In contrast, there is some evidence that many private school teachers are willing to work at substantial discounts because of the attractiveness of the educational environment.[18] What part of observed wage differentials can truly be labelled "premiums" or "discounts" depends on i) conditions in the teacher labor market and ii) whether any part of the higher

public (lower private) wages represent voluntary choice that involves offselling reductions (increases) in other parts of the budget. And, finally, as noted earlier, teacher unions, which are much more prevalent in the public sector, can also have a significant impact on costs. There is evidence to support the contention that unions have increased salaries, reduced class sizes and limited the tasks teachers can perform.[19] Many states require public schools to offer specific programs (such as physical education or vocational education) which are not necessarily provided by private schools in those states.[20] Similarly, many of the additional instruction personnel employed by the public schools are mandated by state or federal law. Most significant of these is the requirement to provide a "free and appropriate public education" to all handicapped children, including related non-educational services.

Many of public schools's ancillary services, such as transportation or community programs, are also mandated by the state government. And state limits on a district's taxing capacity may force it to go into debt (and thus incur the associated interest costs). Likewise, differences in building code requirements or the age of school facilities or the incidence of vandalism may all result in differentially higher expenditures for public institutions. In contrast, some expenditures (such as those for energy) should not differ across the two sectors; and non-labor

prices, if anything, should be lower for the public schools.[21]

It is not always clear whether the differences described above should be classified as price-related or as quantity-related. To a large extent, the answer is tied to the implications of those differences for the comparability of educational services. For example, while salary differentials associated with the willingness of teachers to teach in a particular district are generally regarded as a difference in the "price" schools must pay,[22] salary differentials due to the additional training required for certification are treated as quantity-related--presumably certified teachers provide more services.[23] The additional costs of providing vocational, rather than academic, training to a student are typically treated as a type of price difference--that is, it takes more resources to produce an equivalent educational benefit. The additional costs of educating students with above average educational needs are treated in a similar fashion. The extra outlays required to educate handicapped or disadvantaged youth are seen as adding to the price of a basic education.[24] While this perspective may be appropriate when comparing two public school system, its validity in the context of a public/private comparison depends on whether the added costs are truly necessary or whether they are partly a function of the institutional setting in which the education is being provided. Establishing whether these costs could be reduced somewhat if

these services were provided through the private sector is extremely difficult because the private sector, in fact, educates very few special needs children,[25] and where it does, it often does so in conjunction with neighboring public schools--for example, the child may be mainstreamed in the private sector, but receive costly ancillary services through the public sector.[26] Indeed, within existing budgets it seems unlikely that even their shared arrangements could be significantly expanded. In principal, at least, private schools would appear better suited to provide the more individualized treatment required by special needs children. And, in fact, they do play a significant role for some severe handicapping conditions (e.g., schools for deaf or blind children).[27] But adding large numbers of "mainstreamed" pupils would require administrative, as well as instructional changes.[28] The importance of this issue is reflected in Table 3 below, which shows the relative concentration of special needs children in the various types of schools and the effect of those distributions on average per pupil cost.[29]

Finally, the resource requirements of a school (to provide a given amount of services per pupil) may be a function of both the school's size and its location. Because of the "lumpiness" in education resources, larger school are more likely to fully utilize teachers (i.e., to have less variation in class size) or physical plant.[30] Similarly, larger schools can more fully utilize the services

Table 3

The Effect of Special Needs Children on Average Per Pupil Costs for Selected Types of Institutions, 1978

Type of Institution	Percent of Students Who Were Handicapped	Disadvantaged	Net Contribution to Per Pupil Cost
Public:			
All Districts	12.7	15.6	$296
Large City Districts	15.1	25.4	$528
Private:			
Catholic	0.5	2.6	$ 20
NAIS	0.1	2.1	$ 28

of specialized teachers or other instructional personnel. Measuring the signficance of such economies is complicated by the fact that larger schools tend to offer a more diverse curricula, to employ more specialized personnel and to possess more specialized facilities.[31] In addition, these economics may be partially offset by additional spending requirements (such as for transportation, security or general administration) or by the relatively greater success of smaller schools in attracting outside support. A school's location can impact on costs in three ways. First, it can mean a need for more plant and equipment (because of weather, building codes, or safety requirements). Second, it can affect the prices the school has to pay for many resources. And, third, it can affect the available supply of educational resources.[32]

Crude comparisons of per pupil costs appear to implicitly assume a one-to-one correspondence between school expenditures and educational services. Clearly this is not the case, as the above discussion of differences in resource prices, programmatic costs and pupil needs makes evident. Furthermore, many non-instructional expenditures appear to have little to do with education per se.[33] But while they are included in the crude cost measures, the value of any donated resource is excluded. Moreover, these comparisons ignore those attributes which the pupils themselves bring to the production process,[34] and which clearly affect that process. Similarly, the contribution of such factors as a pupil's classmates or the pupil's parents are not reflected in these crude comparisons. And, finally, much of the assistance now provided to private schools by the public sector is not included in the private schools' budget[35] either because the aid is provided directly to students (e.g., transportation or text books) or is provided in kind (e.g., resource teachers for disadvantaged or handicapped students)--the aid takes these forms, in part, to avoid conflict with the Constitution.[36] In sum, simple comparisons of per pupil expenditures (costs) between public and private schools can be misleading for any of three reasons:

- They fail to "adjust" for differences in exogenously determined "prices" of some programs or resource needs of some pupils;
- They do not reflect resources which schools (especially private), or their pupils receive at no direct cost to the school; and

- They do not consider the educational relevance of particular components of costs (in turn, implicitly ignoring the generally broader mission of public schools).

Table 4 attempts to provide some indication of the relative importance of the various factors; it gives estimates of the typical contribution of each factor to

Table 4

Estimated Contribution of Selected Factors to Average Per Pupil Costs for Public and Private Schools, 1978

Component	Public School Cost	Private School Costs	
		Catholic	NAIS
Base Costs[1]	$300	$300	$300
Physical Plant[2]	$140	40	500
Administration	90	20	200
Debt	50	10	180
Smaller Classes	140	125	550
Supplementary Instructional Personnel[3]	125	25	225
Additional Instructional Services[4]	100	30	125
Additional Non-Instructional Services[5]	300	80	700
Special Needs Pupils	300	20	30
Teacher Salaries	200	20	75

Notes: [1]One teacher for 30 students at $8,000 per annum, plus $25 per student for books and materials. (These reflect minimum reported values.)

[2]Includes reported maintenance and utility costs, and costs of vandalism

[3]Art or Music teachers, librarians, etc.

[4]Includes additional programs (e.g., vocational education) and broader curriculums

[5]Transportation, security, community programs, etc.

overall average per pupil costs for public and private schools within the context of a "basic-education-plus-available-options" framework.[37] One point which should be clear from the table is that the question, "Do private schools cost less than public schools?" does not have a single "right" answer. What is probably a more interesting policy question, however, is whether observed cost differences are related to differences in the respective natures of public and private schools or to differences in their current roles in educating this nation's elementary and secondary students (this issue is discussed further below).

Properly accounting for the comparability of public and private school costs, by itself, tells us very little about the relative effectiveness of the two sectors. To relate the cost measures above to considerations of efficiency requires both the addition of some measure(s) of output and also a mechanism (model) for attributing this measured output to the various inputs. That is, a transition must be made from focusing on resources valued at cost (purchase price) to determining the impact of those resources on specific educational outcomes. The most common approach to this task is specifying an <u>educational production function</u>, which specifies how much of a given output, or outputs, will result from a given set of inputs. A major characteristic of this approach is that both inputs and outputs are well-defined. In general, inputs are of two types: school purchases and other (exogenous) variables.

The standard approach is to identify (or "control for") the effect of all non-school variables and then to attribute the residual to school-based variables--that is, differences in production can be expressed as differences in the coefficients of the various inputs, all entered as independent variables in a single equation.[38]

Frequently, this transition is made implicitly, with simply "number of students" treated as the output measures and assumed to be fully attributable to the inputs purchased by schools. In contrast, studies which explicitly include output measures typically use some measure of student performance.[39] Most of these studies which look at both public and private schools show that private school pupils perform better, on average, than do their public school counterparts, even when non-school differences are controlled for.[40] As noted earlier, these findings have been criticized from a variety of perspectives. Some critics contend that the results simply reflect "bad accounting." For example, Coleman (like most other studies[41]) uses student performance on standardized tests as the measure of output, a definition of output which a priori would seem more likely to be related to academic resources, which private schools have relatively more of, than to, say, vocational resources which public schools have more of.[42] Similarly, such an output measure will probably be unaffected by most non-instructional expenses (which are greater at public institutions). On a more methodological note, some

critics argue that it is fallacious to compare individual student outcomes with district, or even school, average expenditures because the resources available to students within a district (or school) vary considerably.[43]

A potentially much more serious problem relates to our ability to "identify" the part of a given outcome attributed to school resources. As noted earlier, the usual strategy is to account for all non-school factors and then to treat the residual impact as attributable to school resources. In the context of public versus private schooling, there are two dimensions to this task. The first is identfying all of the relevant exogenous factors. Coleman, for example, ignores measures of aptitude, even thorugh it has previously been shown to have an effect on outcome independent of family background.[44] But second, and more important, is that those enrolled in nonpublic schools are <u>self-selected</u> and hence differ from even those not enrolled who have the same background and related characteristics. If this self-selection is not adequately controlled for, any results will be biased and of little statistical value.[45] There are ways of controlling for self-selection, but they depend, to a large extent, on identifying a measureable factor which is related to the probability of attending nonpublic school, but not to performance as measured by the outcome variable.[46] This is often an impossible task.

As noted earlier, a major policy interest underlying the concern about the relative efficiency of public and

private schools is whether the results of such a comparison argue for expansion of the private sector. The problem is making such a translation are extremely complex. To begin with, this issue is related not to the average benefit/cost of public or private schooling but to the marginal benefit/cost of these institutions, which in turn depends upon the output being considered and whether economies of scale exist for either type of school at current levels of operation.[47]

For small changes in output, the key is the extent to which there is "excess capacity" in existing public or private institutions.[48] Previously, it has been shown that while for Catholic and other low cost private schools marginal cost is close to average cost, for many larger public (especially urban) systems, marginal cost is near zero.[49] That is, even though average private school costs per pupil may be much lower than average public school costs, a small shift of students from public to private school might actually increase total costs.

For larger changes in the size of the private sector (such as those frequently envisioned by supporters of tuition tax credits), the relative cost of the two sectors at the margin depends upon two factors. The first is the availability of teachers who are equally well qualified and also in the case of private schools, willing to work for lower salaries. One group of very "low cost" teachers which is in extremely short supply are members of religious orders--their presence has been declining, even in existing

Catholic schools. Moreover, as unions continue to penetrate the private sector (particularly larger Catholic systems), the opportunity to replace them (or other retiring teachers) with new teachers willing to work for comparable salaries becomes much more limited. The second factor is the amount of capital spending required for expansion of either sector. Today's building costs and interest rates make it extremely difficult for private groups to build new schools, or even to undertake substantial expansion of existing facilities within any short period of time. The constraint which existing plant capacity (or other existing available space) represents on the potential growth of the private sector over the next several years is clearly reflected in the most recent data on changes in the number of private schools and private school enrollments. The average size private school which opened during 1980-81 enrolled 60-70 students, in contrast to an average size for the sector of 180. Moreover, almost none of these new schools involved capital construction; and, in fact, to avoid such costs (or to minimize their burden at any one time) many schools have opened on a grade by grade basis. At the same time, schools which closed during the year (at least some part of their facilities would be available for new schools) were also small, averaging less than 80 students. Moreover, these openings and closings appear to be widely dispersed both across geographical regions and by type of location, suggesting that even at a local level, rates of

change are typically small, relative to the total student population. One additional point of significance for public policy is that most of the new schools were "Christian" schools--institutions with even smaller budgets than Catholic schools, which definitely offer different (not more) education and which typically seek to minimize interactions with the public sector.[50]

Finally, consideration of the impact on overall efficiency of a significant expansion of the private sector must also take into account the possible impact such growth might have on the public sector. It is argued that private school expansion can adversely[51] effect public schools in any of three ways: 1) by attracting a disproportionate number of white students (in urban areas), they reduce the public schools' capacity to effectively integrate; 2) by attracting a disproportionate share of students from high income families, they further stratify the educational system along socioeconomic lines; and 3) by taking out of the public schools students (and families) who are particularly interested in education, they leave a student body likely to be less well motivated and more disruptive[52] and they weaken overall support for the public schools.[53] The first two of these arguments are usually treated as "equity" issues and viewed as separable from efficiency considerations (there are links between them and efficiency, however, which are addressed in the next section of this paper). The third argument is also difficult

to quantify, but its underlying logic is more directly related to efficiency considerations. In particular, the argument suggests that public school teachers are likely to spend more time handling discipline problems and less time teaching, that public school students are likely to contribute less to the education process and that public school parents are likely to contribute less than their private counterparts. Coleman, et. al., provide clear evidence that the first two of these are true,[54] and other authors have shown the third difference to also be true.[55] The evidence, however, does not allow one to attribute a specific share of these differences to relative enrollment growth in the private sector.[56] However, the average differences found by Coleman and others do imply that any serious proposal for a major expansion of the private sector must address this issue--recognizing that it is partly an empirical question and partly a normative one about what perspective is the appropriate one.[57]

Implicit or explicit in virtually all economic analysis is the term "ceteris paribus," which means "other things equal." The assumption seems especially significant here. In particular, the foregoing analysis may be summarized in two points:

(1) Private schools are clearly more efficient than their public counterparts, ceteris paribus;

but,

(2) "Other things" are not equal.

Indeed, what the analysis makes clear is that the central task in developing comparisons of the relative efficiencies of public and private schools is determining how the differences in these "other things" can be adjusted for. In the next section it is argued that such adjustments may not even be possible.

II. How Valid are Public School/Private School Comparisons?

The above analysis reflects the standard conceptual framework for analyzing educational costs and productivity. Also implicit in the analysis is the assumption that the differences between public and private schools are differences in detail and do not, individually or collectively, represent fundamental differences (which would make the two sets of institutions non-comparable). To a large extent this assumption, which is also standard, is a product of assumptions imbedded in the conceptual framework itself, and, to the extent that these assumptions are not valid, the above analysis (as well as any other comparison of public and private school efficiency) may be largely meaningless. This section examines five questionable characteristics of the conventional framework:

(1) The approach to specifying an educational production function is to go from the general to the specific, adding details as necessary to account for variation across observations;

(2) The production of education is defined in terms of inputs and outputs;

(3) Education production and the choice of public or private school are treated independent of each other;

(4) Issues of educational efficiency are addressed independent of issues related to educational equity; and

(5) The primary analytical focus is on demand and on marginal change.

First, as an introduction to this examination, it seems useful to briefly review the basic rationale underlying government support for education. That rationale has both an efficiency and an equity dimension. The former is grounded in the view that schools "jointly produce" a number of outputs, some of which are alleged to have "public" benefits[58] and all of which are "communally" produced.[59] As a result the private market, it is argued, will tend to underproduce education. The equity argument is based on the view that education can serve as the great equalizer, providing equal opportunity for success to all Americans.[60] The efficiency argument is seen to provide a basis for determining what is the "optimal" amount of government support for education; and the equity argument is taken as the basis for how that support should be allocated. Neither dimension, it should be added, necessarily implies public production of education.[61]

Within this context, the standard approach to specifying an educational production function has two important consequences for public/private school comparions. First, it leads to the impression that public and private schools produce essentially the same types of outputs. And, second it suggests that the respective production processes are essentially the same. In addition to the fact

that public schools tend to produce a broader range of outputs, the comparability of public and private school outputs depends on whether some, or all of these outputs must be defined in terms of who receives them, a definition which the equity rationale would seem to require. In turn, the comparability of the respective production processes depends, in part, on whether input differences reflect differences in clientele or differences in the nature of the two sectors--for example, does the voluntary, selective nature of the private sector allow it to operate differently than the public sector faced with universal admission and compulsory attendance?

The preceding question also points up the limitations of viewing the production of education simply in terms of inputs and outputs. The effectiveness with which inputs are utilized may depend upon the process by which they are used. And while to a large extent, process differences may be translated into differences in the quantities of "effective resources" (e.g., disruptions in the classroom or absenteeism may be measured as reductions in "educational contact hours"), often differences are difficult or impossible to measure. It has been argued, for example, that students (and parents) exert less effort in a school setting they are "forced" into rather than settings of their own choosing, even if the settings are otherwise identical.[62] Similarly, the difference in support given to a "neighborhood" school compared with that given a regional school may be unmeasurable.

On the private side, it has been argued that the strong support of parents stems from the "risk" involved in a private school undertaking.[63] Moreover, there is considerable evidence that even where such differences are recognized, their significance is lost when researchers attempt to combine them with more easily and accurately measured factors.[64] Finally, most efforts to adjust for production differences between public and private schools usually focus on structural differences and ignore behavioral differences. For example, a recent NIE study argued that public and private high schools are administered in the same way.[65]

The treatment of education production as a technical input-output relationship also tends to obscure the ways in which that production interacts with the choice of students (or parents) to attend private, rather than public, school. In fact, it tends to reinforce the assumption that the two are independent. However, from an "efficiency" perspective, they may be linked in at least three important ways. First, part of what one chooses in a private school is a set of classmates who are well-motivated and more likely to contribute to one's own (or one's child's) education. Similarly, the ability of private schools to easily dismiss students who are disruptive may help to ensure an environment that is conducive to learning and which is also likely to enhance the quality of the teaching in those schools. And finally, to the extent that eudcation does not serve as the great

equalizer in our society but rather as a screening device,[66] the "output" of private schools may be partly a function of their limited, selective admissions.

This question concerning just how equalizing schools are has been widely debated elsewhere. In addition to the point made above, what is also of interest here is that this debate, like most discussions of efficiency, treats the efficiency and equity dimensions of education as separable. That is, how efficient in public or private schools are defined (and measured) independent of whose education we are talking about. The importance of this point is partly related to the fact that public and private schools differ in a significant and fundamental way in their respective clienteles. Its importance also stems from the fact that a major focus of educational policy in recent years has been the extent of racial integration in the schools. Efforts to integrate public schools have often generated significant additional costs for those schools. In the standard framework, the two (racial integration and cost-effectiveness) would be viewed as alternatives to be traded off against one another.[67] In a statistical sense, the policy issue here is whether the efficiency of an institution (or sector) can be measured simply in terms of its own mean value, or whether efficiency measures should also reflect the variation about that mean, or even the variation across all institutions.

Much of the debate concerning the current (or potential) role of the private sector in enhancing or impeding racial integration of the schools centers on whether the focus should be equal opportunity (usually measured in terms of "price at the margin") or equal outcomes (measured in terms of aggregate distributions). The differences between the recent Coleman study and critiques of that study reflect this tradition.[68] Most authors[69] ignore the point made in the previous section that the key determinant of any change in the role of private schools resulting from a policy such as tuition tax credits is likely to be the response of suppliers; and there is no evidence to suggest that that response will be significant. In fact, it is entirely possible that some students currently enrolled in private schools might be displaced, even with overall enrollment growth in prviate schols.[70] Understanding the potential supply constraints also has relevance for assessing whether expanding the private sector would fundamentally change the sector by altering the composition of its clientele.

III. Implications for Further Research

The discussion in Section II suggests that comparisons of public and private school efficiency may not even be valid. The importance of this discussion is that the current debate, and analyses such as that presented in Section I, tend to legitimize such comparisons. To do so when they, in fact, are not meaningful, may be detrimental to public policy. For one, they may foster debates which

can not be resolved and which, consequently, obstruct the policy process. In addition, they tend to focus policy discussions on what is common to the two sectors rather than on what is unique to each. A focus on the latter would emphasize the distinct roles that each sector does, or might, play in American education and the differential relationship each might have to public (especially federal) policy toward education.

In general, any efforts to compare public and private schools, or any assessment of such comparisons, must recognize how the comparisons, or assessments, will be used in the policy process. Alternatively, this requirement may be put as a need to establish what such comparisons can tell us and what they can't. The problem is that, as the preceding analysis indicates, this determination involves a number of highly subjective judgments. For example, is the attractiveness of private schools (to current or potential users) that they are "better" or that they are "different?" Or, should public policy be more concerned with those who highly value education and less so with those who seemingly don't care.[71]

The analysis does suggest a number of areas in which further empirical research might usefully contribute to policy discussion in their area. One is to consider whether the private school experience can suggest ways in which public schools might improve their cost-effectiveness; a parallel inquiry would be whether public/private differences

can tell us anything new about the production of education. A second area is a better historical tracking of enrollment and voting patterns, as evidence of i) differences in the educational or social roles of public and private schools; ii) changes in the social role of public schools; iii) changes in the productivity of public schools; or iv) as evidence of how important the "public" benefits of education are. This suggestion, in part, comes from a recognition that public schools have not always been under attack and that the private sector has not always been thriving.[72] Another area of useful inquiry might be to examine the relationship (separately for the two sectors) between funding and various performance measures--for public schools this would require distinguishing between federal, state and local funds.[73] In general, these suggestions imply a need for better understanding of the behavioral factors affecting educational production--and, indirectly, a need to understand that "efficiency" can not have the same well-defined meaning that it has for industrial production. The research focus suggested above might also help to shift the current debate away from its "all-or-nothing" focus and to recognize that some outputs might better be produced in the public sector and some in the private and that some individuals might better be served in one sector and others in the other--and, equally important, that such a determination will likely be highly dependent on the relative size and composition of the private sector.

In a sense, the various research topics suggested above, as well as the whole consideration of "efficiency" in education, involve looking at what kinds and what amount of real choice can, and should, be a part of American education. A better understanding of this issue clearly has implications for the value of tuition tax credits as a mechanism for facilitating such choice.[74] The foregoing analysis suggests at least three aspects of a tax credit policy which have efficiency implications. One is whether tuition tax credits should be targeted to specific sub-populations or to specific types of educational services. A second is the criteria for institutional eligibility, including consideration of whether public schools might utilize such credits. And a third is what regulations should accompany such tax credits, or whether those regulations should be uniform across individuals or institutions. In all three areas, attention must be given to how a particular policy decision might affect individual or institutional response to that decision.

Notes

1. Private school estimates are based on data from the National Catholic Education Association and the National Association of Independent Schools; public school estimates are from the National Education Association.

2. Overall, Catholic schools account for nearly two-thirds of nonpublic school enrollments; other church-affiliated schools account for another 20 percent and independent schools about 15 percent.

3. See, for example, statements by Daniel Moynihan and Robert Packwood before the Senate Finance Committee (1979).

4. Milton Freidman, Capitalism and Freedom, Chapter 6; and E.G. West, "Choice on Monopoly in Education."

5. As noted earlier, about 85 percent of all private schools are church-affiliated.

6. Note that all of these arguments are based on a belief that a greater reliance on competitive market forces to allocate educational resources will lead to a more efficient allocation of those resources; in turn, this view also suggests that the alleged externalities or other "market failures" used to justify government financing of education provide no basis for government provision of education. For further discussion of this point, see Danial Sullivan, "Public Aid for Private Schools: The Basic Issues."

7. In considering government support for education, one could also distinguish a third type: fiscal efficiency, which relates to how well expenditures of government funds match the purposes on individuals for which they were targeted.

8. One reason for giving such attention to a "typology" of costs is that to a large extent the dispute over the relative costliness of public and private schools centers on what should and what should not be counted.

9. The data for Table 1 were extracted from National Catholic Education Association, Catholic High Schools and Their Finances, and Basic Financial Data on Catholic Elementary Schools; National Association of Independent Schools, "Statistical Data on NAIS Schools;" National Education Association, Estimates of School Statistics 1977-78; and National Assocaition of Schools, Survey of Public Education in the Nation's Urban School Districts.

Notes
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10. That is, transportation costs in the private sector are typically off the budget.

11. This absence of secruity needs is documented by Coleman, et. al, "Public and Private Schols."

12. See Thomas Vitulo-Martin, "A Framework for Examining the Financing of Private Schools."

13. See report of National Conference on Catholic School Finance; on rural school administration, see Sher and Thompkins. It might be added that a recent study by NIE (The Private High School Today) found that public and private schools had similar management approaches.

14. Sources for data in Table 2 are same as for Table 1 with one addition: NCES, Digest of Educational Statistics 1980.

15. The educational implications of these differentials are discussed in Section II.

16. Boston seems to be affected by all three factors; as a result, the city's schools have the same number of teachers as they did six years ago, despite a 30 percent decline in total enrollment (Boston Municipal Research Bureau, "The State of the Boston Public Schools."

17. See Jay Chambers, "The Hedonic Wage Technique as a Tool for Estimating the Costs of School Personnel."

18. See Stephen Barro, "Profiles of School Finance Equity: Assessment of an Emerging Art Form."

19. See L. McDonnell and A. Pascal, "Organized Teachers in American Schools."

20. In fact, they often provide these programs to private school students as well, on a part-time basis.

21. In the aggregate, it is posible for public schools to pay higher non-labor prices, if private schools are relatively more concentrated in low-price areas. Such a pattern, however, does not seem to exist.

22. Note that teacher "willingness" can affect the quality of the services they provide. As Coleman, et. al, point out private school teachers appear to show much greater interest toward their students than do their public counterparts.

Notes
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23. An alternative interpretation would be that certification requirements lower the overall cost of a teacher by acting as a "screen" and thus reducing the search costs associated with hiring.

24. See Daniel Sullivan, "Adjusting for the Cost of Education Differences in a State School Finance System."

25. That is, at least not as part of a general (normal) educational program.

26. See Mary Kennedy, "Progress Toward a Free Appropriate Public Eduation." This same part-time arrangement also exists in many districts for vocational education.

27. In fact, nearly half of all non-church affiliated schools have specialized student bodies.

28. That is, the marginal cost of servicing additional special needs children in the private sector may be higher than in the public sector because of a need to add an administrative structure which is not currently present in main private schools.

29. Enrollment data for Table 3 are from Ester Tron, Public School Finance Programs, 1978-79, Estimates of per pupil costs computed using differential "Weights" for special needs students.

30. That is (from 2 cost perspective), economies of scale exist because of significant fixed costs and not because of declining marginal costs.

31. See Coleman, et. al, "Public and Private Schools," Note, also, that this pattern itself may be taken as evidence of scale economies in the use of these resources or the provision of these programs.

32. This is particularly significant for private schools- that is, greater access to teachers, building, or other resources may help to lower their budgetary costs.

33. That is, they do not affect the standard measures of educational outcomes.

34. See Victor Fuchs, The Service Economy.

35. See Daniel Sullivan, Public Aid to Nonpublic Schools.

36. Note that a major type of aid for existing private school is tax relief. However, since these same benefits also exist for public schools, they may be ignored.

Notes
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37. Sources same as Tables 1 and 2.

38. See E. Hanushek, A Reader's Guide to Educational Production Functions. Note that this approach typically ignores the "public goods" aspects of education.

39. This could be interpreted as adjusting for variation in the quality of output. The most recent such study is Coleman, et al. "Public and Private Schools." Also note that this approach tends to focus on a single output and to ignore equity considerations.

40. In addition to Coleman, et. al. see also E. Bartell, Costs and Benefits of Catholic Elementary and Secondary Schools; and Morrison and Hodgkids, "Research Note: The Effectiveness of Catholic Education: A Comparative Analysis." Because of its currency, the discussion below focuses on the recent study by Coleman, et. al.

41. See E. Hanushek, Input-Output Analysis in Public Education, Table 4-3.

42. See Coleman, et. al., "Public and Private Schools."

43. See B. Heyns, "Social Selection and Stratification within Schools," American Journal of Sociology 79 (May 1974).

44. See K.L. Alexander, et. al. "Curriculum Tracking and Educational Stratification: Some Further Evidence," American Sociological Review 43 (1978). Coleman argues that it is sufficient to control for family variables.

45. See Jay Noell, "The Impact of Private Schools When Self-Selection is Controlled: A Critique of Coleman's 'Public and Private Schools'"

46. See Barnow, Cain and Goldberger, "Issues in the Analysis of Selectivity Bias," in Stromsdorfer and Farkas, Evaluation Studies, Volume (1980).

47. Note that it is possible for the average cost of public schooling to be higher than average private school cost, and still have the marginal cost of public school less than that of private schools.

48. See D. Sullivan, Public Aid to Nonpublic Schools, It should also be noted that, at the secondary level, measures must focus on program-specific capacity.

Notes
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49. Ibid.

50. See forthcoming report by American Institute for Research.

51. The reader is reminded that earlier the alleged benefits of private schools were discussed.

52. That is, to require additional resources (expenditures) to achieve the same educational output.

53. The effect of this reduced support is seen to be less available revenues for the public schools. for further discussion of this point see Reischauer and Hartman, Reforming School Finance.

54. Coleman, et. al., "Public and Private Schools." The data presented by these authors show that verbal abuse of teachers, cutting classes and fighting among students are all at least twice as likley to happpen in public schools in comparison with private schools. Similarly, private school students report spending nearly twice as much time on homework as do public school students.

55. See Garner and Hanaway, "Private Schools: The Client Connection."

56. For example, it is possible that parents and students alike may change their behavior when switches from public to private schools.

57. That is, should the focus be on the benefits associated with the opportunity afforded to the private school youths, or on the costs imposed on those who remain in the public sector--it is clear that the importance which government officials attach to these costs will, in part depend upon the degree to which they accept the rationale for the government's current involvement in the delivery of education.

58. See Barbara Weisbreed, External Benefits of Education.

59. See Yoram Barzel, "Two Propositions on the Optimum Level of Producing Public Goods."

60. See James Coleman, "The Concept of Equality of Educational Opportunity."

61. The rationale for public prediction is much less clear. See D. Sullivan, Public Aid to Nonpublic Schools.

Notes
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62. That is, "choice" could exist equally well within the public sector.

63. D. Erickson, "Characteristics and Relationships in Public and Independent Schools."

64. See L. Tribe, "Policy Science: Analysis or Ideology?

65. The Private High School Today.

66. P. Taufman and T. Wales, "Education as an Investment and a Screening Device."

67. See R. Murnane, "Evidence, Analysis, and Unanswered Questions: Coleman's New Study, Public and Private Schools."

68. A.S. Goldberger, "Coleman Goes Private (In Public);" E. Page and T. Keith, "Effects of U.S. Private Schools: A Technical Analysis of Two Recent Claims."

69. The exception is Murnane.

70. There is considerable evidence that many Catholic high schools, rather than close because of declining Catholic demand, have enrolled substantial numbers of non-Catholic students. If Catholic demand were to increase, these students might well be forced out.

71. See A. James Lee, "The Economic Returns to Compulsory School Attendance."

72. The considerable attention given to private schools, for example, by the President's Commission on School Fiannce in the early 1970's stemmed from a concern that the sector might collapse.

73. For the private sector perspective, see D. Erickson, "Characteristics and Relationships in Public and Independent Schools."

74. C.S. Benson, "Tuition Tax Credits: Educational Advance or Social Triage?"