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Abstract

This article reviews the conceptual and methodological issues in the comparison of the costs of public and private schools. Based on empirical studies on primary and secondary education in developing countries, the review finds that many comparative cost studies are problematic in that they omit or underestimate important education costs, do not provide appropriate comparison of public and private schools, or are plagued by a lack of information. The problems could result in a significant underestimation of the costs of private schools and consequently a significant overestimation of their efficiency relative to public schools. Improper cost comparison could also lead to a failure to uncover inequities in, limitations in reaching marginalized populations through, and the role in socio-economic segregation of, alternative forms of schooling. The article highlights the need for further and better research on comparative cost analysis and indicates the technical and non-technical impediments for such research.

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Introduction

Many important decisions in education are concerned with the costs of education. Information on costs, for example, is necessary to find out how many resources are needed to operate an educational program, to ascertain the financial feasibility of an education project, to monitor resource allocation over time, to diagnose the status of health of the education system, and to assess efficiency in resource utilization in educational institutions. Cost analysis can be applied to a variety of issues and settings to contribute to informed decision-making in education (Tsang 1997a); and a fitting example of its application is the comparison of the costs of public and private schools.

The relative merits or demerits of public versus private schooling have been a subject of intense debate in both developing (Tsang forthcoming; Cuellar 2001; McEwan 2001; Jimenez and Lockheed 1995) and advanced industrialized countries (Levin 2000; Peterson, et. al. 1999; Rangazas 1997; Belfield 2001). Proponents of private schooling, for example, argue that it could address the unmet demand of parents for additional schooling for their children because of limited capacity in the public sector, expand the choice in schooling to meet the varied educational preferences of parents, and enhance efficiency in the utilization of scarce national resources through market-based competition in education. They point out that alternatives to traditional government schools could be created to serve children from marginalized backgrounds so that such children are not trapped in low-performing government schools. Opponents to private schooling, on the other hand, question the presumed efficiency-advantage of private schools, and raise serious concerns about the negative effects of private schooling on social equity and social cohesion. While improving the educational opportunity of children from marginalized backgrounds is a desirable goal, alternatives to government

schools may have the tendency to attract the most motivated families, leaving government schools to deal with the less motivated ones.

Comparing the costs of public and private schools could contribute to an informed debate. First, a careful estimation of costs will show all the resources required to provide alternative programs to meet unfulfilled educational demand or to serve population groups with particular educational needs. For example, the analysis may show that public and private schools have different amounts of donated inputs not reflected in their operational costs; it can show what the per-student cost of private schools would be if they were required to provide special education programs as a condition for receiving government subsidy; and it can clarify how much it actually costs parents to send their children to private schools. Second, a policy in favor of private schooling may increase the reliance of educational financing on families; and the economic burden on families may vary by socio-economic background. Thus, a shift in the mix of public and private schooling can have significant equity-related implications. Third, an analysis of the per-student costs of public and private schools will improve our understanding of the determinants of education costs and show whether or not there are systematic differences in the operation of the two types of schools. Fourth, information on costs is necessary for assessing the validity of claims on the relative cost-effectiveness of public and private schooling.

Earlier studies of the relative merits of public and private schooling tend to focus on school effectiveness, with little analysis of costs (Coleman et. al., 1982; Willms, 1983). In recent years, studies on the relative costs and relative cost-effectiveness of public and private schools have begun to emerge to fill this obvious gap in the research literature

(Tsang and Taoklam 1992; Jimenez and Lockheed 1995; McEwan and Carnoy 2000). This is certainly an encouraging development. However, a careful examination of published studies so far indicates that there are significant conceptual and methodological deficiencies in the analysis of the costs of public and private schools; and that these deficiencies could lead to misleading policies regarding public versus private schooling. For example, some studies underestimate the total education cost by either ignoring household resources devoted to schooling or not including education inputs donated by parents or community sources (Jimenez and Lockheed 1995). To the extent that private schools rely more on private resources or donations, these studies will under-estimate the cost of private schools relative to public schools and over-estimate the cost-effectiveness of private schools relative to public schools, other things being equal. Also, some cost-effectiveness studies focus more on collecting and analyzing information on effectiveness with little corresponding effort on the cost component, thus resulting in very crude or incomplete estimates of costs. But strong statements are made about the relative cost-effectiveness of public and private schooling (Jimenez et. al. 1988). Moreover, some studies ignore institutional diversity among public and private schools and compare the average unit costs of public schools and private schools. To the extent that different schools can operate in different social settings (e.g., urban vs. rural) or cater to different clienteles (e.g., children from poor vs. wealthy backgrounds), they may not be realistic schooling alternatives. Hence, a comparison of average unit costs of the two aggregate groups is not meaningful.

This is an article on properly comparing the costs of public and private schools and the implications for educational policy. This discussion is based on a conceptual and

methodological discussion of cost analysis and a review of studies on primary and secondary schools in developing countries. Through actual examples in developing countries, the article explains the potential pitfalls of improper cost comparison in the public debate over the relative merits of public and private schooling, especially with respect to the cherished goals of expanded access, increased social equity, and improved efficiency. The article focuses on primary and secondary because privatization is generally less of an issue at the post-secondary level. To limit the scope of the review, only studies on developing countries are considered. But many of the issues raised here could also be relevant for advanced industrialized countries[1]. The rest of the article is divided into three sections. Section II presents a concise summary of the conceptual and methodological issues in cost comparison. Section III compares private educational resources for public and private schools while Section IV compares their institutional costs. The last section discusses the implications for educational policy by highlighting cost issues involved in current educational initiatives in developing countries.

Conceptual and Methodological Issues in Cost Comparison

Conceptual Issues

The costs of education refer to the resources used in the production of education services. They include not only public expenditures on education, but also household spending on education, donations to educational institutions from private sources, and the economic value of foregone opportunities of education (Levin and McEwan 2001). A comparison of the costs of public and private schooling thus has to take account of the direct and indirect resources from various sources. The inclusion of household education

[1] See the contributions by McEwan and King in this yearbook.

spending and contributions is particularly relevant in many developing countries in which educational financing depends to a significant degree on private sources (Tsang 1994).

The costs of public and private schools are often compared at the school level, because of interests in relative efficiency and operational characteristics at the institutional level. For analytical purposes, costs at the school level can be divided into two groups: institutional costs, and private resources (Tsang, 1995a). Institutional costs refer to costs incurred by the school on its production of educational services; they are usually divided into recurrent and capital categories for accounting purposes. Recurrent costs are costs of inputs that are expended in a period of one year; they consist of the costs of school personnel and non-personnel items. Capital costs are costs of inputs that last for more than one year; they include the costs of buildings, equipment, and land.

Private resources at the school level refer to resources provided by households, individuals, and the community to support the production of educational services at the school. Private resources for education can be classified into three categories: direct private costs, private contributions, and indirect private costs. Direct private costs refer to household educational expenditure related to a child's schooling, including tuition spending and non-tuition spending (such as spending on other school fees, textbooks and supplementary study guides, uniform, writing supplies, school bag, transportation, and boarding). Private contributions refer to donations, in cash and/or in kind, from parents, individuals, or community organizations to a school. Indirect private costs refer to the economic value of the foregone opportunities of schooling. While private resources can be reported in monetary value, their magnitude could be better assessed by comparison with government spending on education.

The institutional costs of public schools are supported by government educational spending, fee-related spending by households, and private contributions to school. Government educational spending usually constitutes the largest share of these costs. For private schools, fee-related spending by households is often the major source of support for institutional costs, while private contributions and government subsidies can also be significant in some instances. For both public and private schools, total cost at the school level equals the sum of institutional costs, non-fee-related direct private costs, and indirect private costs. It is important to point out that institutional cost does not represent the total cost at the school level and that households and the local community could be the major financing source for institutional cost.

There are educational resources incurred above the school level, such as the costs of operating educational bureaucracies at the local, provincial/state, and central/federal levels. Such costs are usually small compared to school-level costs, on a per-student basis. A shift in the mix of public and private schools may entail a change in the educational costs above the school level.

The costs of public and private school are often compared on a unit basis, particularly in terms of costs per student. It is useful to distinguish between two types of unit costs, average cost per student and marginal cost per student, which are often used in different decision context. Average cost per student is defined as total cost divided by total student enrollment. This measure can be used to find out, for example, whether a system of public schools is more expensive to operate than a system of private schools. Marginal cost per student is defined as the additional cost of serving one more student; it is used to estimate the additional cost associated with the expansion of a system of

schools at the margin. If there is slack (e.g., excess capacity) in an existing school system, additional students can be served at relatively lower costs; marginal cost will be less than average cost. In some situation, marginal cost could be higher than average cost, for example, when serving additional students increases the demand for teachers and then compensation for teachers. Thus, at a given scale of operation, marginal cost could be different from average cost. In choosing between these two measures of unit cost, the analyst has to be clear whether the decision is about comparing system averages or comparing changes at the margin.

The comparison of the relative unit costs of public and private schools is complicated by the possibility that unit costs may change with the scale of operation. The changing relationship could be represented by a cost function, which could be a flat line, a V-shape curve or some other curve. If the cost function is not flat (a very likely situation in reality), the relative cost ratio may change when the scale of operation changes. Public and private schools may have the same cost function but they could be at different point of the scale of operation; or they have different cost functions.

Pertinent to the above discussion of changing unit costs are two different concepts of efficiency: technical efficiency and economic efficiency. Technical efficiency is enhanced when more output is produced with a given mix of inputs. Thus, when there is slack in the existing schools (public or private), technical efficiency will be improved by more fully utilizing the existing inputs; and marginal cost less than average cost at the given scale. On the other hand, producing more output through changing the mix of inputs enhances economic efficiency. For example, supporters of private schooling argue that private schools can be economically more efficient than public schools since

the former have more freedom in choosing the right mix of inputs while the latter are constrained by powerful interest groups (such as teachers unions) and could not easily choose the right mix of inputs. In short, in comparing the costs of public and private schools, the cost analyst has to determine: (1) what is the decision context; (2) what is the appropriate unit-cost measure; and (3) how to measure the unit cost properly.

Methodological Issues

Experience has shown that cost comparison of schools in developing countries should be cognizant of a number of methodological issues (Tsang 1995)2. First, private resources could be a very substantial source for financing schools, including public ones. They have to be carefully estimated. Second, how school revenue from households (in addition to the amount of revenue) is utilized could have an impact on school output. In some countries, such revenue is an important source of funding for quality-related school inputs (such as textbooks and instructional materials). Thus, it is useful to examine the pattern of resource utilization at school. Third, good and relevant data may not be readily available. With respect to data problems, there are at least three distinct issues: (1) information on some relevant costs may not be available and this could lead to underestimation of cost; (2) the quality of available information is poor and the resulting cost estimates are unreliable; and (3) the use of school revenue data instead of school cost data could be associated with significant measurement error. Information on private schools is generally more different to obtain than that for government schools and this may result in an under-estimation of the costs of private schooling. Because of a lack of school-level information on institutional cost, some studies resort to using total government spending on public education to estimate the per-student cost of public

schooling. Fourth, there are substantial diversities among developing nations and the cost analyst should be cautious in interpreting the findings from these countries and in drawing lessons from cross-national studies. Fifth, related to the previous point, public and private schools may mean different things in different countries. Even within a country, there could be a range of private schools as well as a range of public schools; and these schools could operate in different settings (e.g., urban and rural). Cost analysis should clarify the nature of these schools and their setting and to perform appropriate comparison. Sixth, cost comparison without considering effectiveness is as problematic as effectiveness comparison without considering costs[3].

The next two sections present a review of educational cost studies in developing countries, with a focus on primary and secondary education. Section III compares the two types of schools in terms of private resources and Section IV compares the institutional costs of these schools. This discussion is based on studies and reviews in the past two decades in the English literature. While specific findings will obviously be influenced by the studies and countries covered, the purpose here is try to find some general lessons in properly comparing the costs of public and private schools in these countries.

Comparing Private Resources to Public and Private Schools

The improper estimation of private resources is a common problem in cost comparison between public and private schools. The deficiency may consist in either

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2 To some extent, many of these observations are also relevant to advanced industrialized countries.
3 Analytically, a cost function relates schooling output to cost. It could be empirically estimated with cost and output information.

underestimating or in not estimating the amount of private resources. In many instances, this deficiency is related to the lack of good information[4].

The estimation problem is not serious if private resources are relatively small and there is no significant difference between public and private schools. However, as the empirical studies reviewed here show, private resources can be significant compared to public educational spending and that they can be very different for public and private schools

Table 1 shows the magnitude of private resources to public education[5] in developing countries in Asia, Latin American and the Caribbean, and Africa. The great majority of the studies in Table 1 focus on direct private costs, with few studies also considering private contributions and indirect private costs. To assess the magnitude of private resources, two measures are used: private resources as a percentage of public recurrent educational spending, and private resources as a percentage of total public educational spending (which includes both recurrent and capital spending). Both measures could be estimated at the primary, secondary, and all-education levels. It should be pointed out

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[4] Understandably, information on private spending on education is not as easily available as that on public spending on education. Earlier research studies on education costs rarely undertook household surveys to estimate private costs because such surveys could be expensive to undertake (Tsang, 1988). But in more recent years, government agencies in developing countries have started collecting information on household educational spending as part of their periodic socio-economic survey of households. For example, the World Bank has a LSMS (Living Standards Measurement Study) database on a number of countries that contains information on household educational spending. However, such surveys rarely provide information on private contributions to school and on indirect private costs. Private contributions to school could be estimated by collecting information from schools themselves. This strategy will not work for private schools if the school principal is reluctant to provide such information.

5 Developing nations vary in what schools they consider to be part of the public system. It is a common practice across countries that schools funded and managed by the government are considered public schools (the "traditional" public schools). However, schools with significant government subsidies but managed by non-government agencies (such as the church) are put under the public sector in some

that the studies were not based on a uniform estimation procedure; some studies relied on a sample of schools in a city, a province, or a country while others employed information from a socio-economic survey of households. Caution must be exercised in comparing the findings across national settings. The studies also used data over different time periods; and the magnitude of private resources could change over time within a country (e.g., because a change in government financing policy for schools). Nevertheless, taken together, these studies demonstrate the magnitude of and the large variation in private resources to education both within and across developing countries.

Direct private costs of schooling

At the primary level, the ratio of total direct private cost to government educational spending ranged between 10% in Indonesia to 246% in Cambodia; although it was between 30-80% for most countries. At the secondary level, the ratio ranged between 12% in Tanzania to over 200% in Vietnam in 1993. The ratio averaged about one-third for government schools in Colombia, Barbados, and nine East African countries and about three-quarters in the Philippines and Kenya. For Vietnam, because of an increasing role of government financing, the studies by the World Bank indicate that the magnitude of direct private costs declined substantially between 1993 and 1994. But even in 1994, private spending was still as large as government spending. For the entire education system, the ratio ranged between 4% in Argentina to 111% in Brazil, with most of the values lying between 30% and 50%.

In short, direct private costs constitute a significant part of the total funding for public schools in the majority of the developing countries documented in Table 1. Table

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countries (Tsang et. al. forthcoming) and in the private sector in some other countries (McEwan and

1, however, does not show the magnitude of direct private costs of private schooling. There are reasons to believe that, in many circumstances, the direct private costs of private schooling are much higher than those of public schooling in developing countries. First, tuition is generally the most important source of funding for private schools and can be a relatively large spending item for households[6]. It is a common practice for government primary schools not to charge tuition; and government secondary schools also do not charge tuition in some countries. Second, parents of private schools in some countries have to pay some non-tuition school fees that are not required in government schools. For example, parents may be required to pay a registration or admission fee in order to get their children into a private school; this school fee could be large compared to the tuition fee for an elite private school. Third, public and private schools may serve children from very different socio-economic backgrounds that have different capacity for spending on education. For example, studies in ten countries (see Table 2) have documented that there are very large differences in private educational spending among households. As expected, such spending is much higher for households with higher income/consumption, and for parents with higher educational attainment, in professional occupations, or from a certain ethnicity. This finding has implications for the relative cost of public and private schools. To the extent that private schools serve proportionately more students from higher socio-economic backgrounds, direct private costs will be relatively higher for private schools.

Table 3 compares the direct private cost of public and private schools in six countries for which information is available. While all the studies reported higher direct private

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Carnoy 2000). Table 1 refers to schools that are considered public in their own context.

cost for private schools, they also showed that there were substantial variations in relative cost across education levels and across countries. Some of these studies pointed out that it was important to distinguish the different types of government schools and private schools within a country for proper comparison.

In Thailand, for example, the total direct private cost of private primary schools averaged 4.7 times that of government primary schools in 1987. In private primary schools, households spent a total of 3,262 bahts per student per year, consisting of 1,676 bahts on tuition and 1,586 bahts on non-tuition items. Households of government primary schools spent an average of 695 bahts per student per year, all on non-tuition items, since they paid no tuition fee (Tsang and Kidchanapanish, 1992: Table 4.1). The average for government schools masks large differences in non-tuition household educational spending among different types of government schools. Parents spent 601 bahts in ONPEC schools (government schools mostly found in rural areas), 1,227 bahts in Bangkok schools (urban government schools in the national capital), and 1,213 bahts in Municipal schools (urban government schools in other municipal areas). Thus, the non-tuition spending of households of private schools, which are mostly located in urban areas, was about 30% higher than that of urban government schools. This study indicates that it is important to distinguish between the different types of government schools, especially between rural and urban ones.

In addition to showing higher direct private costs for private schools at the primary level, a study of Chile highlights the importance of examining different types of private schools. In Chile in 1996, direct private costs averaged (weighted by enrollment)

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6 However, private schools with heavy government subsidies may not charge tuition (Cuellar 2001; McEwan and Carnoy 2000).

173,575 pesos in primary schools under public administration, and 336,329 pesos in private schools (computed from McEwan and Carnoy, 2000: Tables 2 &5). However, private schools in Chile can be classified according to whether or not they receive government funding in the form of a voucher. Direct private costs averaged 237,630 pesos in voucher-receiving private schools, and they were of similar magnitude among Catholic-voucher, Protestant-voucher, and non-religious-voucher private schools. Since both government and voucher-receiving private schools do not charge tuition, this study shows that non-tuition direct private cost of voucher-receiving private schools was 37% higher than that of government schools. Parents of private schools that receive no government voucher spent an average of 731,125 pesos in the same year, 4.2 times the average for government schools. In Chile, non-voucher private schools serve children from the highest socio-economic backgrounds and tuition fee is their main source of funding.

Reported household spending on education may underestimate the total direct private cost of private schools. Though discouraged or even prohibited by the government, some private schools in developing countries charge parents a one-time "admission" fee. This non-tuition school fee can be several times the annual tuition fee, especially for private schools with a good reputation (Tsang forthcoming; Tsang and Kidchanapanish 1992; World Bank 1992). This under-the-table transaction is often un-reported by school staff and by parents. Thus it is difficult to document how prevalent this practice is in developing countries. But researchers should be aware of this likely underestimation of the direct private costs of private schools.

Direct private costs are important to consider not only for proper cost accounting purposes, but also because they have strong implications for educational quality and equity (Tsang 1995a; Tsang et. al. 2000). In many developing countries, they are the major source of funding for important education inputs such as textbooks and other learning materials. They also could be a heavy economic burden on some households, particularly those from poor and rural backgrounds that could adversely affect school attendance.

Private contributions to school

Private contributions are often generated from fund-raising activities held by the school. They can come from a wide variety of sources, including parents, individuals, as well as community and religious organizations. The importance of private contributions can vary across countries and across types of schools. Community financing of education has a long tradition in some countries (Bray and Lillis, 1988). In China, for example, *minban* (people-run) schools in rural areas have for decades received community donations, in cash and or in kind, to support the livelihood of teachers (known as *minban* teachers) and the construction of school buildings. School staff and education officials at various levels are asked to record the amount of donations from various non-government sources (known as "social contributions"). A study by the World Bank (1999) found that social contributions amounted to 13.7% of total government spending on education in 1991 and 12.6% in 1997 (computed from Table 5.3, p. 74) for the country. The harambee schools in Kenya are another example of school for which community donations, particular in contributed labor and materials in school construction, are important (Bray and Lillis, 1988). In Thailand in 1987, household donations amounted to

4.4% of recurrent cost and 3.2% of institution cost in government primary schools; the corresponding ratios were 8.9% and 5.8% in private primary schools (computed from Tsang and Kidchanapanish, 1992).

A common problem in comparing private contributions to public and private schools is the lack of information. School staffs, especially those from private schools, are often reluctant to provide such information for a number of reasons, such as the concern that their school may receive less funding or subsidy from the government, or that they may induce more close scrutiny from regulatory bodies. Operators of for-profit private schools are particularly careful about information on their revenue (from tuition and other school fees, and from private donations) and expenditure that has tax implication. In many developing countries, the government either does not collect or is not effective in enforcing the regulation to collect information on private contributions. Some evidence shows that private contributions can be substantial and can vary significantly among schools in some countries. A study by a World Bank analyst (Wu, 1995) in Trinidad and Tobago found that private contributions could amount to as much as half a million T&T dollars in 1994 for a "successful" church-run primary school; such an amount was more than half of the average total government spending on an entire government primary school[7].

The underestimation of private contributions is much more likely to be an issue for private schools than government schools, for a couple of reasons. First, government schools are more likely than private schools to be required by the government to report

7 Per-student government spending was 2,444 local dollars in 1994 (Tsang et. al. forthcoming). There are about 350 students per primary schools.

private contributions. Second, the true economic value of private contributions of some private schools is either not reported or underestimated as the next section emphasizes.

Indirect private cost of schooling

In developing countries, children are generally required by law to go to primary school and employers in some of these countries are even forbidden to employ children at such an age. Thus, in most instances, one may assume that indirect private cost of primary schooling is either zero or very negligible. This assumption is untenable at higher levels of schooling, as there are real opportunities for productive activities besides schooling; the economic value of such productive activities varies across settings and households. Indirect private cost for the education sector could be substantial (Tilak, 1985). But even at the primary level, indirect private cost of primary schooling may not be zero or insignificant in some situation. For example, for rural households in poor countries, children are often needed to help with agricultural production, household chore, or care of younger siblings. For some poor urban households, primary schooling still affects the amount of productive help obtainable from the child.

In a study of primary schools in 1987 in Thailand (Tsang and Kidchanapanish, 1992), opportunity cost was estimated to be the additional number of hours that parents would like their children to help them per day if their children were not in school. A household survey found this to be 1.6 hours per day for ONPEC government schools, 1.3 hours per day for municipal government schools, 0.82 hour per day for Bangkok government schools, and 0.95 hour per day for private schools. In monetary terms, the indirect private cost as a proportion of per-student recurrent cost was estimated to be

14.7% for ONPEC government schools, 20.7% for municipal government schools, 10.4% for Bangkok government schools, and 20.2% for private schools.

In most comparative studies of public and private schools, estimates of indirect private cost are not provided because information on such cost is not readily available. School personnel and educational decision-makers are not interested in this cost because it is not associated with usable resources in the operation of schools. The indirect private cost of public and private schools could be different, as parents could come from different socio-economic backgrounds and have different demand for child labor. To the extent that higher-income families have a lower demand for child labor, schooling represents a smaller sacrifice to them. For example, in Thailand in 1987, indirect private cost of primary education as a proportion of household income amounted to 7.2% in government schools and 0.62% in private schools, because government schools had students mostly from rural and lower-income households (Tsang and Kidchanapanish, 1992).

Very few comparative studies of public and private schools consider all three categories of private resources. Table 4 presents the findings of such a study. It shows the amount and ratio of private resources for grade 6 students in government and private schools in Thailand in 1987. Private resources per grade 6 student totaled 3,568 Baht in private schools, 1,291 Baht in ONPEC government schools, 1,700 Baht in Bangkok government schools, and 1,743 Baht in Municipal government schools. Then total private resource for private primary schools were substantially higher than that of the government primary schools. Indirect private cost was not trivial; it constituted 37.5% of total private resources for government schools and 12.6% private schools in Thailand.

The study also found that private resources as a percentage of household income were 14.4% for government schools and 4.8% for private schools. Thus private resources were a heavier economic burden for government-school households than private school ones even though private schools received more private resources than government schools. They were also a heavier burden for rural households than urban ones, and for lower-income households than higher-income households.

In summary, private costs of schooling in developing countries: (1) are substantial compared to government education spending for public schools, and particularly for private schools; (2) may exhibit large variations between and within public and private sectors as well as within and across countries; (3) are likely to be underestimated for private schools relative to public schools because of a lack of available information and other factors; (4) are likely to be higher for private schools than public schools because of student backgrounds, school-fee policies, and other factors; (5) are a source of educational inequity for households in different education sectors and from different backgrounds; and (6) are an important financing source for some quality-related education inputs.

Comparing Institutional Costs of Public and Private Schools

A popular way to compare the costs of public and private schools is based on the per-student institutional expenditures at the school or system level. Institutional expenditures are educational spending that school personnel, educational policymakers, and educational planners deal with on a regular basis and over which they have some control. Information on institutional costs of government schools is generally available.

Average per-student institutional costs can be estimated from information on costs and enrollment.

Table 5 compares the average per-student institutional costs of primary and secondary education in five countries for which information is available for both the government and private sectors. Although the ratio of average cost ranges between 0.39 and 1.46, eight out of ten cases in Table 5 show that private schools have lower institutional costs that public schools. This finding is consistent with the assertion of private-school advocates who argue that private schools have a stronger incentive to lower costs (as one way of improving cost-effectiveness) and have more autonomy than public schools in decisions regarding spending and the mix of educational inputs (e.g., teachers qualification and teachers salaries). Private schools could be economically more efficient, other things being equal. Section II, however, emphasizes several caveats to the proper interpretation of the findings in Table 5.

First, institutional costs are part of the total cost of schooling. For public schools, they generally do not include direct private costs, private contributions, and indirect private costs[8]. For private schools, they do not include the non-fee direct private costs and indirect private costs; and private contributions may or may not be incorporated. Information on total costs and their funding sources should be examined if one is interested in finding out how many resources are expended in producing a given level of educational output, comparing the cost-effectiveness and relative efficiency of public

8 In some countries, government schools charge tuition fee and/or other school fees at the primary and secondary levels. Such fees could be reflected in the estimate of institutional costs if information is available and taken into account in the analysis. The institution costs reported by government schools may already incorporate the private resource from school fees. Information on private contributions is either not reported or unavailable. Thus private contributions are often not taken into account in the estimate of institutional costs.

versus private schools, and understanding the equity implications of resource mobilization for education. The relative cost could change when all resources are accounted for in the production of public and private schooling. For example, in Thailand, the average per-student cost of private primary school amounted to 53% of that of the average government primary schools, in terms of institutional cost only; but the relative cost ratio increased to 78% when private resources were also included. Thus, without taking account of private resources, the cost of private schooling relative to public schooling will be underestimated and the efficiency of private schooling relative to public schooling will be overestimated. It is not unusual to find that studies that claim a higher relative efficiency for private schools are subject to this problem (Jimenez and Lockheed 1995).

Second, average unit costs based on an aggregate system often mask large variations among different types of schools in the public and private sector. And such aggregate estimates are not appropriate for cost or cost-effectiveness comparison. Consider again the example on Thailand. Most of the government primary schools are located in rural areas and private schools are primarily located in urban areas; comparing the system of government schools with the system of private schools is essentially comparing rural government schools with urban private schools. A more appropriate comparison is between private schools and government schools in municipal areas[9]. The cost of private schooling relative to government schooling was 93% (see Table 6), which is very different from the 53% figure shown in Table 5. In order words, the efficiency of private schools relative to government schools in Thailand was almost cut in half when all the

costs were taken into account and when the appropriate comparison of school groups was made. Kingdon's (1996) study of urban schools in Uttar Pradesh, India demonstrated the large differences in quality and costs between different types of private schools. Private-aided schools are almost twice as expensive as private-unaided schools but are comparable to government schools, in terms of per-student recurrent cost[10]. Large differences in per-student cost[11] were also reported in a recent study of Chile (McEwan and Carnoy 2000). In 1996, per-student cost was estimated to be 430,000-440,000 for two types of government schools, 456,000-493,000 pesos for religious voucher-receiving schools, 393,000 pesos for non-religious voucher-receiving schools, and 731,000 pesos for private non-voucher schools (the most elitist schools). Thus, some private schools were more expensive and some were less expensive than government schools. Cost differences between government schools and non-religious voucher receiving schools (the largest category among private providers) were not very large. In the Dominican Republic, high-status private schools were found to be more expensive than government schools while low-status private schools were less expensive, in terms of per-student institutional cost (Jimenez at. al. 1991).

Third, a number of measurement errors could potentially affect the accuracy of the estimate of institutional cost, resulting in an underestimation of the institutional costs of private schools. To begin, information on some of the institutional costs of private schools either does not exist or is not accessible; this could lead to an imprecise estimate

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9 Traditional government and traditional private schools are real policy alternatives in urban Thailand, but not in rural areas. Bangkok schools are a unique category of government schools because of the very high cost of land.

10 Private-aided schools are privately managed schools with government funding while private-unaided schools are privately managed schools without government funding.

11 It does not include private contribution and indirect private cost.

or underestimate. In addition, donated inputs could be either not reported or under-reported, resulting in a significant underestimation of institutional cost. A good example is religious schools for which contributions by the concerned religious organization can be substantial. Such contributions may include instructional services provided "free" by the clergy or at below-market salaries and the use of "free" facilities owned by the religious organization (Levin 1987). Thus, the reported institutional expenditure by these private schools will not represent the true institutional cost for operating such schools. Moreover, measurement error could arise when school-income data in a given year are used in place of information on costs (resources utilized in the schooling process)[12]. In a given year, school income may not be equal to school expenditure[13]; and school income does not include other school costs[14]. An example of the use of school-income data is a study of the cost-effectiveness of public and private secondary schools in Thailand (Jimenez et. al. 1988). The researchers were careful in pointing out in the text of the published study that their use of school-income data obviously produced rough cost estimates. The cost-estimation section of the published study was somewhat equivocal about the relative cost of public and private schools, but the conclusion section was unequivocal in stating that private schools were much less costly than government schools.

Fourth, Table 5 shows relative costs based on average costs at a given scale. Relative unit costs may change if there is a large change in the scale of one or more of the two subsectors. The average cost of a large private sector could be quite different from

12 This practice could be due to a lack of information on cost. It also takes time and effort to collect good cost data.
13 A private school may decide to have some savings in order to finance a capital project in the future. Expenditure could be larger than income if the school borrows to erect a school building.

that of a small private sector. For example, the cost of educating students in the private sector may go up when the sector serves more students with "undesirable" attributes, and when free or low-cost instructional services become more scarce (McEwan and Carnoy 2000). If one is dealing only with relatively small change in enrollment, the marginal cost should be estimated. More generally, average costs are affected not only by the scale of operation, but also by input prices, and the technology of educational production. Analytically, the change in average cost with scale involves a movement along a given cost curve, other things being equal. A change in technology of education (or the price of an education input) could shift the cost curve up or down, other things being equal. Relative costs of the two sectors would likely change when there are changes in prices and/or technology. Thus the cost analyst has to make an assessment of the relevance of existing cost estimates.

Fifth, information on costs alone is not enough to determine the relative efficiency of public and private schools. Costs must be related to educational effectiveness. Since the latter part of the 1980s, relatively more empirical studies of the cost-effectiveness of public versus private schools have been undertaken in developing countries. This is certainly an encouraging development in educational research on the subject. Methodologically, these studies can be divided into two groups. The first group, the majority in terms of the number of studies, conducted separate analyses of effectiveness and costs with a subsequent comparison of cost-effectiveness (Psacharopoulos 1987; Jimenez et. al. 1988; Jimenez et. al. 1991; Jimenez and Lockheed 1995; Kingdon 1996; Winkler and Rounds 1996). The second group, the minority, consists of studies that assess relative efficiency by estimating a cost function that simultaneously uses

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14 Such as non-fee direct private costs, donations in kind, indirect private costs.

information on effectiveness and costs (James et. al. 1996; McEwan and Carnoy 2000). Some of these studies recognized that public and private schools serve student populations with varying ability and selection bias was taken into account in the statistical estimation of an educational production function,[15] and some of these studies did provide cost estimates for more than one types of private schools and or public schools. [16] Except for a couple of studies, however, these cost-effectiveness studies did not consider private resources to public schools and non-fee private resources to private schools.[17] Thus, they are subject to potential erroneous estimation of the relative efficiency of private schools. Some of these studies estimated recurrent costs and did not even consider capital costs in the estimation of institutional costs.[18] There is an obvious need to strengthen cost estimation in these cost-effectiveness studies.

In summary, comparison of institutional costs of public and private schools (1) could lead to a distorted assessment of relative costs and relative efficiency if not accompanied by estimation of private resources; (2) should recognize the cost implications of institutional diversity and identify appropriate counterpart school groups for analysis; (3) is often plagued by a lack of information on private schools, with a potential bias in underestimating the costs of such schools; (4) should be aware that relative costs could change with scale, input prices, and technology of education; and (5) should be strengthened in cost-effectiveness studies.

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15 See, for example, Jimenez et. al. (1991) and Kingdon (1996). The Heckman technique was used in the statistical estimation to deal with sample selection bias associated with unobserved variables.
16 See, for example, Jimenez et. al. (1991) and Kingdon (1996); McEwan and Carnoy (2000).
17 McEwan and Carnoy (2000) and Psacharopoulos (1987) did consider the direct private costs of public schools. Like other studies, these two studies did not include information on non-fee private resources to public and private schools.
18 See, for example, Jimenez et. al. (1991), Kingdon (1996), and the studies on Colombia, Tanzania, the Philippines, and the Dominican Republic reported in Jimenez and Lockheed (1995).

Implications for Educational Policymaking and Further Research

This last section examines the relevance of cost comparisons to educational policymaking. As an illustration, it identifies the cost issues to be addressed in assessing the impact of two related education initiatives that have attracted much attention in many of these countries: increased privatizing of schooling, and achieving quality basic education for all. Informed policymaking regarding these two initiatives often involves a comparative cost analysis (see Table 7).

Privatization of Schooling

Consider first increased privatization of schooling. A useful framework for assessing privatization initiatives is to compare the effects of public and private schooling with respect to objectives of increased efficiency, enhanced equity, expanded choice, and promotion of social cohesion (Levin 2000). In developing countries, privatization could be promoted to achieve one or more of these objectives. A key argument for proponents is that privatization could lead to more efficient utilization of educational resources (Jimenez and Lockheed 1995). To assess the validity of this claim, questions should be raised about whether costs are taken into account, whether costs are properly estimated, and whether comparison is made of public and private schools that are genuine policy alternatives. Many of the published studies on cost-effectiveness of public versus private schools have a deficiency in cost estimation that is more likely to lead to an underestimation of the costs of private schools relative to public schools. There is a clear need to strengthen the research on costs in these studies. Some analysts point out that schools may not respond to privatization-induced competition by improving education quality and that privatization could lead to greater inequity in education expenditures and

performance for students from different income groups (Parry 1997; Winkler and Rounds 1996). More empirical evidence is needed to support the claim that privatization will lead to higher overall quality. It is also necessary to carefully analyze the distribution of education costs (and output) by student backgrounds in order to assess the equity impact of privatization. Moreover, whether children from disadvantaged backgrounds have an opportunity to attend good-quality private schools is a matter of concern. Some observers point out that equity could be enhanced by reducing the cost of private education relative to public education for children from poor background (e.g., through a government voucher) so that they are not trapped in low-quality public schools; others counter that private schools could attract children from the most-motivated families, leaving public schools with the less "desirable" children (McEwan 2000).

Increased schooling choices for parents could be a positive effect of privatization as private schools may arise to meet parental tastes not addressed in the public sector. In practice, families with more resources have more choices than families with less resource, in both education sectors19. There is potential conflict between choice and equity; and each society has to determine the proper balance between these two objectives. One also has to find out whether private schools (especially those receiving some government subsidy) have admission rules that limit parental choice, such as rules regarding children with special needs and children from less desirable backgrounds. Such rules may be used to lower the education cost of these schools. Finally, privatization could have a negative impact if it leads to increased fragmentation in

19 Resources can be financial and political. Wealthy families can choose to send their children to a high-tuition private school. Families with good connections may be able to place their children in a high-quality public school.

schooling experiences; and cost could be a factor in socio-economic segregation20. There is potential conflict between individual choice and social cohesion in a democratic society (Levin 1982). In general, increased privatization may or may not have an impact on social cohesion. The role of public policy is important in determining this effect.21 In fact, some analysts argue that the distinction between the two sectors is not as important as the perceived public good of schools in each sector and the rules governing their operation. Public policies could be designed to make public schools more market oriented and private schools serve the public interest (Wolff and de Moura Castro 2001).

Achieving Quality Basic Education for All

Expanded access, enhanced equity, and increased efficiency are important objectives in developing countries' effort to provide basic education to all (Inter-Agency for Basic Education for All 1990). The government faces particular challenge in providing quality basic education to marginalized populations22; and private schools might be an alternative to public schools in meeting this challenge. Cost analysis is relevant to informing the government's effort to achieve universal basic education. First, proper cost estimation of alternative programs and assessment of financial feasibility are necessary tasks in devising a realistic education plan. Particular attention has to be paid to the costing of programs for marginalized populations, as the unit costs of schooling at given quality for these populations can be quite different from those for non-marginalized groups (Tsang 1994). Analysis may be undertaken to determine if private schools could

20 Obviously, in many developing countries, cost is already a factor in socio-economic segregation in the public sector. The issue is whether privatization will lead to more fragmentation and segregation.
21 Some countries have strict government regulations for private schooling, for example, with respect to the school curriculum, teacher qualification, and tuition level.
22 They often refer to populations from poor and rural backgrounds, oppressed minority groups, as well as females in some countries.

be a viable alternative to government schools for serving these groups23. Past failure in the implementation of basic-education programs in some of these countries has resulted from either incompetent analysis or neglect.

Second, in many developing countries, the government tries to expand access to quality basic education by requiring more cost sharing by families and by encouraging more private contributions. The expansion of private schooling can be partly explained by the need to address excess demand for schooling because of limited capacity in public schools or low quality of some public schools (James 1995). And private schooling could be an effective strategy to induce additional private spending on education.24 Private contributions to public schools could augment public spending on public schools and could be used to improve quality. To the extent that private resources are relatively more plentiful for schools that serve higher-income families, there is a potential conflict between access and equity. This conflict could be mitigated if increased private financing is combined with a government policy to increase the priority of government spending on poor communities and to strengthen basic-education programs targeted at disadvantaged groups (Verspoor and Tsang 1993).

Third, proper costing is highly relevant in a society's decision on whether or not to make basic education truly compulsory, for both children and government officials. If basic education is made a legally binding right of all citizens (UNICEF 1993), the government should be compelled to confront the full cost of the attainment of such a right

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23 In some countries, private schools charge high tuition fees and they are found mostly in urban areas (Tsang forthcoming). In some other countries, however, the government continues to provide funding for schools in rural areas but it allows community organizations to manage the school (Cuellar 2001). Government policy has strong influence on the role to be played by private schools.

24 In some countries, the government has invited private bodies to management schools that are funded by the government (James et. al. 1996). The purpose is increased efficiency instead of additional resource mobilization.

for all within a certain time frame. If basic education is simply regarded as part of an overall strategy for development with profitable return, the government will be wise to promote the development of basic education but it will be subject to a legal requirement. The first position is more likely to benefit marginalized population groups and enhance equity. Fourth, information on costs is needed to assess the cost-effectiveness of public and private initiatives for delivering basic education programs. Like the privatization initiative, proper estimation and comparison of costs are essential. But the attention should be focused on the relative efficiency of the two types of schools with respect to marginalized populations.

Given increased attention across countries to accountability and efficiency in resource utilization in education, unmet demand for quality education, parental choice in schooling, as well as substantial inequity in education, proper comparison of the costs of public and private schools should remain a focus of educational policy analysis. The need for further and better research is obvious. Research on the costs of public versus private schools faces both technical and non-technical barriers in these countries. Technical barriers may include a lack of cost data, a lack of expertise, and a lack of awareness among education decision-makers of the usefulness of cost analysis. Non-technical barriers could be derived from ideological and political considerations. Some decision-makers and analysts may have a pre-conceived view of public versus private schooling. Some may want to keep the discussion of desired educational goals at a rhetorical level and do not want to confront the full costs of education programs to achieve these goals. Thus, they are not interested in proper cost estimation and comparison. Cost analysis may even be manipulated to provide supporting evidence for

some pre-conceived policy options or to minimize undesirable results. Findings on the relative costs of public versus private schools will likely remain contentious.

Table 1: Magnitude of Private Resources to Public Schooling in Developing Countries

Country	Measure (year)	Private resources by education level	Sources
ASIA			
Cambodia	DPC % of government educational expenditure (1997)	246% in primary schools	Computed from Bray (1999: 126-127)
China	DPC as % of per-student government budgeted recurrent expenditure (1988)	64% urban primary schools in Shaanxi province 51% in rural primary schools in Shaanxi province 70% in urban primary schools in Guizhou province 49% in rural primary schools in Guizhou province	Computed from Tsang (1994)
	DPC as % of per-student government budgeted recurrent expenditure (1993)	45-70% in rural primary schools in Hebei province	Computed from Tsang (2000)
	Household spending on books and miscellaneous school fees as % government budgeted recurrent expenditure (1993)	56% in primary schools in Guangdong province	Computed from West (1995)
	DPC as % recurrent expenditure from budgeted and out-of-budget sources (1996)	68% in Beijing	Computed from Wei and Qiu (2000)
India	DPC as % public educational expenditure, 1979-80	49% for education system	Computed from Tilak (1985)
	Indirect private cost as % of public educational expenditure, 1979-80	108% for education system	Computed from Tilak (1985)
Philippines	DPC as % of public educational expenditure (1994)	44% at the primary level; 74% at the secondary level	Computed from Schwartz (1995)*
Indonesia	DPC as % of public educational expenditure (1989)	10% at the primary level	Computed from King (1994)*
Myanmar	DPC as % of public educational expenditure (1994)	43% at the primary level	Computed from Evans and Rorris (1994)*
Pakistan	DPC as % per-student public recurrent expenditure (1979-80)	30% at the primary level	Tsang, et. al. (1990)
Thailand	DPC as % per-student recurrent cost (1987)	20% in government primary schools	Computed from Tsang & Taoklam (1992)
	Household contribution as % per-student recurrent cost (1987)	4% in government primary schools	Computed from Tsang & Taoklam (1992)
	Indirect private cost as % of per-student recurrent cost (1987)	14% in government primary schools	Computed from Tsang & Taoklam (1992)
	Total private cost as % of per-student recurrent cost (1987)	38% in government primary schools	Computed from Tsang & Taoklam (1992)
Vietnam	DPC as % public educational expenditure (1993)	110% at the primary level, 210% at lower-secondary level, and 260% at upper-secondary level	Computed from World Bank (1995)*
	DPC as % public educational expenditure (1994)	80% at the primary level, 95% at lower-secondary level, and 106% at upper-secondary level	Computed from World Bank 1997)
LATIN AMERICA & CARIBBEAN			
Argentina	DPC as % total public expenditure	4% for education system	Schiefelbein (1986)

	by Ministry of Education		
Brazil	DPC as % total public expenditure by Ministry of Education	111% for education system	Schiefelbein (1986)
Colombia	DPC as % total public expenditure by Ministry of Education	51% for education system	Schiefelbein (1986)
	DPC as % of per-student school expenditure (1981)	22% in diversified public secondary schools, 32% in other public secondary schools	Computed from Psacharopoulos (1987)
Chile	DPC as % total public expenditure by Ministry of Education	32% for education system	Schiefelbein (1986)
	DPC as % government educational expenditure (1996)	62% for Public DAEM primary schools, 79% for Public-Corporation primary schools	Computed from McEwan & Carnoy (2000)
Honduras	DPC as % government educational expenditure (1990)	Between 38% and 77% at the primary level	Computed from McEwan (1998)
Venezuela	HEE as % total public expenditure by Ministry of Education	13% for education system	Schiefelbein (1986)
Trinidad & Tobago	HEE as % total public educational expenditure (1991)	48% for education system	Computed from Wu (1995)
Jamaica	HEE as % total public educational expenditure (1996)	31% for education system	Computed from Tsang, et. al. (forthcoming)
Barbados	DPC as % per-student government expenditure on education (1997)	17% at the primary level, and 19-34% at the secondary level	Tsang, et. al. (forthcoming)
Guyana	HEE as % total public educational expenditure (1995)	31% for education system	Computed from Tsang (1997b)
	DPC as % per-student government recurrent expenditure (1993)	95.4% at the primary level, and 50.3% at the secondary level	Tsang (1997b)
AFRICA			
Kenya	DPC as % per-student government spending (1980)	75% in government secondary schools; 1080% in assisted Harambee secondary schools	Computed from Knight and Sabot (1990: 282)
	IPC as % per-student government spending (1980)	295% at the secondary level	Computed from Knight and Sabot (1990: 282)
	DPC as % total cost per student (1981-82)	81% for assisted Harambee secondary schools	Wolff (1985)
East African	DPC as % total cost per student in 9 countries (1981-82)	33% at the secondary level	Wolff (1985)
Tanzania	DPC as % of per-student school expenditure (1981)	12% in government secondary schools	Computed from Psacharopoulos (1987)

* Cted in Bray (1996)

Table 2: Variations in Household Educational Spending by Family Background in Selected Developing Countries

Country (year)	Measure of Variation	Schooling Level	Sources
Bangladesh (1992)	Ratio of HEE, top-income decile to bottom-income decile	348 (on all levels of education)	Computed from Tsang (1995b)
China	Ratio of per-capita HEE, top-income decile to bottom-income decile (1987)	1.3 in urban areas (on all education levels)	Computed from Tsang (1995b)
	Ratio of per-capita HEE, top-income decile to bottom-income decile (1991)	1.3 in urban areas (on all education levels)	Computed from Tsang (1996)
Guyana (1993)	Ratio of HEE, top consumption quintile to bottom consumption quintile	3.4 (on all education levels)	Tsang (1997b)
	Ratio of HEE, top-spending geographical area to bottom spending geographical area	2.4 (on all educational levels)	Tsang (1997b)
	Ratio of HEE, top-spending ethnic group to bottom-spending ethnic group	3.3 (on all educational levels)	Tsang (1997b)
India (1988)	Ratio of HEE per student, top-income group (above 30,000 rupees) to bottom income group (up to 10,000 rupees), in the city of Delhi	2.5 (on all educational levels)	Computed from Kansal (1990)
	Ratio of HEE per student, respondents with college education to respondents with secondary education	1.2 (on all educational levels)	Computed from Kansal (1990)
Indonesia (1992)	Ratio of HEE, top income decile to bottom income decile	6.9 at primary level; 4.1 at lower-secondary level; and 3.8 at upper-secondary level	Computed from Indonesia (1992)*
Jamaica (1995)	Ratio of per-capita HEE, top consumption quintile to bottom consumption quintile	5.6	Tsang, et. al. (forthcoming)
	Ratio of per-capita HEE, Kingston (Capital) area to rural area	2.2	Tsang, et. al. (forthcoming)
Mongolia	Ratio of HEE, top-consumption quintile to bottom-consumption quintile (1995)	5.7	Computed from World Bank (1996)*
Pakistan (1980)	Ratio of DPC for boys, top-income quintile to bottom-income quintile	12.0 in urban primary schools, 9.3 in rural primary schools	Computed from Tsang et. al. (1990)
	Ratio of DPC for girls, top-income quintile to bottom-income quintile	15.2 in urban primary schools, 9.3 in rural primary schools	Computed from Tsang et. al. (1990)
	Ratio of HEE, top-income quintile to bottom-income quintile	16.9 in urban areas (all levels of education), 16.0 in rural areas (all levels of education)	Computed from Tsang et. al. (1990)
	Ratio of HEE, fathers with university education to fathers with no schooling	4.2 in urban areas (all levels), 11.2 in rural areas (all levels)	Computed from Tsang et. al. (1990)
	Ratio of HEE, fathers who are professionals to fathers who are skilled workers	3.0 in urban areas (all levels), 3.9 in rural areas (all levels)	Computed from Tsang et. al. (1990)
Thailand (1987)	Ratio of DPC, top-10% income group to DPC of bottom-20% income group	2.6 in government primary schools, 7.7 in private primary schools	Computed from Tsang and Kidchanapanish (1992)

	Ratio of DPC, fathers with higher education to fathers with no education	3.4 in government primary schools, 1.1 in private primary schools	Computed from Tsang and Kidchanapanish (1992)
	Ratio of DPC, fathers who were company executives to fathers who worked in agriculture	2.7 in government primary schools, 2.4 in private primary schools	Computed from Tsang and Kidchanapanish (1992)
	Ratio of DPC, fathers who were Christians to fathers who were Muslims	2.3 in government primary schools, 1.3 in private primary schools	Computed from Tsang and Kidchanapanish (1992)
Vietnam (1996)	Ratio of HEE, top-quintile consumption group to bottom-quintile consumption group (1996)	2.6 at primary level; 2.3 at lower-secondary level; and 2.0 at upper-secondary level	World Bank (1997)
	Ratio of HEE, urban to rural (1996)	2.5 at primary level; 2.4 at lower-secondary level; and 1.6 at upper-secondary level	World Bank (1997)
	Ratio of HEE, top-quintile consumption group to bottom-quintile consumption group (1993)	6.1 in government primary schools; 4.9 in government lower-secondary schools; and 3.3 in government upper-secondary schools	World Bank (1995)*
	Ratio of HEE, urban to rural (1993)	3.3 in government primary schools; 2.5 in government lower-secondary schools; and 1.7 in government upper-secondary schools	World Bank (1995)*

* Studies cited in Bray (1996)

Table 3: Direct Private Costs of Public and Private Schools, Selected Countries

Country (year)	Level of schooling	Unit cost of public schools (local currency)	Unit cost of private schools (local currency)	Ratio of unit cost (Private to public)	Sources
Chile (1996)	Primary	173,575 pesos	336,329 pesos	1.94	Computed from McEwan and Carnoy (2000)
Colombia (1981)	Secondary	4,270 pesos, INEM schools	12,674 pesos	2.97	Pscharopoulos (1987)
	Secondary	5,787 pesos, Oher schools	12,674 pesos	2.19	
Indonesia (1992)	Primary	48,388 rupiah	87,070 rupiah	1.80	Indonesia (1992)*
	Junior secondary	138,405 rupiah	168,356 rupiah	1.22	
	Senior secondary	233,157 rupiah	279,806 rupiah	1.20	
Philippines (1992-93)	Primary	645	5176	8.02	Borromeo (1995)*
	Secondary	1122	4599	4.10	
Tanzania (1981)	Secondary	432 sh.	2491 sh.	5.77	Psacharopoulos (1987)
Thailand (1987)	Primary	695 bahts	3,262	4.69	Tsang & Kidchanapanish (1992)
	Lower-secondary	2,570	4,710	1.83	Myers and Sussangkam (1992)*

* Studies cited in Bray (1996)

Table 4: Private Resources to Government and Private Primary Schools in Thailand, 1987 (Baht per grade 6 student per year)

	GOVERNMENT SCHOOLS						
	ONPEC Schools (1)	Bangkok Schools (2)	Municipal Schools (3)	All Govt. Schools (4)	PRIVATE SCHOOLS (5)	Ratio (5)/(4) (6)	Ratio (5)/(3) (7)
Direct private cost	600	1234	1195	692	3055	4.4	2.6
Household contribution	155	181	87	153	62	0.41	0.71
Indirect private cost	536	286	461	508	451	0.89	0.98
Total private resource	1291	1700	1743	1353	3,568	2.6	2.0

Source: Tsang and Taoklam (1992, Table 5)

Table 5: Average Institutional Costs of Public and Private Schools, Selected Countries

Country (year)	Average unit-cost measure	Level of schooling	Average unit cost of public schools (local currency)	Average cost of private schools (local currency)	Ratio of unit cost (Private to public)	Sources
Colombia (1981)	Institutional	Secondary	19,314 pesos, INEM schools	12,674 pesos	0.66	Psacharopoulos (1987)
	Institutional	Secondary	18,281 pesos, Other schools	12,674 pesos	0.69	
Dominican Republic (1982-83)	Per-student institutional cost	Secondary	323 RD$	472 RD$, F-type*	1.46	Jimenez et. al. (1991)
				209 RD$. O-type*	0.65	
India (1989-90)	Per-student recurrent cost	Secondary schools in urban Uttar Pradesh	2008 rupees	1827 rupees, private-aided	0.91	Kingdon (1996)
				999 rupees, private unaided	0.50	
Pakistan (1983-84)	Per-student recurrent cost	Primary	423 rupees	515 rupees	1.22	Jimenez & Tan (1987)
	Per-student institutional cost	Secondary	3539	2,456	0.69	
Thailand (1987)	Per-student institutional cost	Primary	4,795	2,562	0.53	Tsang & Kidchanapanish (1992)
(1981-82)	Per-student school income	Secondary	4,492 baht	1,762 baht	0.39	Jimenez, at. al. (1988)

* F-type private schools are high status private schools that are authorized to give examinations; and O-type cannot give examinations

Table 6: Average Per-Student Costs of Primary Schools in Thailand, 1987
(bath/student/year)

	GOVERNMENT SCHOOLS				PRIVATE SCHOOLS	Ratio (5)/(4)	Ratio (5)/(3)
	ONPEC Schools (1)	Bangkok Schools (2)	Municipal Schools (3)	All Govt. Schools (4)	(5)	(6)	(7)
Recurrent	3,630	2,778	2,208	3,505	1,663	0.47	0.75
Capital	766	8,228	1,156	1,290	899	0.70	0.78
Institutional *	4,396	11,006	3,364	4,795	2,562	0.53	0.76
Private resources	1,291	1,700	1,743	1,353	3,568	2.64	2.04
Total**	5,540	12,533	5,028	6,003	4,667	0.78	0.93

* Institutional cost is the sum of recurrent and capital costs. Total cost equals institutional cost plus private resources minus school fees and household contributions to school
Source: Tsang and Taoklam (1992), cited in Tsang (1995)

Table 7 Cost Analysis and Educational Policymaking

Policy criteria	Increased privatization of schooling	Achieving basic education for all
Efficiency	• Consideration of costs, including private resources • Proper estimation of costs • Proper comparison of schools	• Focus on relative efficiency with respect to marginalized populations
Equity	• Distribution of education costs and output • Access to high-performing schools for children from marginalized backgrounds • Potential conflict between individual choice and social equity	• Reliance on more private resources, and potential trade off between access and equity • Basic education as a right versus basic education as an investment
Choice	• Potential conflict between individual choice and social equity • Admission rules limiting choice	
Social cohesion	• Cost as a factor in socio-economic segregation • Effect of privatization on social cohesion • Potential conflict between individual choice and social cohesion	• Cost as a factor in socio-economic segregation • Effect of privatization
Access	• Public and private schools as alternatives for achieving basic education for all	• Proper costing of programs and assessment of feasibility, particularly for marginalized groups • Potential of private schools in serving marginalized populations • Private schools to address unmet demand for quality basic schooling • Reliance on more private resources, and potential trade off between access and equity

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