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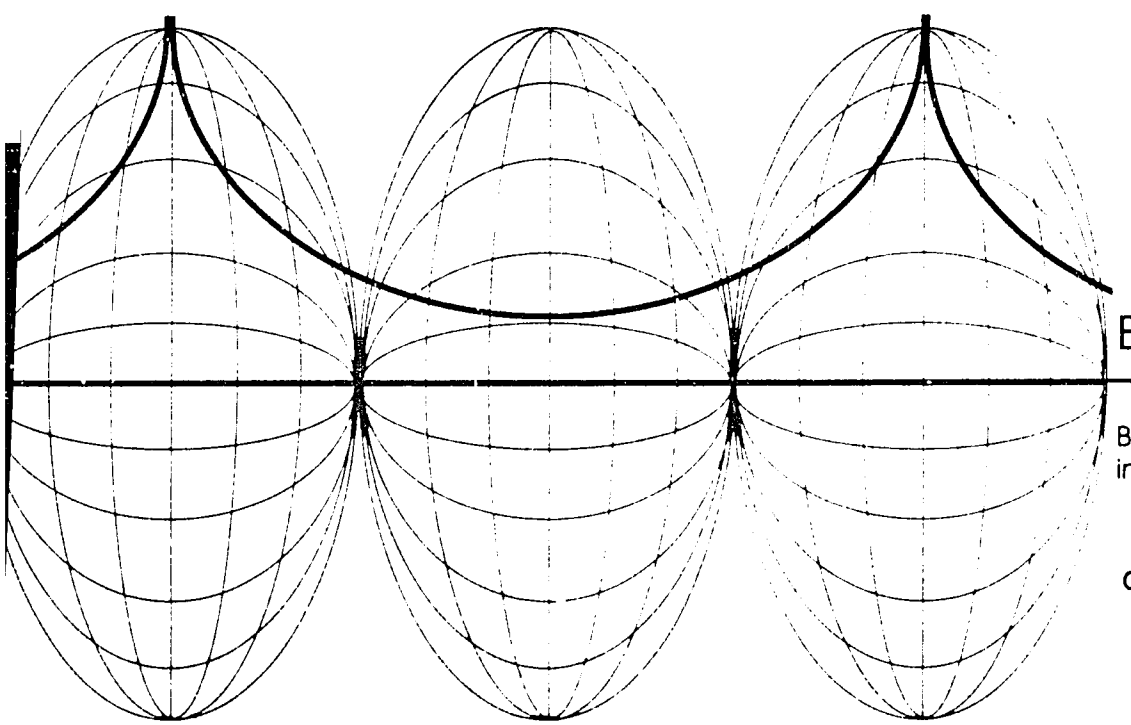

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Basic Research and Implementation in DevelopinG Education Systems

CASUAL PAPERS

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Comparing the Costs of Government and Private Primary Education in Thailand

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Abstract

Most of the discussion on the relative efficiency of government schools and private schools focus on educational outcomes, with little attention paid to educational costs. Using primary education in Thailand as a case, this paper highlights the methodological issues involved in properly accounting for and comparing the resources devoted to government schools and private schools. Based on a national survey of 301 primary schools and 2,081 parents, the paper shows that the cost of private schools relative to government schools will be significantly underestimated if one confines cost accounting to institutional expenditures, without considering private resources to education. Also, given that there are different types of government schools and private schools which operate in different social contexts, cost comparison that treats government schools and private as two homogeneous systems will not lead to meaningful evaluation of the relative efficiency of the two types of schools; rather comparison should be made of schools which operate in similar social contexts.

I. INTRODUCTION

The relative efficiency of government schools and private schools in one of the key issues in the debate of the privatization of schooling (Jimenez, et. al., 1990). In the study of the relative efficiency of the two types of schools, however, most discussion has been focused on student achievement (Coleman, et. al., 1982; Willms, 1983), with little analysis of costs. But information on costs is needed to compare cost effectiveness, to estimate resource requirements, and to assess the financial feasibility of the development of government schools and/or private schools. Studies that compare the costs of government schools and the costs of private schools are lacking. This is partly due to the fact that some cost data are not easily accessible or available, especially data on costs of private education and private costs of schooling (Tsang, 1988). Even in published studies of comparative education costs, the cost data employed can be quite crude; for example, they are not disaggregated into costs for different types of government schools and private schools, and for urban schools and rural schools (Jimenez, et. al., 1988). This deficiency can lead to misleading results about the relative costs of government schools and private schools. Moreover, previous studies of educational costs tend to report institutional expenditures only, without also considering private resources to education; they thus underestimate the total social resources devoted to schooling. Finally no published cost studies exist which compare the costs of government schools and private schools over time. Cost data over time can reflect changes in internal resource utilization and/or conditions external to schools. When costs fluctuate significantly over time, cost comparison based on data for a given year can be misleading.

This paper is a comparative study of the costs of government and private primary schools in Thailand. It is part of a larger study of primary-education quality in Thailand conducted under the Basic Research and Implementation in

Developing Education Systems (BRIDGES) project, and is the most comprehensive study of the costs of primary education in Thailand to date. This research paper focuses on two questions:

1. How much are the institutional costs and private costs of public and private primary schooling in Thailand?

2. What factors account for differences in education costs among primary schools in Thailand?

This study employs detailed cost information for different types of government and private schools, and for schools in urban and rural areas. It considers both costs incurred by education institutions and by households. Finally the institutional costs of government schools and private schools are compared over time for the period of 1983-1987. This paper has two major tasks. First, it compares the costs of government and private schools in Thailand by considering both public and private resources to schooling. Second, it uses Thailand as a case to highlight the methodological issues involved in educational cost analysis as part of the overall research and policy analysis on the relative efficiency of government schools and private schools in both developed and developing countries. The objectives of the paper are to show that: (1) without accounting for all the major costs of schooling, one can significantly underestimate the costs of private school relative to government schools, and (2) since there are different types of schools operating under different social contexts, findings on relative costs based on highly aggregated data can have misleading policy implications; disaggregated data should be used so that government schools and private schools that operate under similar social contexts are compared.

The next section of the paper explains the typology of education costs and describes the data sources. Section III compares the costs of different types of primary schools and identifies the key factors which account for cost

differences among primary schools. The last section explores the implications of the findings in section III for research and policy analysis on the relative efficiency of government schools and private schools. It should be noted that this paper is concerned with costs only, it does not consider other aspects of the debate on privatization of schooling such as educational outcomes and social functions of schooling discussed elsewhere (Levin, 1983).

II. METHODOLOGY AND DATA SOURCES

To compare costs of government and private primary schools, data on educational costs at the school level are needed. Government education bureaucracies may or may not have detailed information on school-level costs, especially for private schools. These bureaucracies often have data on expenditures by government schools, but they rarely have data on expenditures by private schools and on educational expenditures by parents. Also, in order to relate educational costs to educational outcomes and to compare the relative cost-effectiveness of government schools and private schools, information is required on educational costs at the school which indicate what resources are actually devoted to educational production at that level.[1] Education costs at the school level can be divided into two groups, institutional costs and private resources to education. Institutional costs refer to costs incurred by the school on educational inputs or services. They are divided into two categories for accounting purposes: recurrent costs and capital costs. Recurrent costs are costs of educational inputs or services which last for one year, such costs are often divided into two sub-categories: personnel costs and non-personnel costs. Personnel costs consist of salaries, employment benefits, and supplementary benefits paid to teachers, school administrators, and other school staff. Non-personnel costs consist of costs of instructional materials,

teaching aids and school supplies, minor and regular repair and maintenance, utilities, and student welfare (such as lunch program, and student subsidies). The distinction between personnel costs and non- personnel costs is a meaningful one in that it shows the relative mix of education inputs. It has been observed in some countries that during times of financial difficulties, the education budget was cut at the expense of non- personnel costs so that very little was spent on those non-personnel inputs (such as textbooks and other instructional materials) which are important for school quality. This practice upsets the optimal mix of inputs for educational production (Coombs and Hallak, 1987).

Capital costs are costs of inputs which last for more than one year, they include costs of buildings, equipment, and land. To determine the cost of a building or a piece of equipment in a year, the market or replacement value of the building or equipment has to be annualized. The annualization depends on both the discount rate and the expected years of service of the input. Different discount rates can be used to show how capital costs vary with such rates. But in practice, the average rate of return to physical capital (10%) is used as a discount rate. Different types of buildings[2] and equipment[3] have different years of services; they thus require different annualization factors. The cost of land is taken to be the imputed annual rent of the land.[4] The imputed cost of land per unit area can vary tremendously among different regions as there can be large regional differences in the price of land.

Private resources to education can be classified into three categories: direct private schools of education, household contributions to school, and indirect private costs of education (Tsang and Kidchanapanish, 1990). Direct private costs of education are expenditures by parents on their children's schooling, such as expenditures on school fees (tuition and other school fees),

textbooks and supplementary study guides, writing supplies, uniform, school bag, and transportation. Expenditures on school fees are part of the revenue for a school to be used to finance institutional costs; they may be used to pay teachers in a private school or used to support non-personnel costs in a government school. Non-fee expenditures are additional financial resources to schooling not captured in institutional costs. For primary students in some countries, there are also boarding costs.

Household contributions to school are contributions, in cash or in kind,[5] from families to school and/or school personnel (e.g. teachers). Contributions to school can be used in a variety of ways, for example, to purchase reading materials for a library, to purchase sports equipment, or to construct a school building. They are captured in the institutional costs of a school. In some countries, household contributions to teachers are the main source of income for rural primary teachers (Paulsen, 1981; World Bank, 1990: chapter 5). Household contributions can be important in the financing of education in that they augment public resources to education and they can be managed by school personnel.

Indirect private costs of education refer to the economic value of the opportunities foregone as a result of schooling. The opportunities foregone can be a child's labor in family production, in looking after younger siblings, and/or in performing other household chores. Such costs are usually difficult to estimate and assumptions have to be made about the economic value of a child's labor[6] Nevertheless, they are still important to consider in that parents sometimes withhold their child from school because of the need for the child's labor, especially for parents in the rural area (Psacharopoulos and Woodhall, 1985: chapter 5).

For a variety of reasons, many cost studies consider recurrent costs of

schooling, with less attention to capital costs of schooling, and even less attention to private resources to schooling. The failure to consider private resources and capital costs can significantly bias the relative-cost ratio between government schools and private schools.

Data on institutional costs were collected from a survey of 301 primary schools (schools with primary grades only), consisting of 281 government schools and 20 private schools. The schools were obtained by a multi-stage cluster sampling method which consisted of randomly selecting a percentage of schools in a district, a percentage of districts in a province, and 17 provinces plus Bangkok metropolitan area from the twelve education regions in the country. Among the 281 government schools, 248 schools are administered by the Office of the National Primary Education Commission (ONPEC); 224 of these schools are rural schools located in areas which are often very remote from urban areas and 24 schools are located in urban areas. The remaining government schools are administered by educational bureaucracies in the capital (19 Bangkok Metropolitan schools) and in the other municipalities (14 municipal schools). Both the Bangkok schools and the municipal schools are urban schools. Fifteen of the twenty private schools in the sample are located in urban areas and the rest are in rural areas that are adjacent or close to urban areas. Thus 80% of the government schools are located in rural (often remote) areas and 75% of private schools are located in urban areas. This sample approximates the actual distribution of schools in Thailand with primary-sections only. There are schools (especially private schools) with both primary and secondary sections. Such schools are not included in the analysis because of the difficulty of distinguishing the costs of primary section and the costs of secondary section in these schools.

Table 1 presents some of the characteristics of the different types of government and private primary schools in Thailand. Compared to private schools, government schools on the average are smaller in size (in terms of number of student and number of school personnel per school), and have smaller student- teacher ratio and higher average teacher salary.[7] But there are also significant differences in school characteristics among different types of government schools. In particular, ONPEC schools are much smaller in size and have smaller student-teacher ratio than Bangkok schools and municipal schools. Thus the differences in school characteristics between government schools and private schools largely reflect the differences between ONPEC schools and private schools.

TABLE 1 ABOUT HERE

Data on private resources were collected from 2,081 parents of grade-6 students in these schools. They consist of information on the socioeconomic backgrounds of parents and their resources devoted to the primary education. Government schools and private schools enroll students from different socioeconomic backgrounds. Compared to private-school students, government-school students come from less educated, agricultural, lower income, and less wealthy backgrounds. For example, 96% of fathers with only primary education send their children to government schools, and 4% of such fathers send their children to private schools. On the other hand, for parents with education at the college level or beyond, 61% have children in government schools and 39% have children in private schools. 99% of agriculturalists enroll their children in government schools. For clerical and government workers, enrollments in government schools and private schools are 69% and 31% respectively; and for professionals and executives, the corresponding numbers

are 56% and 41%. 2% of households with income in the lowest 40% of the sample send their children to private schools; but 31% of households with income in the top 20% of the sample send their children to private schools. Finally the household asset of government-school parents average about 33,000 Baht, compared to 123,000 Baht for private-school parents. These enrollment characteristics are consistent with the fact that most of the government schools are located in remote rural areas and most of the private schools are located in urban areas.

(III) COSTS OF GOVERNMENT AND PRIVATE PRIMARY SCHOOLS

This section presents the recurrent costs, capital costs, private resources and total education cost of different types of government schools and private schools in Thailand. It shows the magnitude of these costs on a per-student basis and discusses the factors which account for differences in unit costs among these schools.

III.1 Recurrent Costs Per Student

Table 2 presents the recurrent costs per unit of government schools and private schools in Thailand in 1987.

According to Table 2, total recurrent cost of all government schools amounted to 3,505 Baht per student (see column (6)). An overwhelming 94.9% of the total recurrent cost was spent on personnel inputs; and among personnel costs, over 99% was spent on salaries (3,303 out of 3,325 Baht). Thus, 94.2% of total recurrent cost went to salaries, leaving relatively little for non-personnel inputs and for non-salary personnel costs. Among non-personnel inputs, most of the costs were taken up by instructional materials (25%) and student welfare (37%). On the other hand, for private schools, the total recurrent cost was only 1,663 Baht per student (see column (9)). 80% of the total recurrent cost was spent on personnel inputs and 99% of the personnel

cost was devoted to salaries. Most of the non-personnel costs went to minor repairs and regular maintenance (24%), utilities (24%), and student welfare (26%), and less than 4% of such costs was taken up by instructional materials. There are thus clear differences in per-student recurrent costs between government schools and private schools. Compared to government schools, private schools spent less on personnel inputs and more on non-personnel inputs, in term of Baht per student and in term of the proportion of total recurrent cost. The per-student total recurrent cost of private schools was only 47% of that of government schools[8] But, as noted earlier, we need also to consider capital costs and private resources in comparing the total resources devoted to government schools and private schools.

There were large differences in per-student recurrent costs among the three types of government schools (see columns (3), (4), and (5)). Among these schools, ONPEC schools had much higher personnel costs and non-personnel costs than both Bangkok schools and municipal schools. Bangkok schools had higher personnel costs but lower non-personnel costs than municipal schools. Bangkok schools had the lowest non-personnel cost mainly because it hardly spent any resources on instructional materials. The three types of schools are similar in that they all spent over 99% of their personnel costs on salaries and that student welfare was the major source of non-personnel costs.

Not only do schools under different administrations have large differences in unit costs, schools within the same educational administration also have clearly different unit costs. For example urban ONPEC schools (that is, ONPEC schools that are in or near provincial capitals) had a total recurrent cost of 4,484 Baht per student, as compared to 3,539 Baht per student for rural ONPEC schools (see columns (1) and (2)). Similarly urban private schools had a total recurrent cost of 1,805 Baht per student as compared to 1,236 Baht per student

for rural schools (see columns (7) and (8)). Finally, among urban schools (except urban ONPEC schools) Bangkok schools had the highest cost, followed by municipal schools and urban private schools.

In summary, per-student recurrent costs vary significantly among government schools and private schools, among government schools under different administrations, and among schools under the same administration. This finding implies that estimates of average unit costs that do not capture the variation among different types of schools are not useful in evaluating the financial impacts of educational policies on these schools in general, and on government schools versus private schools in particular.

TABLE 2 ABOUT HERE

It is instructive to take a closer look at the costs of government schools and private schools. The large differences in per-student recurrent costs between government schools and private schools as shown in columns (6) and (9) actually reflect large differences in costs between rural ONPEC schools (which are mostly in remote rural areas) and urban private schools which are mostly in large urban centers), as shown in columns (2) and (7). Rural ONPEC schools and urban private schools operate under very different social contexts and have very contrasting school characteristics. As shown in Table 1, compared to rural ONPEC schools, urban private schools are much larger, and have larger student-teacher ratio, and lower teacher salary. But if we compare urban private schools with municipal schools (which are government urban schools), the cost differences are much smaller. In fact, urban private schools and municipal schools are quite similar in size and in student-teacher ratio.

To examine the factors which affect per-student recurrent cost among Thai schools, unit-cost functions were estimated using ordinary-least-squares method and the results are presented in Table 3. The independent variables include:

URBAN AREA (dummy variable, with urban area =1), AVERAGE TEACHER SALARY, STUDENT- TEACHER RATIO, NUMBER OF STUDENTS PER SCHOOL (a measure of school size), PRIVATE SCHOOLS (dummy variable, with private schools =1), and four geographical dummy variables (the dummy variable for the northeastern region of Thailand was omitted). Several forms of the cost function were experimented.[9]

As a start, URBAN AREA and AVERAGE TEACHER SALARY were chosen as the independent variables, as in Equation (1). Both variables were statistically significant at the 5% level. The positive coefficient for teacher salary was expected. The negative coefficient of URBAN AREA indicates that urban schools had lower unit cost than rural schools, other things being equal. The equation explained only 31% of the variance in unit costs among schools. However, when STUDENT-TEACHER RATIO, NUMBER OF STUDENTS PER SCHOOL, and PRIVATE SCHOOLS were added to the equation, URBAN AREA became insignificant and its magnitude was drastically reduced. The significant effects were instead picked up by the STUDENT-TEACHER RATIO and PRIVATE SCHOOLS variables. AVERAGE TEACHER SALARY remains significant and positive, and its magnitude increased by almost 20%. In other words, rural and urban schools differed significantly in student-teacher ratio, teacher salary, and type of school. It is interesting to point out that the coefficient of PRIVATE SCHOOLS was actually positive, which means that, after controlling for teacher salary and student-teacher ratio, private schools had higher unit costs than government schools. This finding is consistent with the observation that private schools had higher non-personnel costs than government schools, although it had higher student-teacher ratio and lower teacher salary. Equation (2) also indicates that the size of the school is not a significant factor, after controlling for other factors. There was a marked increase in the value of R-square from 0.31 to 0.80. Addition of other

variables, such as geographical variables (in Equation (3)), did not improve the explanatory power of the equation. None of the geographical variables was significant.

TABLE 3 ABOUT HERE

III.2 Capital Costs Per Student, 1987

Table 4 presents per-student capital costs of primary schools in Thailand in 1987. Similar to per-student recurrent costs, there are large differences in per-student capital costs among government schools and private schools, among different administrations of government schools, and among rural schools and urban schools under the same administration. On the whole, per-student total capital cost of private schools was about 70% that of government schools (see columns (6) and (9)); this ratio is clearly larger than the 0.47 ratio for per-student recurrent cost. In other words, the gap in institutional cost between the two types of school in Thailand narrows when capital costs are taken into account. Among government schools, ONPEC schools had the lowest per-student capital cost (see columns (3), (4), and (5)) although they had the highest per-student recurrent cost. In fact, ONPEC schools had lower per-student capital cost than private schools (see columns (3) and (9)), the opposite of the situation for per-student recurrent cost. Among ONPEC schools, urban schools had much higher per-student capital cost than that of rural schools, as was the case for per-student recurrent cost. The same finding also holds when urban private schools are compared with rural private schools. Finally, among urban schools, Bangkok schools had the highest (primarily because of their relatively much higher land cost) while private urban schools had the lowest per-student capital cost, in the same order as that for per-student recurrent cost (see columns (4), (5), and (7)). Again,

municipal schools and urban private schools had comparable level of per-student capital cost.

With respect to the distribution of capital cost among input items, with the exception of rural ONPEC schools, land claimed the largest share of capital cost of primary schools, followed by buildings and equipment. Rural ONPEC schools and Bangkok schools provide the sharpest contrast because the difference in land prices is largest between these two types of schools.[10]

TABLE 4 ABOUT HERE

The estimated unit cost functions for per-student total capital cost are given in Table 3. Initially, only URBAN AREA and LAND PRICE (price of land, in Baht per square meter) were entered into the cost function. Equation (4) shows that land price was positively and significantly related to per-student capital cost, but urban schools and rural schools were not significantly different from one another. URBAN AREA was then replaced by STUDENT-TEACHER RATIO, NUMBER OF STUDENT PER SCHOOL and PRIVATE SCHOOLS (see Equation (5)). The results indicated that school size was a significant factor, but not student-teacher ratio (the opposite of the situation for per-student recurrent cost). PRIVATE SCHOOLS was a significant factor; the coefficient indicated that private schools had lower per-student capital cost than government schools. R-square increased from 0.268 to 0.292. Again, additional geographical variables did not improve the explanation power of the equation (see Equation (6)).

In short, the unit cost functions for per-student capital cost and per-student recurrent cost are quite different. Per-student capital costs are determined by land price, school size, and type of school; and per-student recurrent costs are determined by student-teacher ratio, average teacher salary, and type of school. After controlling for other factors, private

schools had lower capital costs but higher recurrent costs (because of higher non-personnel costs) than government schools.

III.3 Private Resources Per Student, 1987

Private resources to government and private primary schools were determined from a survey of a sample of parents of grade-6 students in the schools studied. Table 5 presents the per-student private resources for three categories: direct private costs, household contribution, and indirect private cost. For brevity, private schools and ONPEC schools were not subdivided into urban and rural categories.

Direct private costs are divided into two components, non-tuition costs and tuition cost. Non-tuition costs are put into two groups: instruction-related costs (such as parental expenditures on textbooks, workbooks, and writing supplies) and non-instruction costs (such as parental expenditures on uniform, school bag, transportation, shoes and sportswear, and school fees on sport activities and other school events). The results show that private-school parents spent much more on both groups than government-school parents (see column (4) and (5)). Total non-tuition expenditures by private-school parents was 237% that of government school parents; and in particular, instruction-related cost by private-school parents was 223% that by government-school parents. When tuition cost was included, private-school parents spent 3,049 Baht per student in 1987, compared to an average of 671 Baht per student by government- school parents.[11]

There were also large differences in non-tuition costs among different types of government schools. Total non-tuition cost of Bangkok schools and municipal areas was respectively 2.2 and 1.4 times that of ONPEC schools (see columns (1), (2), and (3)). In particular, ONPEC school parents had the least instruction-related cost. And it can be seen from columns (2), (3), and (5),

that private-school parents had higher non-tuition expenditures than both Bangkok-school and municipal-school parents.

Compared to direct private cost, household contribution was relatively small. Yet relatively large differences in household contribution did exist among different types of school. On the average, household contribution amounted to 68 Baht per household per year for private schools and 98 Baht per household per year for government schools.

Indirect private cost was smaller but somewhat comparable to direct private cost. In 1987, indirect private cost was 446 Baht per student for private-school parents and 489 Baht per student for government school parents. Among all the schools, Bangkok school parents and private-school parents had the lowest indirect cost; this finding is consistent with the observation that parents in rural areas had a higher demand for their children's labor than parents in urban areas.

Finally, when the three cost categories were added together, private-school parents obviously devoted most private resources to their children's education among all parents in the sample (actually 264% that of government-school parents). Thus, with respect to private resources to schooling, private-school students have a double advantage over government-school students: private-school parents spend more on education than government-school parents and they have a lower demand for their children's labor. The finding of the relatively much larger private resources to private schools is in sharp contrast to the finding of the relatively much lower institutional costs of private schools.

TABLE 5 ABOUT HERE

III.4 Total Cost Per Student, 1987

To properly compare the costs of government schools and private schools, we need to determine the total resources devoted to these schools from all sources. Total cost per student can be estimated from institutional costs and private resources given in Tables 2,4, and 5. For grade-6 students, the total cost per student can be taken to be the sum of recurrent cost per student, capital cost per student, non-fee direct private cost per student[12], indirect private cost per student, and household contributions to teachers. School fees and household contributions to schools are not included because they are used to support capital costs and/or recurrent costs; there will be double counting if they are included.

Row (a) in Table 6 presents the total cost per student for government and private primary schools in Thailand. It shows that the total cost per student of private schools was 78% of that of government schools; this ratio is higher than the government-to-private school ratio for per-student recurrent cost (47%) and for per-student capital cost (70%). This is also much higher than the ratio (39%) reported by Jimenez et. al. (1988) which did not take account of private costs. This finding shows that private schools partly made up for their lower institutional costs by having higher private resources. In fact, the relative cost ratio between private schools and municipal schools is .96. Among government schools, Bangkok schools had the highest total cost per student; Bangkok schools' cost was more than twice of that of the average for all government schools. As shown in Table 4, high land cost in Bangkok was primarily responsible for the large per-student total cost of Bangkok schools. To eliminate the bias in cost comparison due to land cost, row (b) in Table 6 gives the per-student total cost which excludes land cost. Cost differences among schools became smaller: the per-student cost of private school was equal

to 81% of all government schools. The relative cost ratio between private school and municipal schools is increased to 1.02; and Bangkok schools were not the most expensive schools.

Total cost takes account of both direct costs (such as school and parental expenditures) and indirect cost (such as indirect private cost). Since indirect cost cannot purchase any tangible educational inputs, direct costs can be used as a basis of comparison of tangible inputs to school. According to row (c), private schools had lower cost than Bangkok schools and ONPEC schools, but had higher cost than municipal schools.

Finally, row (d) presents the per-student total non-personnel instruction cost per student. This is equal to the sum of school and parental expenditures on non-personnel instructional inputs (such as textbooks, workbooks, other instructional materials, school supplies, teaching aids, and writing supplies for students). This cost is important to consider because it is related to education inputs that are related to educational quality (Heyneman and White, 1985). Row (d) shows that private-school students were the most advantaged and ONPEC schools were the least advantaged with respect to expenditure on instructional inputs.

TABLE 6 ABOUT HERE

III.V Per-student Recurrent Cost Over Time

To determine changes in per-student costs over time, data were collected on recurrent costs in 1983, 1985, and 1987. Data on capital costs and private resources are not available for 1983 and 1985. Table 7 presents per-student recurrent cost for different types of primary schools in these three years; all the cost figures are in 1987 prices.

Column (4) shows that, for all government schools, per-student recurrent cost increased from 2,768 Baht per student in 1983, to 3,265 Baht per student in 1985, and to 3,505 Baht per student in 1987, corresponding to a real increase of 26.6% between 1983 and 1987. Column (5) also shows a steady increase in real terms for private schools between 1983 and 1987, but the rate was only 13.5%. Thus the ratio of the per-student recurrent cost of private schools to that of government schools dropped from 0.53 in 1983 to 0.47 in 1985, and levelled off to 0.47 in 1987.

Per-student recurrent cost experienced different changes for different types of government schools. ONPEC schools enjoyed an increase of 29.9% between 1983 and 1987 (from 2,794 to 3,630 Baht per student per year) while municipal schools had an increase of 16.7% in the same period. Bangkok schools, however, actually suffered a decrease from 3,091 Baht in 1983 to 2,778 Baht in 1987 (or a 10.1% drop).[13]

In short, different growth rates in unit costs affect the relative costs between government schools and private schools, and among different types of government schools.

The distribution of recurrent costs between personnel inputs and non-personnel inputs for primary schools only had small changes between 1983 and 1987. The percentage of personnel cost dropped by 0.5% for ONPEC schools, 1.4% for Bangkok schools, and by 2.2% for private schools; it increased by 2.7% for municipal schools. Thus the distribution of recurrent costs is quite stable.

TABLE 7 ABOUT HERE

IV. IMPLICATIONS FOR RESEARCH AND POLICY ANALYSIS

In the research and policy analysis about the relative merits of government schools and private schools, most discussion has been focused on student achievement, but not the costs of schooling. Yet information on costs is needed to compare cost effectiveness, estimate resource requirements, and to assess financial feasibility of the two types of schools. Using detailed information on both institutional costs and private resources, this paper estimates and compares the costs of government and private primary schools in Thailand. Despite some limitations in data, the findings for Thailand have several general implications for research and policy analysis about the relative efficiency of government schools and private schools in both developing and developed countries. First, in Thailand as in many other countries, there are different types of government schools and different types of private schools. Not only can costs differ significantly between government schools and private schools, they can also differ significantly among government schools, and among private schools. Variations in costs imply variations in cost effectiveness, cost requirements, and financial feasibility. Treating government schools and private schools as homogenous systems will miss the large variation in costs among different types of government schools and among private schools: and cost estimates of the two systems are not useful for evaluating the financial impacts of alternative policy options on different types of schools. Analysis of costs (as well as outcomes) should take account of different types of government schools and private schools and should use disaggregated cost data.

Second, it is important to conduct proper cost comparison of government schools and private schools; and information on different types of government schools and private schools enable us to compare government and private schools

under similar social contexts. In the case for Thailand, if we compare the costs of all government schools with those of all private schools, we essentially will be comparing the costs of ONPEC schools which are mostly in remote rural areas with the costs of private schools which are mostly in urban areas. The per-student total recurrent cost of ONPEC schools is much higher than that of private schools because of lower student-teacher ratio and higher average teacher cost. In rural areas in Thailand, the school and the temple are very important community institutions (Tsang and Wheeler, forthcoming). In Thailand, as it is in other developing countries, rural schools have an important role in social development; they usually serve their own community and do not have large catchment areas, and are thus small in size and have low student-teacher ratio (Bray, 1987). Private schools in urban areas have a much denser population base to draw upon; they are thus larger and have higher student-teacher ratio. They also serve students from very different socioeconomic backgrounds. Since these two types of schools operate in different social contexts and are not genuine alternative policy option of how primary education should be delivered, it is not meaningful to compare their costs.

On the other hand, Bangkok schools and municipal schools are government urban schools which are much closer to private schools in terms of the student population served, school size, and student-teacher ratio. Among these three types of schools, Bangkok schools have the highest per-student recurrent and capital costs and private schools have the highest private resources. The high land costs of Bangkok schools put these schools at the top of the list with respect to per-student total cost. Municipal schools and private schools actually have almost identical per-student total cost. In the study of the relative efficiency of government schools and private schools, comparison

should be made of schools which operate in similar social contexts.

Third, our findings indicate that private resources constitute a very significant portion of the total cost of schooling. For example, in 1989, on the average, private resources accounted for 21% and 74% of the total cost for government schools and private schools respectively. Institutional costs do not capture the additional resources devoted to schooling in terms of non-fee direct private costs, indirect private costs, and contributions made to teachers. Since private schools have much higher total private resources than government schools, analyses that fail to estimate private resources will not only underestimate the total costs of schooling for all types of schools, but will also overestimate the cost-effectiveness of private schools relative to government schools. Any serious attempt to compare the costs of government schools and private schools should consider private resources to schooling.

Fourth, there is an obvious difference between government schools and private schools in how resources are utilized in Thailand. Even though private schools have lower per-student personnel costs than government schools, they had the highest per-student non-personnel costs among all the schools. In particular, the total resources devoted to quality-related non-personnel inputs (such as textbooks, workbooks, and instructional materials)[14] are much higher for private schools than government schools.

Finally, for purposes of cost comparison and planning, cost data over time are very useful and relevant. Our findings indicate that the relative cost of government schools and private schools has changed over time. In terms of per-student total recurrent cost, the ratio of private schools to government schools has decreased from 1983 to 1985 but levelled off after 1985. Also, the per-student recurrent costs of different types of schools have grown at different rates. Such information is needed in more accurately projecting the unit costs of primary schools.

Footnotes

1 It should be pointed out that school-level costs do not include all the costs of a school system. For example, costs for the administration of a school system or costs of other education activities initiated by educational bureaucracies (e.g., in-service teacher training, piloting testing of instructional materials, etc.) are not covered; but these costs are very small compared to school-level costs.

2 In this study, it was assumed that in Thailand, school buildings made of concrete will last fifty years, half-concrete, half-wood school buildings will last twenty-five years, and school buildings made of wood will last twenty years. The discount rate was set at 10%.

3 Equipment cost in this study was set equal to the annualized cost of the following equipment: typewriter, slide projector, xerograph, overhead projector, amplifier, radio with cassette, radio without cassette, tapes, television, video tape machine, sewing machine, microscope, demonstration clock, weight scale, Thai musical instrument and other musical instruments, water tank, football and others. It was assured that the equipment will last for five years and the discount rate was set at 10%.

4 Land cost was set equal to the product of the average rate of interest in 1987, the price of land in 1987, and the area of land.

5 Household contributions consist of contributions in cash to school and to teachers, as well as contributions in kind to school and to teachers. Parents were asked to estimate the monetary value of their contributions in kind.

6 To determine indirect private cost of primary schooling, parents were asked to estimate the number of hours of lost child labor as a result of schooling. The annual cost of indirect private cost is equal to the shadow price of child labor (in Baht per hour) times the number of hours of lost child labor per day times the number of school days per year. A reasonable estimate of the shadow price of child labor is equal to 25% of the minimum wage. In 1987, the minimum wage was 6.5 Baht per hour for rural areas and 7.5 Baht per hour in urban areas. It is not inappropriate to estimate a shadow price for the labor of a grade-6 student because, in Thailand, children leave school early (especially after grade 6) to work.

7 There are a number of reasons why private schools have lower average teacher salary. Additional data from our study indicate that teachers in private schools have lower qualifications and less teaching experience than teachers in government schools.

8 Studies of private schools in developing countries have sometimes found that private schools might under-report their actual institutional costs, as a way of concealing their available resources. (Tsang, 1988). In this study, private-school principals were informed that the identity of their school would remain anonymous and were encouraged to report actual

institutional costs. Nevertheless, the extent of under-reporting is not known.

9 See Coombs and Hallak (1987), and Tsang (1988) for a discussion of the determinants of unit costs.

10 The average price of land was 2,736 Baht per square meter for Bangkok schools and was 127 Baht per square meter for rural ONPEC schools.

11 Private schools in Bangkok and other areas charge parents a one-time entrance fee for admitting their children. The entrance fee varies by school and can be as high as ten thousand Baht for some elitist private schools. Such a fee is officially not permitted by the government and is not reported by the school or parents. Thus the figure for direct private cost for private-school parents in this study is likely to be underestimated and an estimate of the average entrance fee is not available.

12 The non-reporting of entrance fee for private schools will not affect the estimate of per-student total cost for these schools if the fee is entirely used on recurrent and capital items and there is no under-reporting of these institutional costs by such schools.

13 The fall in per-student recurrent cost for Bangkok schools can be partly explained by the change in the student-teacher ratio. This ratio for Bangkok schools increased from 21.2 in 1983 to 24.5 in 1987, or an increase of 15.6%. In contrast, the ratio increased by 1.2% for private schools and by 2.6% for municipal schools; it decreased by 2.9% for ONPEC schools.

14 Analysis of student achievement data collected in the same survey of our project showed that the utilization of textbooks and workbooks in school was significantly and positively related to student achievement. See Raudenbush and Bhumirat, (forthcoming).

References

Bray, M. (1987). Are small schools the answer? London, Commonwealth Secretariat Publications.

Coleman, J., Hoffer, T., and Kilgore, S. (1982). High school achievement: Public, catholic, and private schools compared. New York: Basic Books.

Coombs, P., and Hallak, J. (1987). Cost analysis in education. Baltimore, Maryland: Johns Hopkins University Press.

Heyneman, S., and White, D. (1986). The quality of education and economic development. Washington, D.C.: The World Bank

Jimenez, E., Lockheed, M., and Paqueo, V. (1990). The relative efficiency of private and public schools in developing country. Washington, D.C.: The World Bank.

Jimenez, E., Lockheed, M., and Wattanawaha, N. (1988). The relative efficiency of public and private schools: The case of Thailand. The World Bank Economic Review, 2(2), 139-164.

Levin, H. (1983). Educational choice and the pains of democracy. In T. James and H. Levin (eds). Public dollars for private schools: The case of tuition tax credits. Philadelphia, Temple University Press.

Paulsen, A. (1981). The unit costs of education. Bogota, Colombia: OFISEL. (RAE 2.700).

Psacharopoulos, G., and Woodhall, M. (1985). Education for development. NY: Oxford University Press.

Raudenbush, S., and Bhumirat, C. (forthcoming). The distribution of resources for primary education and its consequences for educational achievement in Thailand. International Journal of Educational Research.

Tsang, M. (1988). Cost analysis for educational policy making: A review of cost studies in education in developing countries. Review of Educational Research, 58(2), 181-230.

Tsang, M. and Wheeler, C. (1989). Local initiatives and their implications for a multi-level school improvement approach in Thailand. Paper presented at the conference on effective schools for disadvantaged children in developing countries, held at the World Bank, Washington, D.C., on September 27-28, 1989.

References (cont'd)

Tsang, M., and Kidchanapanish, S. (1990). Private resources and the quality of primary education in Thailand. International Journal of Educational Research.

Willms, D. (1983). Do private schools produce higher levels of academic achievement? New evidence for the tuition tax credit debate. In T. James and H. Levin (eds). Public dollars for private schools: The case of tuition tax credits. Philadelphia, Temple University Press.

World Bank. (1990). The planning and financing of education in Shaanxi and Guizhou, China. Washington, D.C.: Asian Department, The World Bank.

TABLE 1: CHARACTERISTICS OF GOVERNMENT AND PRIVATE PRIMARY SCHOOLS IN THAILAND, 1987

CHARACTERISTICS	GOVERNMENT SCHOOLS						PRIVATE SCHOOLS		
	ONPEC			Bangkok Schools	Municipal Schools	All Govt. Schools			
	Urban	Rural	Total				Urban	Rural	Total
No. Schools in sample	24	224	248	19	14	281	15	5	20
No. students per school	282	209	217	511	791	265	672	757	693
No. of personnel per school	17.9	12.6	13.1	25.7	37.9	15.2	41.3	46.6	42.7
Percent of school personnel who are teachers	83.1	82.7	82.8	77.7	81.9	82.4	75.1	74.2	74.9
Student-teacher ratio	17.5	19.7	19.5	24.5	24.9	20.1	25.3	24.1	25.0
Average teacher salary (Baht/year/teacher)	60,263	57,729	57,974	61,376	45,703	57,593	28,158	21,928	26,601

TABLE 2: PER STUDENT RECURRENT COSTS OF PRIMARY SCHOOLS IN THAILAND, 1987 (BAHT/STUDENT/YEAR)

COST ITEMS	GOVERNMENT SCHOOLS						PRIVATE SCHOOLS		
	ONPEC SCHOOLS			Bangkok Schools	Municipal Schools	All Govt. Schools			
	Urban (1)	Rural (2)	Total (3)	(4)	(5)	(6)	Urban (7)	Rural (8)	Total (9)
A) PERSONNEL COSTS									
Salary	4277	3330	3422	2673	2062	3303	1445	986	1330
Employment Benefits	52.4	14.1	17.5	0.0	6.7	15.8	4.8	0.0	3.6
Supplementary Benefit	3.5	6.7	6.4	0.4	5.4	5.9	17.1	4.5	14.0
Total	4329	3351	3445	2673	2073	3325	1466	990	1347
B) NON-PERSONNEL COSTS									
Instruct. Materials	44.0	49.0	48.5	0.7	31.9	44.6	6.5	26.6	11.5
Teaching aids and schools	9.6	12.4	12.1	12.2	14.7	12.2	19.0	8.5	16.4
Minor repair and regular maintenance	6.9	23.9	22.2	19.3	7.5	21.4	85.5	55.6	77.2
Utilities	9.8	7.8	8.0	20.7	38.7	10.2	88.4	39.2	76.1
Student Welfare	65.7	68.6	68.3	50.1	46.2	66.1	79.6	92.1	82.7
Total	155.8	187.9	184.8	104.9	135.0	179.9	338.7	246.1	315.5
C) TOTAL RECURRENT COST									
Total	4,484	3,539	3,630	2,778	2,208	3,505	1,805	1,236	1,663
%Personnel	95.8	94.7	94.8	95.1	87.5	94.9	79.8	80.3	79.9
%Non-personnel	4.2	5.3	5.2	4.9	12.5	5.1	20.2	19.7	20.1

TABLE 3: UNIT COST FUNCTIONS FOR THAI PRIMARY SCHOOLS, 1987

Independent Variables:	Recurrent cost per Student (Baht/student/year)			Capital cost per student (Baht/student/year)		
	Eqt. (1)	Eqt. (2)	Eqt. (3)	Eqt. (4)	Eqt. (5)	Eqt. (6)
URBAN AREA	-488.1	-2.54 (-.016)		-1784.0 (-1.75)		
AVERAGE TEACHER SALARY	.0450 (11.2)*	.0536 (21.9)*	.0533 (21.7)*			
STUDENT-TEACHER RATIO		-219.2 (-24.8)*	-217.6 (-23.6)		27.0 (.435)	34.2 (.524)
NO. STUDENTS PER SCHOOL		.142 (-24.8)*	.123 (-23.6)*		-3.09 (-2.01)*	-3.30 (-2.07)*
PRIVATE SCHOOLS		824.2 (3.80)*	819.4 (3.70)*		-3214.5 (-2.11)*	-3323.2 (-2.14)*
LAND PRICE				.472 (10.4)*	.507 (11.0)*	.500 (9.82)*
NORTHERN AREA			-187.4 (-1.35)			340.2 (.335)
SOUTHERN AREA			-111.9 (-.765)			-215.0 (-.0107)
CENTRAL AREA			104.8 (.760)			395.9 (.394)
BANGKOK			-4.43 (-.024)			656.7 (.451)
CONSTANT	929.5 (3.78)*	4768.4 (23.5)*	4783.1 (22.3)*	586.5 (1.54)	4055.9 (2.18)*	3933.0 (1.98)*
N	299	299	301	299	301	301
R-SQUARE	0.307	.799	.801	.268	.292	.293

t-Values in parentheses

*-Significant at 5% level

TABLE 4: PER STUDENT CAPITAL COSTS OF PRIMARY SCHOOLS IN THAILAND, 1987 (Baht/Student/Year)

COST ITEMS	GOVERNMENT SCHOOLS						PRIVATE SCHOOLS		
	ONPEC SCHOOLS			Bangkok Schools	Municipal Schools	All Govt. Schools			
	Urban (1)	Rural (2)	Total (3)	(4)	(5)	(6)	Urban (7)	Rural (8)	Total (9)
Buildings	621	418	438	791	398	460	441	105	357
Equipment	177	147	150	174	89	149	158	60	134
Land	679	126	179	7263	670	685	439	318	409
Total	1477	690	766	8228	1156	1290	1038	483	899
% Buildings	42	61	57	10	34	36	42	22	40
% Equipment	12	21	20	2	8	12	15	12	15
% Land	46	18	23	88	58	52	43	64	45

TABLE 5: PRIVATE RESOURCES TO GOVERNMENT AND PRIVATE PRIMARY SCHOOLS IN THAILAND, 1987 (PER GRADE - SIX STUDENT)

	GOVERNMENT SCHOOLS				
	ONPEC Schools (1)	Bangkok Schools (2)	Municipal Schools (3)	All Govt. Schools (4)	PRIVATE SCHOOLS (5)
Direct Private Costs[1]					
Non-tuition costs:					
Instruction Related[2]	257	419	411	280	625
Non-instruction[3]	343	815	784	412	1,013
Subtotal	600	1,234	1,195	692	1,638
Tuition Cost	0	0	0	0	1,417
Total	600	1,234	1,195	692	3,055
Household Contribution[4]	155	173	87	153	62
Indirect Private Cost[5]	536	286	461	508	451
Total Private Resources	1,290	1,693	1,743	1,353	3,568

NOTES:

1. In Baht per student per school year.

2. Consists of expenditures on textbooks, workbooks and writing supplies.

3. Consists of expenditures on uniform, school bag, transportation, shoes and sportswear, and school fees on sport activities and other school events.

4. In Baht per household per school year; consists of contributions in cash and in kind, to other school and teachers.

5. In Baht per student per school year; equal to the economic value of foregone child labor.

TABLE 6: PER STUDENT TOTAL COSTS OF GOVERNMENT AND PRIVATE PRIMARY SCHOOLS IN THAILAND, 1987 (BAHT/STUDENT/SCHOOL YEAR)

	GOVERNMENT SCHOOLS				
	OWPEC Schools (1)	Bangkok Schools (2)	Municipal Schools (3)	All Govt. Schools (4)	PRIVATE SCHOOLS (5)
Total Cost per Student[1]	5,477	12,387	4,824	5,925	4,634
Total Cost per Student, excluding land cost[2]	5,298	5,124	4,154	5,240	4,225
Total direct cost per student, excluding land cost[3]	4,762	4,838	3,693	4,732	3,774
Total non-personnel instructional cost per student[4]	318	432	458	337	653

NOTES:

1. This is equal to the sum of per-student recurrent cost, per-student capital cost, per-student non-fee direct private cost, household contributions to teachers, and per-student indirect private cost.

2. This is equal to per-student total cost minus per-student land cost.

3. This is equal to per-student total cost minus per-student land cost minus per-student indirect private cost.

4. This is equal to the sum of per-student recurrent costs of instructional materials, teaching aids and school supplies, and per-student instruction-related direct private cost.

TABLE 7: PER-STUDENT RECURRENT COST OF PRIMARY SCHOOLS IN THAILAND, 1983, 1985, AND 1987 (IN 1987 BAHT)

		GOVERNMENT SCHOOLS				
		ONPEC Schools (1)	Bangkok Schools (2)	Municipal Schools (3)	All Govt. Schools (4)	PRIVATE SCHOOLS (5)
(A)	1983					
	PSTRC[1]	2,794	3,091	1,892	2,768	1,465
	%P[2]	95.3	96.5	84.8	94.9	82.1
	%NP[3]	4.7	3.5	15.2	5.1	17.9
(B)	1985					
	PSTRC	3,349	3,003	2,122	3,265	1,537
	%P	95.1	97.1	85.5	94.8	81.2
	%NP	4.9	2.9	14.5	5.2	18.8
(C)	1987					
	PSTRC	3,630	2,778	2,208	3,505	1,663
	%P	94.8	95.1	87.5	94.9	79.9
	%NP	5.2	4.9	12.5	5.1	20.1

NOTES:

1. Per-student total recurrent cost, in 1987 Baht per student per year.

2. Percentage of personnel cost.

3. Percentage of non-personnel cost.