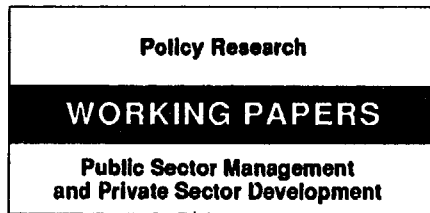


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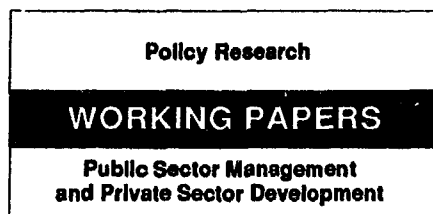


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# Why Is There Proportionately More Enrollment in Private Schools in Some Countries?

Estelle James

Heavy enrollment in private secondary schools stems from limited public spending, which creates an excess demand from people who would prefer to use the public schools but are involuntarily excluded and pushed into the private sector.



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This paper — a product of the Public Sector Management and Private Sector Development Division, Country Economics Department — is part of a larger effort in the department to understand public-private relationship in the provision of social services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-061, extension 37496 (January 1993, 34 pages).

The proportion of students enrolled in private rather than public schools varies greatly among countries. James tries to explain (1) the systematically higher proportion of enrollment in private schools in developing than in developed countries, at the secondary level, and (2) the seemingly random variation across countries within a given level of education and stage of development.

She argues that differentiated demand and nonprofit supply — both of which stem from cultural heterogeneity, especially religious heterogeneity — are the major explanations for variations in the proportion of private education within a given stage of development and educational level.

By contrast, she hypothesizes that the proportionately heavy enrollment in private

secondary schools in developing countries stems from limited public spending, which creates an excess demand from people who would prefer to use the public schools but are involuntarily excluded and pushed into the private sector.

Limited public spending on secondary education, in turn, is modeled as a collective decision which is strongly influenced by the numerous families that opt for many children, and that consequently can only afford to invest small amounts in each child, in developing countries.

The results of regressions that determine private-sector size recursively and simultaneously with public educational spending are consistent with these hypotheses.

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# **Why Is There Proportionately More Enrollment in Private Schools in Some Countries?**

by  
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Estelle James is Senior Economist, World Bank, and Professor of Economics, SUNY, Stony Brook. The author wishes to thank the numerous people in the U.S. and abroad who helped her with the study that has been partially summarized in this paper. She especially appreciates the typing and related work by Suzanne Lane and the data analysis by Renqui Xiao, H. K. Lee, Amy Salsbury, and Johan van der Sluis. Financial support received from the Spencer Foundation, the Exxon Foundation, the Agency for International Development, and the Program on Nonprofit Organizations at Yale University is gratefully acknowledged. Anonymous referees also made very helpful comments in connection with earlier versions.

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Impure public goods such as education yield both public and private benefits and hence can be financed through the public or private sectors. Even when government funding predominates, production can be carried out through public or private management. Thus, different combinations of public and private provision (funding and management) are feasible and are, in fact, observed in different countries. For example, the percentage of enrollments that are private at the primary and secondary levels covers the entire spectrum from 1% to 100%, as shown in Table 1. At higher educational levels the dispersion is also substantial.

What demand and supply factors account for these differences across societies? How does the process of economic development affect the role of the private sector in education? To what degree can government policies influence the outcome? This paper investigates these closely related questions. The answers are important since private schools may differ from public schools with respect to cost and quality and a system that is largely private may provide a different educational service and distribution from one that is largely public.

More specifically, I seek to explain (1) the systematically higher proportion of secondary school private enrollments (% PVT) in developing as compared with developed countries (mean = 31.3% for developing versus 21.4% for developed countries in my sample); and (2) the seemingly random variation across countries within a given level of education and stage of development.

I hypothesize that the large % PVT at the secondary level in developing countries is due to limited public spending, which creates an "excess demand" from people who would prefer to use the public schools but are unable to find a

place. The low public spending on secondary education is modelled as a collective decision which is strongly influenced by a coalition of high income, high tax families and low income families who have opted for quantity over quality of children, in developing countries. This "excess demand" explanation helps resolve a seeming anomaly: why the private sector has grown relatively large in some developing countries where, paradoxically, the public sector is considered superior, and vice versa.

In contrast, I argue that the seemingly random variation across countries within a given educational level and stage of development is due to differentiated demand and nonprofit supply, stemming mainly from cultural heterogeneity, especially religious heterogeneity. On the demand side, differentiated tastes about ideology lead people voluntarily to opt out of the public system even when space is available, to secure the kind of education they prefer. On the supply side, private schools are a convenient institution for diverse non-profit-maximizing religious organizations to use in their competition for a larger market share of "souls."

Part I develops the conceptual framework for analyzing private sector size and public spending on education. Part II presents the empirical results, using both a recursive model in which public spending is regarded as predetermined and a simultaneous model in which size of the private sector and educational spending in the public sector are jointly determined. The recursive and simultaneous models lead to similar conclusions. Based on this sample of 50 developed and developing countries (all the countries for which data are available on private enrollments plus the most important explanatory variables), it appears that, if one knows the answers to a few key questions about a society, one can make a reasonably good prediction about the size of its private versus

public educational sectors. Moreover, the predictive model is the same for developed and developing countries, despite the large differences in their private sector size.

But first, a caveat: the definition of "private" is by no means clear-cut in a situation where many "private" schools are heavily funded and regulated by the state. In most developing countries private schools depend mainly on private funding, but in many developed countries subsidies cover a large proportion of total expenses, and government control over hiring and firing of teachers, salaries and student admissions criteria accompany these subsidies. "Source of funding" and "decision-making authority" then yield different public-private categories and many mixed rather than polar cases. In this paper private schools are defined as those which had private founders and continue to have private management, although varying amounts of public funding may be present.<sup>1</sup>

## I. Conceptual Framework

### Basic Model

This section sets forth a theory in which the relative size of the private educational sector in a country ( $Z_{PVT}$ ) depends on its excess demand and differentiated demand for education, its supply of nonprofit entrepreneurship, and government policies that influence public and private supply.

Demand. Consider a family utility function in which:

$$U_i = U_i(Q_{PUBi}, Q_{PVTi}, EXTQ_i, Y_i - T_i - P_{QPVTi}) \quad (I)$$

That is, family welfare depends on its own public and private education ( $Q_{PUBi}$  and  $Q_{PVTi}$ ), other peoples' consumption of education ( $EXTQ_i$ ), and its disposable income to purchase other goods after paying taxes and private school tuition ( $Y_i - T_i - P_{QPVTi}$ ). We assume here that public education is financed out

of taxes and uses non-price rationing, while private education finances and rations, at least partially, on the basis of price. We are examining the choice, aggregated over all families, of  $QPUB_i$  versus  $QPVT_i$ , for a given  $Y_i$ ,  $T_i$  and  $P$ , as well as the collective choice of public educational spending which influences  $T_i$ .

As a first step, the family formulates its optimal consumption of public and private education,  $QPUB^*i$  and  $QPVT^*i$ . If public and private schools are perfect substitutes and  $P > 0$ ,  $QPVT^*i = 0$ . However, the supply of public places may be less than demand so some people are excluded, i.e. actual  $QPUB_i < QPUB^*i$  for some  $i$ . Then, if the private benefits from education perceived by family  $i$  are high enough to cover the price of private education (e.g. because family  $i$ 's income is high), they will seek places in the private sector, as a second-best solution. I call this demand, stemming from families who would have preferred to enter the free or low-price public system, the excess demand motive for private education. (See Weisbrod, 1975 and 1977, for one of the earliest formulations of the excess demand hypothesis). Excess demand existed in many Western countries in the nineteenth century, before public systems became open access. I argue that it also exists in many developing countries today, and constitutes the major reason for large private sectors at the secondary and higher levels.<sup>2</sup> The greater the total effective demand for education and the smaller the capacity of the public sector, the larger will be the excess demand for private education, ceteris paribus.

Now suppose that public and private schools are imperfect substitutes, because people have diverse tastes about the kind of education to be consumed, but the public system is constrained to be relatively uniform. If family  $i$  prefers to enter the private sector,  $QPUB^*i = 0$ . I call this demand, stemming from people who prefer the product variety offered in the private sector, the



differentiated demand for private education. Preliminary evidence from many countries indicates that much of this taste differentiation stems from religious, linguistic and nationality differences that concern group identification.<sup>3</sup> The greater the cultural heterogeneity of the population and the more uniform the public educational system, the larger will be the differentiated demand for private education, both in developed and developing countries.

Differential preferences about quality can also lead to the development of private schools. In particular, a low quality public system may stimulate the growth of a high quality private sector, meeting the demand of those willing and able to pay the price. If we assume that educational quality has a high income elasticity of demand and if the public sector provides a quality level that just satisfies the median family, greater income diversity within the population implies greater dissatisfaction among upper income people, who will seek superior education in the private market. <sup>4</sup>

Private supply. Of course, the ability of people who are dissatisfied with the amount or type of public provision to find private alternatives depends on the supply behavior of private schools. This paper does not seek to fully explain this behavior but does analyze one important determinant -- the role played by the nonprofit sector in education. Private schools are often established as nonprofit organizations, i.e. as organizations that cannot distribute dividends or stock that can be sold for capital gains. Indeed, nonprofit status is legally required for educational institutions in many countries, in part because nonprofits are considered more "trustworthy" (see James and Rose-Ackerman, 1986). This characteristic greatly influences the supply of private schools. For example, private schools may not spring up even though a potential profit exists, because there is no pecuniary return on equity

and non-profit-motivated capital and entrepreneurship are not available. On the other hand, nonprofit schools may spring up in situations where for-profits could not break even, because of their nonpecuniary goals and lower monetary cost functions due to donated capital, volunteer labor and tax advantages. We must therefore ask: what are the motives of people who start nonprofit schools and what factors determine their availability?

I argue that most founders of private nonprofit schools are ideological organizations, especially religious organizations. (See James and Rose-Ackerman, 1986, for a fuller development of this point.) Proselytizing religions such as Christianity have historically used schools as a mechanism for shaping values, socializing old members and attracting new ones; the Catholic Church has traditionally run its own school system around the world with these objectives. And competing ideologies have often been forced to start their own schools, as a defensive strategy.<sup>5</sup> The nonprofit form is used because these founders are interested in maximizing membership or faith rather than pecuniary profits. Therefore, for reasons of nonprofit supply as well as differentiated demand, I would expect the private educational sector to be larger in countries with many strong independent religious organizations competing for members and member loyalty, through their schools.

Government policies. Finally, it should be clear that many government policies influence the demand for and supply of private schools. For example, governments can and have prohibited private schools or have imposed costly requirements that have a similar effect (e.g., Catholic schools were strongly restricted in England and Holland during the eighteenth century, private schools were outlawed in Tanzania and Pakistan during the 1970s, and extensive regulations deterred private school entrepreneurship in Sweden until very

recently). Governments have required nonprofit status of private schools or given tax privileges to nonprofit schools (the U.S. and Japan are two examples). Some governments (e.g. the U.S. and Switzerland) allow local control over public schools, which should increase diversity within the public sector, hence diminish the differentiated demand for private schools.

It is very difficult to secure data on all these policies for the entire sample of countries. However, the effects of two important public policies, for which data could be secured, are analyzed in this paper: (1) the provision of subsidies to private schools, which increases the supply of private education; and (2) government spending on public schools, which increases their quantity and/or quality and decreases disposable income, hence decreases the demand for private education.

In sum, these demand and supply forces are hypothesized to stem from per capita income (PCI), stage of development (DV and ADV), cultural heterogeneity (CULT HET), income diversity (INC DIV), public educational spending (EDSP), and public subsidies to private education (SUB). The reduced form equation is:

$$\% \text{ PVT} = f (\text{PCI}, \text{DV}, \text{ADV}, \text{CULT HET}, \text{INC DIV}, \text{EDSP}, \text{SUB}) \quad (\text{II})$$

Public educational spending. An immediate problem concerns the endogeneity of EDSP, which may be determined by %PVT or by unobserved forces that also influence %PVT. For example, people who intend to opt out to the private sector may push for a low spending public sector, so the effect of EDSP on %PVT may be biased in a negative direction by OLS. Conversely, an unobserved taste for education may lead both to a large public and private sector, in which case the public spending effect on %PVT would be biased in a positive direction. To deal with these problems in the estimation of %PVT, I also develop a model determining EDSP and compare the predictions of the recursive and simultaneous models.

More specifically, I assume:

$$\text{EDSP} = g(\text{SEC}, \text{DV}, \text{PCI}, \text{AGO-14}, \text{TOT}, \text{GOVSP}, \text{ZPVT}) \quad (\text{III})$$

where AGO-14 = proportion of the population aged 0-14, TOT = an index of totalitarian control, GOVSP = non-educational public spending as a proportion of GDP, and ZPVT is included in the simultaneous model. The next two sections describe the key variables in the private sector equation (II) and provide the rationale for the collective choice about public spending in equation (III). (See Appendix A for definition of variables and data sources).

#### Key Variables in the Private Sector Equation

Per capita income and stage of development. DV and ADV are used to represent developing and advanced industrial societies, respectively, and per capita income (PCI) picks up smaller income differences within each stage of development. These enter into equations II and III as indicators of the gross demand for education and the effective demand for differentiated education. If EDSP does not change in the course of economic growth, PCI would have a positive effect, DV a negative effect on ZPVT and the interactions of heterogeneity with ADV would be positive in equation II. However, if EDSP increases with economic growth in equation III, this would have the opposite effect, so the net impact of growth on ZPVT is ambiguous a priori and the regression results may vary depending on whether or not EDSP is controlled. One object of this paper is to examine this process, as it throws light on the relatively greater role of the private sector at the secondary level in developing countries.

Cultural heterogeneity. Cultural heterogeneity enters into equation II as the major determinant of differentiated demand for and nonprofit supply of private education. To measure this, I secured the religious and linguistic breakdown of the populations of all the countries in my sample; indeed, the need

for this information was the major factor that limited the sample size.

I started with a measure of religious heterogeneity which weights all religions equally:  $RELIG = \sum_i \ln 1/R_i$ , where  $R_i$  = proportion of the population constituted by religion  $i$ . As the number of religions grow, so too does RELIG; the index is highest where the population is equally divided among a large number of religions.<sup>6</sup>

However, some religions are much more active proselytizers than others. As noted above, Christianity in general and Catholicism in particular have done so historically, using schools as a major competitive weapon, so I wanted to weight these groups more heavily in my "religious competition" index. I consequently constructed a "Christian" weight,  $WT_{CH} = R_{CH}$  or  $(1-R_{CH})$ , whichever is smaller, and similarly, a Catholic weight,  $WT_{CA} = R_{CA}$  or  $(1-R_{CA})$ , whichever is smaller. These weights increase as  $R_{CH}$  (or  $R_{CA}$ ) increase until  $R = .5$  is reached, after which they decrease; the weights are maximized when Christians (and Catholics) are a large minority or a small majority, the situation where their need to use schools as a competitive instrument is maximized. Therefore my index of religious heterogeneity and religious competition is  $REL = WT_{CH} WT_{CA} \sum_i \ln 1/R_i$ . Both for demand and supply side reasons it is predicted to have a positive effect on ZPVT.

Linguistic heterogeneity, LANG, was measured parallel to RELIG, as  $\sum_i \ln 1/L_i$ , where  $L_i$  = proportion of the population speaking language  $i$ . Language may also serve as a proxy for more general cultural heterogeneity (e.g., based on nationality or ethnicity) and as such its effect is expected to be positive.

Income Distribution. Comparable data on income distribution over large sets of countries are exceedingly difficult to find. I used the "Gini coefficient of sectoral inequality" (GINI) which is based on product per worker

across economic sectors. This index takes on larger values if product proportions are smaller than labor proportions for some sectors, indicating inter-sectoral inequality. Since it is calculated on the basis of large economic sectors rather than individuals or households it understates total inequality and, more importantly, distorts the relative inequality positions of different countries. As an alternative, I also used the proportion of national income received by the bottom 20% of households (DISTRIB), which is inversely related to individual inequality; however, such measures are known to be unreliable. Although inequality is predicted to have a positive sign on theoretical grounds given above, it is not clear whether these indices will be capable of detecting that effect.

Subsidies. Most countries subsidize their private schools in some way but detailed data are generally not available and the existence of implicit tax subsidies further complicates the situation. Given this paucity of data, a dummy variable, SUB, is included for those countries (mostly advanced industrial societies) that cover more than 70% of the costs of their private schools out of public funds.

Public Educational Spending. Many developing countries restrict access to their public systems at the secondary and higher levels, using non-price mechanisms to ration the limited number of places among the excess demanders, and this capacity constraint can clearly be relaxed by additional spending (EDSP). EDSP may also proxy public school quality (in which case a low EDSP leads to a differentiated demand for private school quality) but this relationship is ambiguous (see Hanushek, 1986). In this paper EDSP is expressed as a proportion of GDP and measures differences across societies in their share of GDP devoted to public educational finance. It is measured separately for the primary and

secondary levels and is expected to have a negative effect on  $ZPVT$ .<sup>7</sup> Public educational spending is treated as pre-determined in equations (1-3), while its determination is simultaneously modelled in equation (4), Tables 2 and 3.

### Collective Choice About EDSP

To fix ideas about the EDSP choice, let us suppose that only two alternatives are available--low public spending ( $EDSP^{LO}$ ), which will provide a public school system large enough to accommodate only a minority of the age cohort and high public spending ( $EDSP^{HI}$ ), which will accommodate a majority. I assume that EDSP is financed by taxes,  $T^{LO}$  or  $T^{HI}$ , in which everyone knows his share in advance, and is determined by a collective choice process in which:

1. If public provision is the only option (i.e.  $QPVT$  is required to be 0), families will be willing to expand EDSP so long as their marginal (private and external) benefits exceed their marginal (tax) costs; and

2. Given a private alternative (i.e.,  $QPVT$  can be  $=$  or  $>$  0), families will additionally compare the net benefits to them of high public spending ( $EDSP^{HI}$ ) versus low public spending ( $EDSP^{LO}$ ) plus optimal  $QPVT$  at  $EDSP^{LO}$ , and will choose to expand public educational spending if and only if they derive a greater "consumer surplus" from the former.<sup>8</sup>

Referring back to equation (I), it is clear that families favoring  $EDSP^{HI}$  (who I call Group HI) are those who will thereby receive a positive redistribution because their probable benefits are greater and/or their costs are lower than under  $EDSP^{LO}$  due to a combination of the following factors:

1. Their tax share is low, possibly because their taxable income is low;
2. Their desired consumption of public schooling is high because they have school-age children who want to attend, they perceive a high return to education,

and they do not have a strong preference (on quality or ideological grounds) for private schooling;

3. Their probability of being admitted to the marginal public school places is high;

4. The external benefit they will derive from the educational consumption of others is high and is more easily achieved through the public sector where their tax share is matched by the tax share of others; in some cases this externality may depend on public control over detailed school decisions such as the beliefs and values that are imparted by schools.<sup>9</sup>

On the other hand, families favoring EDSP<sup>LO</sup> (Group LO) are those who will be "redistributed away from" by EDSP<sup>HI</sup> for the opposite reasons. In this paper I do not specify the collective decision process (e.g., I do not assume a majority voting scheme) but I do assume that as the relative size and political power of Group HI increases, the likelihood of EDSP<sup>HI</sup> also increases, and vice versa.<sup>10</sup> Therefore, the key variables hypothesized to determine EDSP in the recursive model are PCI, DV, the proportion of the population aged 0-14 (AGO-14), an index of totalitarian control (TOT), and non-educational government spending (GOVSP); in the simultaneous model, ZPVT is added.

AGO-14 is a proxy for effective demand, which is expected to raise desired public school expenditures at the primary level (particularly for large families whose tax share is below the private school price for multiple children), but which may not raise desired EDSP at the secondary level, because of the family's quantity-quality trade-off. TOT is a "totalitarian index," evidence of dictatorial power that may have a positive or negative effect on EDSP depending on whether the dictator is trying to maximize the utility of Group HI or Group LO (i.e., is a populist or elitist dictator) and whether he wishes to use schools



as an instrument for tightening his control.<sup>11</sup> GOVSP captures the fact that some countries use public rather than private spending to finance other services; if the same group will benefit from public educational spending, this indicates they probably have the motivation and political power to enforce a high EDSP. ZPVT is expected to have a negative effect if people who anticipate that they will attend the private system are in Group LO, ceteris paribus. ZPVT is obviously endogenous so 2SLS is used in the equations where it is included.

## II. Empirical Results

### Methodology

The analysis was conducted by pooling data from the primary and secondary levels in 12 developed and 38 developing countries, 100 observations altogether--the largest number for which I could get data on ZPVT and the most essential independent variables. My unit of analysis was the country, by educational level. Although the sample was not random it also was not biased in any obvious way and includes a wide variation in all variables as well as substantial representation from all geographic areas. To ensure that influential outliers were not strongly influencing my results in this small sample, I also reran my regressions omitting the observations with the 6 highest and 6 lowest ZPVT. While their omission affected the magnitude of the coefficients, it did not change their signs or the pattern of significant results.

In estimating ZPVT a linear probability model and logit analysis were both used, and yielded very similar conclusions. The former has the advantage that the coefficients are easier to interpret but it has the disadvantage that the predicted value of ZPVT may turn out to be  $>1$  or  $<0$  for some countries; however, this was not a big problem since it only occurred in two or three cases in all my regressions, and by very small amounts. Logit has the potentially greater

disadvantage that the estimated parameters are sensitive to small measurement errors if  $\%PVT$  is close to 0 or 1, which holds for several countries in this study, and it assumes a smaller marginal effect at extreme values of  $\%PVT$  than in the middle range, which may be a misspecification. Since both methods yielded very similar conclusions, the linear probability results are presented in this paper and the logit results are available upon request.

#### Determination of $\%PVT$ in a Recursive Model

Table 2 presents the OLS and 2SLS results for  $\%PVT$ ; the first 3 columns assume a recursive model in which EDSP influences  $\%PVT$  and not vice versa; the last column uses a simultaneous model and is discussed in a later section.

Equation (1) sets forth a simple model, based on the most clearly exogenous variables, in which  $\%PVT$  depends on stage of development (DV, SECDV), per capita income (PCI), level of education (SEC), and heterogeneity (REL, LANG, GINI, separately and interacted with ADV). This equation was designed to test whether heterogeneity is as important as expected on theoretical grounds (it is), to ascertain whether it has different effects in advanced (ADV) and developing countries (it doesn't), and to capture the systematically larger private sector at the secondary level in developing countries--as in the coefficient of 11.8 on SECDV (the secondary-developing interaction term).

I hypothesized above that this difference stems mainly from an excess demand for quantity in developing countries, and this depends on public policies, particularly public educational spending. Therefore, equation (2) adds EDSP (and SUB) to the model. As expected, SUB has a positive and EDSP a strong negative effect. More important, the inclusion of EDSP causes the SECDV coefficient virtually to disappear.

Equation (3) presents a more parsimonious version of this model,

eliminating the stage of development variables which have become redundant and focusing on the heterogeneity and policy variables which, both on a priori and ex post grounds, are most important.

Several conclusions can be drawn from these simple recursive equations:

1. On the basis of a few variables, which proxy excess demand, differentiated demand, nonprofit entrepreneurship and relevant public policies, we are able to explain over half the variation in percentage of enrollments that are private.

2. The most important explanatory factor is cultural heterogeneity, particularly religious heterogeneity. REL is always significant at the .1% level; if REL increases by 1 standard deviation, %PVT increases by 11 percentage points. This effect holds both for developing countries and advanced industrial societies, equally at the primary and secondary levels,<sup>12</sup> evidence of the importance of religious entrepreneurship in private education. LANG, too, has a positive effect, although somewhat weaker.

3. Income diversity (GINI), on the other hand, has an insignificant effect--possibly because of the data problems discussed above. When I measured income diversity by DISTRIB instead of GINI it also had an insignificant effect. Nevertheless, if we remove the heterogeneity variables as a group from equation (3), the  $R^2$  falls from 52% to 27%, evidence of their key role.

4. Although basic cultural factors thus matter a great deal, public policies are also important. For example, SUB increases %PVT ten percentage points, despite its crudeness as a variable. This effect is particularly important in developed countries, where mean SUB is higher.

5. More important, once public educational spending enters the equation (equ.3), the large difference between developed and developing countries in %PVT

at the secondary level disappears. The F test shows that the stage of development variables (including their interaction terms) become insignificant, both individually and jointly [ $F(6,86)=1.15$ ]. That is, the same explanatory factors work for developed and developing countries; the large difference in private sector size at the secondary level is due almost completely to the large difference in public secondary education spending.

On average, both sets of countries in my sample spend about 1.6% of their GDP on public education at the primary level. The advanced industrial societies spend more than that--2%--at the secondary level, where the technological cost requirements are higher. But the developing countries spend only .9% of their GDP on public secondary education, thereby creating an excess demand for quantity (and/or a differentiated demand for quality). If secondary EDSP in developing countries were increased by 1.1 percentage points (i.e., to the developing country mean), equations (2) and (3) tell us that  $\Delta PVT$  would fall 9-10%, roughly to parity with  $\Delta PVT$  in advanced industrial societies.

#### Determination of Public Educational Spending

However, these results may be biased, if EDSP is really endogenous. Therefore, this section deals with the estimation of EDSP and the following section explores the simultaneous determination of EDSP and  $\Delta PVT$ .

Column (1), Table 3, presents a simple OLS version of equation III designed to capture some of the most important variables influencing EDSP and, in particular, to reproduce the low level of educational spending at the secondary level in developing countries. To be consistent with the recursive model in columns (1)-(3), Table 2,  $\Delta PVT$  is omitted from this equation. As expected, SEC, PCI, AGO-14 and GOVSP have positive effects. TOT has a negative effect, consistent with a model of elitist dictatorial control.<sup>13</sup> Stage of development

has virtually no effect at the primary level but SECDV has a significant coefficient of -1, thereby almost fully accounting for the fact that the mean EDSP at the secondary level in developing countries is 1.1% of GDP lower in developed than in developing countries.

Column (2) seeks to explain where this large SECDV effect on EDSP is coming from. I conjectured above that a high proportion of school-age children (AGO-14) might have different effects at the primary and secondary levels, since it involves a quantity-quality trade-off. Large families, especially those with low incomes, might have a high desired consumption of public education at the primary level to make their children literate, but a low desired consumption at the secondary level because of a limited willingness to invest in each child and because their demand for other goods is more pressing.<sup>14</sup> Moreover, high income, high taxpaying families might be willing to subsidize the primary education of children from large poor families because they perceive externalities from having a literate citizenry with the "right" values and habits, but their external benefits and willingness to subsidize secondary education might be much lower, since that would facilitate labor market competition with their own children. Thus, while the high AGO-14 in developing countries increases the size of Group HI and EDSP at the primary level, it may not have this effect at the secondary level. To test whether this is the case, equation (2) adds an AGO-14\*Secondary interaction term. As expected, this has a negative effect and almost completely dissipates the separate effect of SECDV.

Finally, equation (3) presents a more parsimonious version of this model, omitting SECDV and DV, which are now redundant and, with no loss of explanatory power, focuses on the remaining important variables--SEC, PCI, GOVSP, TOT, and AGO-14. In all, 44% of the variance of EDSP is explained by these variables.

Simultaneous versus Recursive Determination of EDSP and ZPVT

Equation (4) in Tables 2 and 3 present the 2SLS version of this simultaneous model, based on the equations in column (3), with ZPVT added to the EDSP equation. The equations are identified by the exclusion of the heterogeneity variables and SUB from the EDSP equation, AGO-14, GOVSP and TOT from the ZPVT equation. Our results are virtually unchanged. Cultural heterogeneity remains the main determinant of ZPVT for all educational levels and country groups, and EDSP is the second most important variable in Table 2, while AGO-14 and AGO-14\*SEC play a key role in Table 3.

ZPVT is never close to significance as a determinant of EDSP. The reason may be that when high cultural heterogeneity leads to a high ZPVT, this diminishes the private benefit of public educational spending among the minorities but increases the external benefit among the dominant group, who want to use the public schools as a means of inculcating a common language and values (see fn 9). The net effect on the relative size of Groups I and II and the equilibrium EDSP is therefore negligible. Thus it appears that EDSP influences ZPVT but not vice versa; and the recursive OLS model of ZPVT discussed earlier does not lead one astray.

To recapitulate how this model works let us compare the derivation of EDSP and ZPVT for an "average" developing country at the primary and secondary levels, respectively. Its low per capita income and government spending combined with its high totalitarian index, lead it to choose a low EDSP; this is offset at the primary but not the secondary level by its high proportion of school-age children. Thus this country ends up with high public educational spending at the primary level, much like that in developed countries, but relatively low public spending, hence a small public sector, at the secondary level.

At the same time, many people who are excluded from the small public secondary sector perceive benefits from education that exceed its private price. This includes (1) high income, high tax share families from Group LO who prefer private education for their children; (2) high tax share families from Group LO who want a small public sector but would be willing to use it if admitted; and (3) some low income families from Group HI (i.e., those who chose quality over quantity of children) who want a large public sector but, having lost the collective choice battle, now exercise their personal choice in the private market. Table 2 shows that the low level of public secondary spending in developing countries greatly increases the excluded students from the latter two categories and hence their excess demand for private education, as a second choice.

#### The Political Economy of Public-Private Choices

At this point one might ask: Why are people not willing to spend publicly, if they are willing to spend privately, in excess-demand-driven private sectors? If the real cost of a private school place equals that of a public school place and if private enrollments are, on average, 31% of the total at the secondary level in developing countries, it follows that private spending augments public spending by 45%. If people are not willing to spend more in the public sector, why are they willing to spend so much in the private sector?

Part of the answer is that costs per student are generally lower in the private sector. (See James, 1991a; James and Benjamin, 1988; Levy, 1986; and Jimenez, Lockheed, Luna and Paqueo, 1991). If low costs lead to low price in a private competitive market, this increases the number of families who will favor low public spending, even though they value education.

But the more basic reason is that the distributional consequences of public

and private spending differ when taxes are not based on benefits. To see this, suppose that a country has chosen  $EDSP^{LO}$ ,  $T^{LO}$  (i.e., Group LO has prevailed) and consider a low-tax share, high-benefit member of Group HI who is excluded from the public schools. That family will purchase education in the private market. We know (by its membership in Group HI) that this family would have preferred  $EDSP^{HI}$ ,  $T^{HI}$ , where its total costs would have been lower and/or its benefits higher (i.e., it would have received a positive redistribution). But it was outvoted by families in Group LO, whose marginal tax costs would have exceeded their marginal benefits if the public system expanded (i.e., they would have received a negative redistribution). Group LO apparently could not raise Group HI's tax share to match its benefits, but it could successfully impose a low  $EDSP$ , thereby forcing Group HI to spend more via fees in the private sector. (Of course, some members of Group HI will not spend more and will not acquire education, as they might have in a larger public system).<sup>15</sup>

Thus, if an equivalent amount of public spending replaced private spending, the distribution of costs and benefits would be quite different. Consequently, different groups will favor public versus private spending. I have tried to show why the size of Group HI versus Group LO changes over the course of economic development due to demographic change, thereby shifting the political equilibrium at the secondary level from  $EDSP^{LO}$ ,  $T^{LO}$  to  $EDSP^{HI}$ ,  $T^{HI}$  and eliminating the excess demand motive for private education. This explains why the private sector at the secondary level is systematically larger, even though it may be considered inferior, in developing countries; while developed countries are characterized by a larger public sector and a correspondingly smaller private sector, based on differentiated demand rather than excess demand.

#### Conclusion



In summary, I have asked why different societies have made different choices about their reliance on public versus private provision of education. The relative size of the private sector was modelled as depending on excess demand, differentiated demand, the supply of nonprofit entrepreneurship, and government policies. I hypothesized that excess demand stemming from low public spending is the major explanation for the systematically larger size of the private sector at the secondary level in developing countries, while differentiated demand and nonprofit supply, both stemming from cultural heterogeneity, are the major explanations for variations in private sector size within a given stage of development and educational level.

Regression analyses conducted across a pooled primary-secondary sample of 50 countries (100 observations) produced results that were consistent with these hypotheses. Religious competition and entrepreneurship have highly significant positive effects in all cases. Linguistic heterogeneity plays a positive (but somewhat lesser) role. These findings have important implications for the behavior of private schools. For example, they suggest that private schools may segment the population along religious, linguistic, nationality or ideological lines, because of the motivations of their nonprofit producers and consumers.

While basic cultural forces thus play a large role, public policies can also influence the size and nature of the private sector. In particular, public educational spending, which increases the capacity (and possibly quality) of the public system, has a negative effect on  $\%PVT$ . Since public educational spending is particularly low at the secondary level in developing countries, this result is consistent with the excess demand explanation for the large private sector there. Once public educational spending is taken into account, the same predictive model works for developed and developing countries, despite the large

differences in their private sector size.

I also modelled the collective decision process that determines public educational spending. The coalition favoring higher public spending at the secondary level is predicted to increase with development, due to income and demographic changes, especially the decline in family size. As the public sector expands, people who have been involuntarily excluded can now find places, so excess-demand-driven private schools are crowded out. According to our estimates, this process ultimately reduces %PVT to the level found in developed countries, which is explained mainly by cultural heterogeneity. While large excess-demand-driven private sectors can flourish in countries with limited public systems even if they are considered inferior, the differentiated-demand-driven private schools that survive in countries with open access public systems are likely to be considered superior (academically or ideologically), by the revealed preference of their consumers.

**ENDNOTES**

1. See James (1991b), for a more detailed discussion of these mixed cases, and the relationship between subsidies and regulations.
2. Examples are Kenya where the majority of secondary school enrollments were privately founded, Brazil and the Philippines where 80% of college enrollments are private. Among industrialized countries currently, Japan best fits the "excess demand" model at both the secondary and higher levels; over one-quarter of all high school (upper secondary) students and three quarters of higher education students attend private institutions, mainly because of limited space in the preferred public schools and universities. See James (1986a and 1991a); James and Benjamin (1988). Also see West (1967 and 1970) for data on the U.S. and U.K. in the nineteenth century.
3. The many private schools and colleges that accommodate religious or linguistic minorities (e.g., schools for Muslims, Parsees, Sikhs in India, Chinese and Indians in Malaysia) are examples of private sector response to differentiated demand. Among Western countries, the best example of the cultural heterogeneity model is the Netherlands, where two-thirds of all students attend privately managed schools, a response to the pervasive religious cleavage which dominated that country at the turn of the century. For other examples of the importance of cultural heterogeneity see James (1984, 1986b, and 1987).
4. Two examples are Brazil and the Philippines, at the secondary level, where 25 and 38% of enrollments, respectively, are in private schools, which are generally considered to be better than public secondary schools. But if greater income diversity means that upper income groups also control the government, they may use this power to choose a public system that is high in quality, low in

quantity and rationed to them. In that case, a large excess demand may develop, as at the higher education level in Brazil and the Philippines. Thus income dispersion is predicted to lead to a large private sector, but we cannot be sure a priori whether this will be due to excess demand for quantity or differentiated demand for quality.

5. For example, the caste groups in Southern India and the independence movements in India and Kenya before independence started their own schools, with the expressed intention of inculcating their own values and keeping their members out of the Western-dominated Christian schools. Other examples of the ideological/religious origin of private nonprofit schools are sectarian schools in the U.S. and U.K., schools run by Catholic orders in France and Latin America, Calvinist schools in Holland, orthodox Jewish schools in Israel, educational services provided by Muslim waqfs (religious trusts) in the Middle East and by missionaries in many developing countries.

6. For a discussion of the properties of this index see Theill (1972) and Allison (1978). For its use in an international comparative study of homicide see Hanemann and Quigley (1982). Obviously, this index is sensitive to the fineness with which one disaggregates various religions. I used all the sub-categories found in my data sources which constituted more than .1% of the population, including "Other Religions" as a separate category.

7. The only source giving education financial information for large sets of countries is the Unesco Statistical Yearbook. There are many practical problems with these data. They often give planned rather than actual expenditures, they sometimes exclude local government spending, the allocation between primary and secondary levels is admittedly imprecise, and in many cases they include government spending in public schools as well as subsidies to private schools. The number of years contained in the primary versus the secondary cycle varies among countries. To eliminate the bias this introduces into spending data in

cross-national analyses, I calculated an "expenditure per year" for each country and multiplied this by a standard 6-year duration at each level.

8. It can easily be shown that the availability of a private alternative reduces the probability that families will favor EDSP. This is, of course, particularly true for families that have strong ideological or quality preferences for private education.

9. For example, external benefits may stem only from schools that instill a common language or that inculcate values such as nationalism or support for the existing political regime. The historical literature on the development of American public education focuses on the desire of the old-timers to control the language, ideology and values of the newcomers to the "melting pot" as one of the major motivating forces behind increased public funding and management of schools in the nineteenth century, particularly in the Northeastern part of the country.

Control over the language of instruction has also been an important object of public educational spending in several African and Asian countries, and control over political ideology has been an impetus to public spending in Communist countries. Of course, people who have minority beliefs may oppose high EDSP and may make contributions to private schools for the same reason.

10. One would expect public spending to be highest in societies where political power is concentrated in Group HI, which uses EDSP as a mechanism for achieving a redistribution of real income from Group LO. For example, in Malaysia the politically dominant Malays are redistributing real income from the wealthy Chinese and Tamil communities, via their control over and preferred access to the public education institutions, especially at the higher educational level.

11. TOT is an index of political and civil rights as coded by Gastil, published by Freedom House and reprinted in Taylor and Jodice (1983). I used, alternatively, the 1975 score and the mean score for 1972-78. There is very little difference between the two and the latter are given in Table 3. The range

in this index is from 2 (highest political liberty and civil rights) to 14 (highest totalitarian control). See Appendix A on data sources for more details.

12. I tested whether heterogeneity had different effects at the primary and secondary levels by interacting REL, LANG and GINI with SEC. The interaction terms were always small and insignificant and their inclusion did not affect the other variables.

13. The negative coefficient suggests that many totalitarian regimes spend less on public education, because they are more immune to popular pressures. In this respect, my results are contrary to those of Lott (1990), possibly because of a different sample and a different variant of the dependent variable.

14. Many such families cannot afford the opportunity cost of secondary school. Often their children have dropped out of primary school, hence are not even candidates for secondary school. They may believe their children are unlikely to be admitted to a public secondary school. For empirical evidence on the quantity-quality trade-off and the negative relationship between family size and secondary school attendance in developing countries see Knodel (1990).

15. A similar explanation is likely to hold for excess-demand-driven higher education sectors. For a closely related analysis of the limited public spending on secondary and higher education in Japan see James, 1986a, James and Benjamin, 1988.

**TABLE 1: RELATIVE ROLE OF THE PRIVATE SECTOR IN EDUCATION**

<b>12 Advanced Industrial Societies</b>	<b>% Private Primary (1)</b>	<b>% Private Secondary (2)</b>		<b>% Private Primary (1)</b>	<b>% Private Secondary (2)</b>
Australia	20	26	Iran	8	17
Belgium	51	62	Jordan	30	7
Denmark	7	6	Morocco	5	8
England & Wales*	22	16	Saudi Arabia	3	2
France	15	21	Syria	5	6
Germany	2	9	Argentina	17	45
Italy	8	7	Bolivia	9	24
Japan **	1	15	Brazil	13	25
Netherlands	69	72	Chile	18	23
New Zealand	10	12	Colombia	15	38
Sweden	1	2	Costa Rica	4	6
U. S.	10	9	Ecuador	17	30
Median	10	13.5	El Salvador	6	47
Mean	18.0	21.4	Guatemala	14	43
			Haiti	42	76
<b>38 Developing Countries</b>			Honduras	5	51
			Jamaica	5	76
			Mexico	6	25
Kenya	1	49	Panama	5	14
Lesotho	100	89	Paraguay	13	37
Sudan	2	13	Peru	13	37
Cameroon	43	57	Venezuela	13	17
Chad	10	6	India	25	52
Liberia	35	43	Indonesia	13	60
Niger	5	14	Philippines	5	38
Nigeria	26	41	Singapore	35	1
Togo	29	16	Thailand	11	32
Upper Volta	7	43	Median	11	27.5
Algeria	1	1	Mean	16.1	31.3

\* These numbers include both the independent and voluntary aided sectors in the U.K.

\*\* Data include upper and lower secondary. Figure for upper secondary is 28%.

Mean %PVT = 22.7% (Mean %PVT = 16.5%; %PVTSEC = 28.9%)

**Table 2**  
**Dependent Variable: Proportion of Enrollments**  
**that are Private (%PVT)**

	(1)	(2)	(3)	(4)	(5)
R <sup>2</sup>	.46	.56	.52	.52	-
C	27.2 (2.07) <sup>a</sup>	38.4 (2.15) <sup>c</sup>	19.9 (3.37) <sup>a</sup>	21.6 (2.69) <sup>b</sup>	-
SEC	3.4 (.56)	8.4 (1.48)	9.7 (2.78) <sup>b</sup>	9.2 (2.44) <sup>c</sup>	-
SEC*DV	11.8 (1.66) <sup>d</sup>	1.4 (.19)	- -	- -	-
DV	-15.4 (1.13)	-16.1 (.97)	- -	- -	-
PCI	-2.8 (1.96) <sup>c</sup>	-1.5 (1.01)	-.4 (.45)	-.3 (.28)	2.0 (2.4)
REL	3.9 (3.81) <sup>a</sup>	3.8 (4.99) <sup>a</sup>	4.0 (6.27) <sup>a</sup>	4.1 (6.41) <sup>a</sup>	1.8 (2.8)
LANG	5.2 (1.51)	4.3 (1.4)	6.3 (2.04) <sup>c</sup>	6.4 (2.05) <sup>c</sup>	.6 (.5)
GINI	-1.1 (.8)	-.3 (.27)	-.8 (.75)	-.8 (.7)	2.6 (1.6)
REL*ADV	.5 (.25)	.4 (.27)	- -	- -	-
LANG*ADV	13.1 (.72)	16.1 (1.18)	- -	- -	-
GINI*ADV	-7.0 (1.18)	-14.1 (1.6)	- -	- -	-
SUB	- -	8.4 (1.78) <sup>d</sup>	10.2 (2.24) <sup>c</sup>	10.1 (2.24) <sup>c</sup>	.2 (.4)
EDSP	- -	-9.1 (3.03) <sup>b</sup>	-8.1 (2.42) <sup>c</sup>	-9.6 (1.72) <sup>d</sup>	1.4 (.6)

Notes: Mean %PVT = 22.7; (Mean %PVTPRI = 16.5, %PVTSEC = 28.9).  
t statistics are corrected for heteroscedasticity using White's method. See  
White, H. (1978). "A Heteroscedasticity Consistent Covariance Matrix and a  
Direct Test for Heteroscedasticity," *Econometrica*, 817-838.  
EDSPZ was also included in all equations to denote countries where the  
primary/secondary division of EDSP was missing and was imputed.  
Significance levels:

a = .1%  
b = 1%  
c = 5%  
d = 10%

Col. 1-3: OLS  
4: 2SLS  
5: Variable means and (standard  
deviations)



**Table 3**  
**Dependent Variable: Public Educational Spending**  
**as a Proportion of GDP (EDSP)**

	(1)	(2)	(3)	(4)	(5)
R <sup>2</sup>	.43	.44	.44	.41	-
C	-.17 (.28)	-.66 (.97)	-.77 (1.24)	-1.01 (1.46)	-
SEC	.38 (1.86) <sup>d</sup>	1.36 (2.01) <sup>c</sup>	1.54 (3.55) <sup>a</sup>	1.58 (3.68) <sup>a</sup>	-
SEC*DV	-1.0 (4.23) <sup>a</sup>	-.21 (.36)	- -	- -	-
DV	.23 (.58)	-.16 (.35)	- -	- -	-
PCI	.05 (.79)	.05 (.78)	.06 (1.15)	.08 (1.36)	2.0 (2.4)
GOVSP	.02 (2.98) <sup>b</sup>	.02 (3.03) <sup>b</sup>	.02 (3.25) <sup>b</sup>	.02 (3.83) <sup>a</sup>	18.9 (9.8)
TOT	-.03 (1.48)	-.03 (1.5)	-.04 (1.84) <sup>d</sup>	-.03 (1.67) <sup>d</sup>	7.7 (3.9)
AGO-14	.03 (2.19) <sup>c</sup>	.05 (2.65) <sup>b</sup>	.05 (3.73) <sup>a</sup>	.05 (3.83) <sup>a</sup>	39.1 (9.2)
AGO-14*SEC	- -	-.04 (1.52)	-.05 (4.53) <sup>a</sup>	-.05 (4.66) <sup>a</sup>	-
ZPVT	- -	- -	- -	.003 (.74)	22.7 (21.5)

Notes: EDSP = 1.4 (mean EDSPPRI = 1.6, EDSPSEC = 1.2)  
EDSPZ was also included in all equations to denote countries where the primary/secondary division of EDSP was missing and was imputed.  
Significance levels:

a = .1%  
b = 1%  
c = 5%  
d = 10%

Col. 1-3: OLS  
4: 2SLS  
5: Variable means and (standard deviations)

## Appendix A

### Symbols and Data Sources

- PCI - per capita income, 1975 in thousands of U.S. dollars, World Tables (Washington, D.C.: World Bank, 1988-89). Foreign exchange converted to U.S. dollars according to the World Bank Atlas method, to smooth the impact of temporary under or over-evaluation. (Purchasing power parity figures not available for most countries in sample).
- REL - an index of religious heterogeneity =  $100(WT_{CA} - WT_{CR} \sum R_i \ln R_i / R_i)$  where  $R_i$  = proportion of population constituted by religion  $i$ . Calculated from data in Charles L. Taylor & Michael C. Hudson, Cross-National Aggregate Data for World Handbook of Political and Social Indicators (MRDF), (Ann Arbor: Center for Political Studies, University of Michigan, ICPSR, 1971); and H.W. Coxill & K. Grubb, World Christian Handbook (Nashville, N.Y.: Abingden Press, 1968). See text for discussion.
- LANG - an index of linguistic heterogeneity =  $\sum L_i \ln L_i / L_i$  where  $L_i$  = proportion of population whose main language is  $i$ . Calculated from data in Charles L. Taylor & Michael C. Hudson, World Handbook of Political and Social Indicators II, Section V, Raw Data File: Fractionalization and Concentration Measure and Inequality Indices. (Ann Arbor: University of Michigan, 1970).
- GINI - Sectoral Gini, based on comparison between proportion of product coming from and proportion of labor engaged in each sector of the economy. Data for selected years in 1970s from Charles L. Taylor and David A. Jodice, World Handbook of Political and Social Indicators (New Haven: Yale University Press, 3rd ed., 1983).
- SUB - Dummy variable of 1 for countries that subsidized more than 70% of the total cost of their private sectors in 1975.

- TOT - Index of political and civil rights as coded by Raymond D. Gastil and published by Freedom House. This index is based on criteria such as the existence of elections, more than one political party, local governments, an independent judiciary and free media (press, radio & TV). 1975 data from Freedom at Issue, Freedom House, 1976, 11-20. Mean scores for 1972-78 from Taylor & Jodice, op. cit. Range is from 2 (highest political liberty and civil rights) to 14 (highest totalitarian control).
- GOVSP - Current general (central and local) government spending minus educational spending, as % of GDP, 1973. Taylor & Jodice, op. cit.
- EDSP - Current educational spending on primary and secondary levels, respectively, 1975. To control for the fact that different countries have different years' duration for the primary and secondary cycles, I adjusted all to a standard 6-year duration. Division between primary and secondary imputed for Denmark, Australia, USA and New Zealand. Unesco Statistical Yearbook, 1980-85.
- AGO-14 - % of population age 0-14, 1975. World Tables, World Bank & Johns Hopkins Press, Vol. II, Social Data, 1983.
- SEC - Dummy taking the value of 1 for secondary education.
- DV - Dummy taking the value of 1 for developing countries.
- ADV - Dummy taking the value of 1 for advanced industrial societies.
- ZPVT - % of total enrollments that were in private schools, selected years between 1975 and 1981, calculated separately for primary and secondary levels. Sources:

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