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Literacy and Gender: When Research and Policy Collide*

Nelly P. Stromquist**

Abstract

Though public policies continue to be highly supportive of literacy programmes, particularly for women, many of the programmes ignore the complexities of literacy development, underestimating the need for the proper training of literacy facilitators, adequate and stable funding, and the creation of supportive environments to enable women both to attend classes and to establish reading and writing habits. From a perspective that seeks to alter gender relations in society, literacy is crucial. To play an emancipatory function, its content must address issues that expand women's citizenship by examining and questioning private and public arenas of social life. Moreover, women-led organizations in the design and implementation of literacy programmes must play a role parallel to that of the state. From a research and political pro-active angle, major transformations are needed in literacy programmes. Despite its potential, however, women's literacy cannot be held as a unique solution to the deeper roots of poverty created by structural forces at home and abroad.

The recent explosion of technological and economic developments has demonstrated the crucial and positive role of education in our rapidly globalized world. The salience of knowledge in modern society has propelled its current recognition as the key tool by which nations become economically productive and individuals healthy and active citizens. Echoing this trend, the public discourse of important international organizations refers to knowledge as the highest form of capital. Not surprisingly, the UNDP's measure of human welfare, the Human Development Index, recognizes the importance of education twice in the configuration of HDI values, first, as literacy and then, as school enrollment.'

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Curiously, the powers attributed to knowledge are emerging in the context of an increasingly polarized social reality. While the global economy rewards well those with high levels of education, it provides technical and professional forms of employment only to a handful. Simultaneously, the global economy is creating many jobs in service areas, jobs requiring limited skills and providing low wages. Though the school's promise of social mobility continues to be true in individual terms, it is false in aggregate terms since not all educated people can secure good jobs, leaving many unable to enjoy the advantages education is expected to provide (Enguita, 1996).

As a prerequisite to higher forms of education, literacy is gaining renewed interest as a key means for individual and collective betterment, and a concern is being expressed about the persistent presence of illiteracy. Research findings consistently show that there is a very strong connection between limited education and poverty, even though education by no means ensures living conditions removed from poverty. As we look at the poor, a picture that reflects different geographical situations emerges. In many Sub-Saharan African and South Asian countries, many poor are illiterate because they were not able to have access to school (in part because of the still limited supply of schools). In the case of Latin America, as noted by Ferreiro (1992), the low literacy levels of many adults, especially among the poor, are the result mostly of the low-quality schooling received in primary levels.

This presentation takes you through a brief but somewhat complex journey of what are crucial points of collision between literacy research findings - defined as a systematic attempt to capture reality - and policy positions on literacy - at times based on a diagnosis of reality with little foundation in the empirical world.

In focusing on literacy, the contribution of three different perspectives is examined. The first, endorsed by multinational institutions, international development agencies, and governments views literacy as a set of coding and decoding skills that can be easily decontextualized and expanded throughout the world. The second perspective, derived from academic research in the past 20 years, proposes the concept of multiple literacies and decries efforts to divide the world into literates and illiterates. The third perspective, fueled by sentiments of social justice and the need for redress, advocates adult literacy as a means of constructing active citizenship and rebuilding the state and society.²

Literacy as a Basic Skill for Development

The dominant view about literacy is that it is a skill that cuts across contexts and represents the foundation that will make a nation more economically productive as well as enable its population to function as individuals in an increasingly complex environment. Numerous research findings show that literate persons place greater value on nutrition, health and education for their children, demonstrating that positive intergenerational benefits accrue from literacy

(Windham, 1999). Moreover, there exists qualitative evidence that literacy can contribute to increased sense of self-esteem, greater trust from others, and assertiveness in social interaction, thus providing individuals a greater sense of agency vis-a-vis their household and community (Stromquist, 1997; Egbo, 2000). It should be noted, however, that the large majority of studies on the power of literacy, particularly the quantitative studies, confuse the impact of literacy with that of schooling, and particularly with years of schooling. The result of this confusion is the tendency to believe that positive individual and social impacts can be obtained with the bare minimum levels of educational development - which literacy usually represents.

In the official discourse, literacy is sought in order to gain access to knowledge that is information-oriented rather than person-dependent. Literacy is said to offer knowledge that can be compartmentalized and is future-oriented, enabling access to the public world, and facilitating the resolution of conflicting information through analysis and questioning. Considered as a means to acquiring modern knowledge, literacy is often contrasted with traditional knowledge, which is said to have an emphasis on unity, on wholeness and interconnectedness, and on learning from the past (Teasdale and Teasdale, 1994, cited in Teasdale, 1997). According to the influential work of Amartya Sen (1981), the poor are not poor because of inherent reasons but because they have limited capabilities and rights, such as access to health and skills. From this perspective, literacy can serve as a means to securing important capabilities or opportunities.

Attached to great promises of literacy, there continues to be a relative lack of understanding on the part of policy makers regarding its potential, limitations, and demands for implementation. It is not uncommon to find statements by government officials identifying such targets as 'literacy reduction of 80 per cent over a one-year period.' Economists of the World Bank still produce papers in which they refer to the need for 'eradicating the plague of illiteracy' (Ritzen, 2000), as if illiteracy were caught by contagion through an indiscriminating virus floating in the air.

Concomitant with this rather simplistic understanding of illiteracy has been a dichotomous view of its definition, establishing a clear boundary between literates and illiterates. This continues to operate through the application of inexpensive methods to measure literacy based on self-report or on formal educational attainment as a proxy for literacy skills (Murray, 1999), measures typically employed in both national census data and household surveys. UNESCO has changed its definition of literacy since the 1950s, when it was measured as one's ability to 'understand and read a short simple statement on his everyday life' to the current more complex and relational conceptualization dating from the 1970s, which defines as literate, "a person who can engage in all those activities in which literacy is required for effective functioning of his/her

groups and community and also for enabling him/her to continue to use reading, writing, and calculation for his/her own and the community's development" (UNESCO, 1978, cited in Murray, 1999).

In the industrialized world, there have been advances in the measurement of literacy, building on psychometric developments for item selection and scaling according to the level of difficulty. Defining literacy now as "a mode of adult behavior" (Murray, 1999, p. 220), researchers have advanced more refined measures of literacy that distinguish three modalities (prose, document and quantitative literacy), and have assessed it through a continuum that progresses from 0 to 500 points. This form of literacy assessment, which uses mostly open-ended questions, requires about an hour to administer in a person-to-person interview. Because of its cost, it has taken place only in industrialized countries. The first attempt, known as the National Adult Literacy Survey (NALS), was first administered in the USA in 1994 and re-administered in 1996 and 1998 to persons aged 16 years and older. NALS found that among Americans with 10 years of schooling, nearly 25 per cent had the equivalent of only fourth-grade literacy skills or lower (Wagner and Venezky, 1999). The survey also found that adults with low literacy skills usually report that their limited skills create no serious difficulties for them in everyday life. As Murray reports, "When asked if their reading skills were sufficient to meet their everyday needs, most respondents replied overwhelmingly that they were, regardless of tested skill levels" (Murray, 1999, p. 221). This may reflect the wide range of literacy requirements in the job market. Because of the relationship between occupational and literacy skills, people tend to gravitate to jobs that are at least to some degree commensurate with their literacy proficiency. On the other hand, many have learned ways to cope with their low literacy levels in both work and social situations.

An intriguing question, very much related to the potential of literacy to improve people's life chances, focuses on literacy's ability to improve one's reasoning. This possibility was explored in a study that compared people who had acquired literacy in school with those who obtained literacy in their indigenous language through informal means (notably, the study of the Vai in Liberia by Scribner and Cole, 1981). This study found no cognitive differences that could be attributed solely to literacy, independent of schooling. Almost twenty years later, in 1998, Bernardo conducted a quasi-experimental study in the Philippines comparing cognitive skills across three groups (illiterate, literate through formal education, and literate through non-formal and informal education). He looked at five cognitive skills (conceptual understanding, conceptual organization, conceptual comparison, deductive reasoning, and explanation or inductive reasoning). Like Scribner and Cole, Bernardo found "no generalized transformation in the mode of thinking toward more formal or abstract processing of the information" among those with literacy skills (1998, p.

56), but he did discover that persons who became literate through schooling were able to provide more complete explanations and to produce fewer irrelevant replies than persons in the other two groups. He attributed this to the schooling socialization toward complete and focused replies rather than to literacy per se. He found also that improvements in the ability to categorize concepts were linked to the degree of integration of literacy into everyday practices. More literate communities - that is to say, those with activities such as group discussions, newsletter writing, and the provision of seminars and workshops - foster greater individual cognitive changes. Bernardo found that, "Even illiterate members of the community participate in the community practices that use literacy; therefore, even illiterate members change in the way they process information as a result of the integration of literacy practices" (1998, p. 85). On the positive side, Bernardo found that illiterates are not debilitated psychologically or mentally, since human beings, regardless of educational levels, are able to grasp concepts and use them in their understanding of their surrounding world. On the less positive side, he found that, like many other cognitive skills, literacy is not easily acquired; he concluded that, "Literacy needs to be scaffolded onto other skills in the person's existing repertoire" (Bernardo, 1998, p. 133). Ferreiro offers a similar view when she critiques the emphasis in Latin American public schools toward decoding at the expense of meaning, without providing modeling of the social functions of literacy (cited in Dexter, 1998). This finding leads us to conclude that literacy rates may not be accurate indicators of the extent that literacy practices have been established in communities; they may, in fact, tend to overestimate the actual uses of literacy.

While Bernardo found no effect of literacy on any specific cognitive skill, the adults in his study had at most fifth grade of primary schooling, so his findings do not constitute a test of the ability of education to alter concept formation. Literacy, of course, is endorsed by educators not merely as a survival skill at the basic level but as a means to attain increasingly higher levels of education and knowledge. It is important to note that the community practices that integrated literacy skills in the Philippine communities were those located in "community or people's organizations" (p. 104), thus Bernardo's study recognizes as important not merely the context, but a context fostered by organizational ties.

Positions that advocate access to print literacy typically defend its ability to enable individuals to process information that transcends a particular time and circumstance, and to deal with descriptions of objects or events with which a person may have no direct contact. Dexter et al., 1998, have introduced the concept of decontextualized language, defined as "language detached from the speaker/author as well as the listener/reader, and [in which] meaning must be derived primarily from the words themselves rather than the context to have roughly the same meaning to different people" (p. 142). They further argue:

To be comprehensible to a wide audience, decontextualized language displays textual features that distinguish it from conversational language. One important feature is the type of vocabulary required to make meaning as explicit as possible. While conversational language often uses vague or general vocabulary that is clarified by context or shared knowledge, the vocabulary of decontextualized language must be as specific as possible in order to constrain interpretation, and words must have standardized meaning. A second language relates to grammar. Conversational sentences typically are simple and fragmentary for a number of reasons: speakers have little time to compose complex sentences, there is less need for the explicitness that complex grammar creates, and intonation and pauses convey some of the information that complex grammatical structures convey.... A third feature is the discourse structure of decontextualized language, which is more monologic than dialogic. Longer utterances than are common in conversation increase the cognitive load for both speaker and listener; and logical relationships between ideas must be specified with words and phrases such as "because," "in contrast," "rather than," "for that reason," or "therefore," while temporal relationships are described with language such as "after that," "then," "in the meantime", or "in the morning." Still a fourth feature is the impersonalization of the speaker/author in the text. The speaker/author presents him- or herself as an objective conveyor of truths rather than an individual with a particular perspective (ibid, pp. 144-145).

Dexter et al., (1998), further maintain that schools, being talk-saturated environments, are prime venues for the acquisition of decontextualized language.⁴ In their study of the impact of maternal schooling in rural Mexico, they found that the ability to process decontextualized language correlated highly with health-related listening, reading and speaking tasks, and that length of schooling was a significant predictor of the ability to provide decontextualized noun definitions, to understand spoken health messages, and to understand printed health messages even though at all levels of schooling there was wide variation in the women's reading abilities (ibid). Interestingly, the authors found also that literacy barriers create oral language barriers, as women with little or no literacy had difficulty following the verbal explanations and instructions conveyed by doctors and nurses.

Linked to the perspective that literacy is a set of decontextualized skills needed for national development is the willingness to consider the role of others in helping an individual acquire the proper modernization messages. Thus, a quantitative study by Gibson (2001), focusing on factors that facilitate children's health (proxied through children's height), found that illiterates can benefit from

having access to a literate person, even though the effects were slightly higher when the parents themselves were literate. Gibson concluded that we need to operate with the concept of the 'proximate illiterate' - a person who cannot read but lives with someone who can and that, instead of merely measuring the adult literacy rate in a community, we need to know how literate and illiterate adults are distributed among households.

It is well known that, while governments expect large enrollments in literacy programmes, it is more typical that fewer than anticipated will enroll and that many will abandon the programmes shortly after enrolling in them. While literacy programmes may be seen officially as a major means to bring modern ideas to communities or to make them more economically productive, the objectives of the students participating in the programmes are very different from those held by programme designers. In her study of women learners in literacy programmes in Sao Paulo (Brazil), Stromquist (1997) found the personal aims for participating rather modest, from learning to sign their names to acquiring a wider vocabulary, or merely for the opportunity to leave the house for a few hours of camaraderie and relaxation.⁵ It is also the case that programmes intending to serve 'illiterates,' in reality attract individuals with various degrees of reading and writing proficiency. Again, in her Brazilian study, Stromquist (1997) found that abilities to decode and comprehend text varied substantially among the women participating in the programme and that their years of formal schooling reached as high as the fifth grade of primary school.

Despite some differences, the perspective that considers literacy as a set of basic skills that can be detached from particular contexts has been making improvements in the measurement of literacy and continues to assert that its mastery, at either the individual or household level, is essential to national development. Often, however, this perspective remains silent about issues of programme implementation.

Literacy as Embedded in Cultural Practices

In the past two decades, a number of university-based researchers, particularly in the fields of linguistics and anthropology (and to a less extent in semiotics, psychology, and history) have challenged the views that there is a stark divide between literate and illiterate persons and that print literacy skills may be attained independent of the surrounding social context in which people live. Known as the 'new literacy studies' (NLS), this school of thought and research has examined people's everyday experiences, looking for instances in which communication and the use of print occurs (Heath, 1983; Street, 1984, 1993, 1995; Gee, 1996; Gee et al., 1996). Through ethnographic studies using open interviews and observation, NLS researchers found that individuals across a wide diversity of social settings develop skills to cope with social demands despite their limited ability to either read or write text. Very informative and insightful

studies, using the NLS approach, have been conducted in South Africa through a series of community studies centering on such settings as squatter settlements, the taxi industry, farms, schools and migrant communities confirm the linkage between literacy skills and contextual practice and the individuals' resourcefulness to function socially even with their low print literacy skills (Prinsloo and Breier, 1997).

NLS argues that conventional literacy programmes are often too concerned with cognitive outcomes and not sensitive enough to how the literacy process works for participants and how it adapts to its surrounding culture. In the view of NLS scholars, focusing on the need for literacy unwittingly marginalizes the illiterates in their communities (Street, 1995; McEwan and Malan, 1996). Two important NLS concepts have been "literacy events" and "literacy practices," which have enabled us to gain a greater understanding of the meanings and uses of literacy. The first concept, proposed by Heath (1983), refers to real occasions in which the written language is connected with the nature of the participants' interventions and their interpretive processes and strategies. The second concept, by Street (1993), expands on these events to include cultural models and events that further shape how behaviours and accompanying meanings are related to actual uses of reading and writing.

NLS research methods have revealed that individuals possess a variety of communicative skills and that familiar activities, values, and patterns of time and space influence individuals' responses to written texts across societies and institutions (Heath, 1999; McEwan and Malan, 1996). Literacy practices are said, therefore, to acquire meaning only in the context of cultures of performance and symbolic display. Consequently, increased literacy competence depends on extensive practices. For instance, one of the most common literacy practices tends to be reading the Bible. Frequently people without schooled literacy or with low levels of literacy claim to be able to read the Bible and to attribute that to divine inspiration (McEwan and Malan, 1996; Stromquist, 1997). Such people claim also to be able to read religious hymns. Both practices can be taken as examples in which the printed word functions as an aide-memoir for repetitive texts and practices so that, rather than 'reading,' individuals are refreshing their memory by recognizing key letters and words (along with shapes and location of text). An NLS study focusing on the taxi industry in South Africa noticed a surprisingly high rate of illiteracy among drivers (55 per cent among Johannesburg and Soweto drivers), despite the fact that the occupation creates high literacy demands (Breier et al., 1996). Drivers learned to cope by memorizing rules, associating messages with colors and shapes to decode signs and forms, and enrolling the support of other people to mediate their needs, particularly with the law. Further, the study by McEwan and Malan cited above, found that what is learned at the community level are important avenues to status and authority that adults may not gain through schooled literacy.

As Heath (1999) observes, time and future identities of family and culture, employment and spiritual membership shape reading and writing. Further arguments offered by Lankshear and O'Connor (1999) state that forms and presentation of communication today are changing rapidly, exposing individuals to a greater integration of text, images, and sounds in the communications systems (through the use of radio, TV and videos), thus obliging people to become prepared to interact through multiple points. Consequently, through their participation in literacy classes, the learners seek to fulfil needs "across the spectrum of their social roles and identities" (Lankshear and O'Connor, 1999, p. 32). NLS holds also that literacy is not a homogenous concept (Gee, 1996): while there are indeed dominant or school-based literacies, there are also important local or community-based literacies, which are gained through social practices in natural situations. In this vein, it has even been asserted that, "there is no such thing as a level of literacy" (Rogers, 2001, p. 25).

Major contributions of NLS include: recognition of the importance of supportive community practices for the stable acquisition of literacy; the need to consider the multiplicity of ways by which people communicate, including the use of mediators for access to print; the demonstration that many low-skill jobs do not require literacy skills; and the discovery that it is possible to take classes dealing with technical skills (e.g., the use and maintenance of vehicles, building construction, carpentry, welding) without having literacy skills. By relying on qualitative methodologies, NLS has shown that individuals learn to cope with their print environment despite their lack of literacy skills. For instance, when dealing with government documents, they put an "x" instead of a signature to receive payments, and find a relative or friend to help them decode extensive documents. NLS also offers solid contributions to the design of literacy programmes by highlighting the crucial importance of teacher training in mediating roles and of engaging in multi-sectoral work to provide supportive grounds for the development of literacy habits. Kell (1996) proposes training development activists as literacy mediators - with roles in interpreting texts, writing petitions, filling in forms, and training illiterate people within development activities themselves; this suggestion would certainly help anchor literacy skills to unfolding community practices.

In many countries, teaching adults to become literate within the schooled paradigms has often been unsuccessful. Unquestionably, literacy must be linked to further education and supportive environments; however, NLS presents characteristics that are not conducive to the consideration of literacy as a political project. One of these features is its unproblematic consideration of the non-literate's reliance on another person, a condition that might create a very dependent relationship for the non-literate and which might have negative effects if the "mediator" decides to take advantage of the non-literate or if mediators are not available. A second politically unproductive feature is the assertion that since

there are many kinds of literacy, print literacy is just one among a larger set, with no particular salience; this is contrary to positions that see print literacy as a crucial skill in dealing with increasingly complex social institutions. A third feature is that among NLS researchers, the context acquires too much importance; hence, the individual becomes so limited by his/her environment that literacy operates at best in a reactive way, seldom pro-actively.

Literacy for Individual and Collective Empowerment

While the global illiteracy rate is steadily decreasing, there are some 872 million illiterate adults (one in four) in developing countries. Moreover, the proportion of women who are illiterate has remained constant over the past 10 years, representing 64 per cent of those in this category (UNESCO, 1999)⁶ In South Asia, where 44 per cent of the world's poor live, women have only about half as many years of schooling as men (World Bank, 2001). In face of this reality of widespread women's educational disadvantage, the tradition of popular education and feminist work with adult women takes an approach to literacy different from that of NLS and from the perspective of literacy as merely a tool for modernity and economic production. It sees literacy as an essential element on the path to greater knowledge and understanding of one's environment, and thus as a necessary, if not sufficient, tool for the development of an expanded citizenship - one that recognizes not only the political rights of individuals but also their civil and social rights.

The nested nature of human existence is obvious. Individuals live in households, which are embedded in communities, which are located in particular regions and provinces of a country. In a feminist perspective of literacy, poor and illiterate individuals are seen as able to cope with the various dimensions of their environment, as evidenced by their ability to survive under oppressive conditions. But this kind of response is not considered totally acceptable because the values of autonomy and self-reliance may be suppressed in such a coping process. Education, even at its very basic levels, is seen as an individual right for all, including women. Moreover, research on the everyday realities of women shows that women's literacy practices are linked to the women's perception of their roles as mothers and care-givers in the family and among older women, as active church participants (Rockhill, 1987; Gibson, 1996; Stromquist, 1997). In other words, literacy practices often serve to induct women into existing conventional gender roles.

While the empowerment perspective upheld by feminist perspectives seeks to make literacy a tool for creating a more active political life at home, community and national levels, research on women finds that they, no less than men, participate in literacy projects for multiple reasons - some educational, several social and many psychological. Within the educational reasons, the needs are also quite diverse: among the younger participants, there is a hope to move into

the formal educational system and get the credentials necessary for social mobility; among those who are married, learning to write notes for their children, improving their ability to speak and negotiate with others and developing greater arithmetic skills are frequently stated goals; among older women, signing their name is a common desire (Stromquist, 1997). It is also evident that many adult women perceive literacy as a series of discrete tasks, such as signing their name, reading street and bus signs, reading supermarket prices, rather than as a generalizable skill to access a more complex discourse and analysis of their social, political and economic world. On the other hand, there seem to be positive outcomes attached to participation in literacy classes, such as developing higher feelings of self-esteem, efficacy and empowerment (Stromquist, 1997; Egbo, 2000).

Women face substantial problems in the acquisition of literacy. First, the difficulties related to their daily participation in literacy programmes: secondly, the problems related to the development of stable literacy practices. As women join literacy classes, they face the challenge of engaging in regular attendance because literacy classes fight for time among many other competing demands in the everyday life of women. Their role as mothers and caretakers means that any emerging family situation acquires greater priority than attending classes. Rockhill (1987) notes that for a gender analysis of literacy, it is important to see the household not as a unified collectivity but rather as a setting where women experience divergent and conflicting preferences and interests. The discontinuity created by some domestic events "prevents women from maintaining regular progress and ends up discouraging their participation. Second, routines in domestic work such as cooking, washing, cleaning the house, and picking up children at school usually do not present reading and writing demands. Among the poor women who work outside the home jobs as maids and cooks continue skills that do not require reading and writing, except in rare circumstances (Stromquist, 1997). A third characteristic affecting women as literacy students is that many of them come to literacy classes either as a result of traumatic experiences at home or while experiencing significant physical and psychological suffering. The work by Horsman with immigrant women in Canada (1997) shows that domestic situations characterized by beatings and insults, migrant situations precipitated by rape, and life with partners who drink excessively, create impacts on attendance and concentration while in class, and develop adult needs for emotional support that literacy teachers are seldom prepared to provide.

Perhaps the major challenge to literacy as a tool for women's empowerment centres on the content of the messages women read while attending literacy classes. Here, we find a contrast between an ideal situation and the reality. Often, the content of literacy programmes, especially those provided by government agencies, conveys messages whose language expresses deeply embedded gender ideologies that assign mostly reproductive roles to women and

continue to sustain conventional conceptions of femininity and masculinity (Stromquist, 1999; Patel, 1987). To promote women's citizenship, therefore, it is essential to produce counter-discourses through which the possibility of women's active engagement in social transformation at micro- and meso-levels is examined. This implies that literacy teachers must be made gender-aware and that they must be trained to conduct literacy classes that build on adults' experiences and abilities rather than reproduce schooled forms of education, often similar to those of a first-grade classroom. It also implies that literacy classes will have to be designed in ways that foster learner engagement by means of alternative pedagogies such as dialogues, games, role-playing and popular theatre.

Those who see literacy as a tool for women's empowerment extrapolate from research on education to make a demand for women's literacy. Literacy is seen as the first step toward expanded education. Thus, while the research on literacy per se indicates that literacy may not produce concept formation, it can be firmly argued that the reading habits that come through greater education enable individuals to gain access to more sophisticated, complex and detailed information - which in turn can help these people produce more informed and defensible positions and preferences.

Research on women's literacy shows that women's domestic roles are not without possibility for the creation of potentially useful spaces for women's agency. Although not recognized by many in the household, in fact women engage in a number of literacy practices that give them power in the family through interaction with others on behalf of their family (Gibson, 1996; Rockhill, 1987). Since women assume responsibility for children and family management, they are the ones who must see and respond to communications from school and government agencies (pertaining to such topics as utilities, welfare, taxes). In contrast, because of the nature of the jobs held by poor women and men, the workplace tends to afford more literacy practice and thus more empowerment for men than for women (Gibson, 1996).

While women need to become empowered, literacy can be only one component in a more complex web of personal and collective change. The concept of empowerment goes beyond consciousness raising and formal political participation, to consider the perception of oneself as capable of being an agent in the process of transformation. In one form, empowerment is seen as having four components: the cognitive (of which literacy would be part), the psychological (feelings of self-esteem), the economic (some modicum of financial independence), and the political (the ability to organize and mobilize) (for greater elaboration, see Stromquist, 1995). It is clear that empowerment is socially constructed and made possible through a multiplicity of social and cultural structures, within which social actors function at any given time (Emirbayer and Goodwin, 1994).

The conception of literacy as empowerment at this point is more a desire than a reality. Nonetheless, its potential can be discerned. Giroux, an educator who utilizes critical theory in his work, defines political (and thus empowering) education as follows: "Political education means decentering power in the classroom and other pedagogical units so that the dynamics of those institutional and cultural inequalities that marginalize some social groups, repress particular types of knowledge and suppress critical dialogue can be addressed" (1999, p. 255). Expanding on this view, McLaren (1992), another critical theory educator, explains that transformative pedagogy does not mean bracketing reality but seeking to restructure it by questioning traditional beliefs and challenging social practices, while being at the same time conscious of the power/knowledge relation between the teacher and the student. As he puts it, "The primary referent for the empowerment of disposed groups should not be their moral, ethnic, gender, or political strangeness or displacement outside the boundaries of the dominant and the familiar, but rather the establishment of criteria that can distinguish claims of moral, ethnic, gender, or political superiority which we exercise as outsiders" (1992, p. 333). A critical literacy is, therefore, one in which the personal is always understood as social, and the social is always historicized to reveal how the subject has been produced. Subjectivity is understood "as a field of relations forged within a grid of power and ethics, knowledge, and power" (McLaren, 1992, p. 334).

The above reviewed contributions from the three perspectives of literacy reveal that the term illiterate does not capture the substantial variability in terms of reading and writing skills. These perspectives differ in their premises about the need for individual literacy and in their assumptions about what makes literacy a successful and stable skill. Two of the approaches that are sensitive to context, the NLS and the feminist perspectives, view literacy in markedly different ways. While NLS would be inclined to recognize other forms of literacy and the role of mediators, the feminist perspective would emphasize the importance of print literacy and would require literacy as a citizen and, thus, individual prerogative.

The social embeddedness of literacy constitutes both a paradox and a major challenge. Literacy is needed to acquire knowledge to transcend the local; if only local knowledge and practices are considered and fostered, the status quo is being maintained even though now it is a more literate status quo. Yet if the local is not supportive, literacy cannot take root. The challenge is to provide literacy programmes for adults while simultaneously creating environments in which literacy is fostered. This necessitates action at the educational level but also the engagement of governmental and non-governmental institutions in the provision of other measures compatible with the acquisition of print literacy.

Juxtaposing Literacy and Poverty

As we examine the problem of poverty among most illiterates, it is clear that they hold survival needs at a much higher priority than educational needs. In many developing countries, poverty has occurred through the mis-distribution of resources over many years of conquest and colonial domination. There is thus a powerless peasantry, which continues to have limited access to national benefits. For the rural poor, the main survival strategies are wage labour, labour migration, and income-generation projects (Grindle, 1986). Not surprisingly, recent case studies conducted by the World Bank, of 147 persons who were able to move out of poverty found that self-employment or entrepreneurship was their most frequent path. This was followed by income from wages and salaries, benefits from family, income from agriculture and, finally, access to land. Skills obtained to run a business or other specific skills were mentioned as important in 27 per cent of the case studies. In contrast, only 15 per cent of the individuals interviewed mentioned education as an effective strategy, with considerable variability across geographical regions; for instance, while 20-30 per cent of respondents from Latin America and former Soviet Union countries saw the value of education, about 4-7 per cent of those in Africa and Asia did (World Bank, 1999a, p. 47).

Women's empowerment cannot exist independent of resolution of complex socio-economic problems. Most programmes to address the condition of poor women steer solutions away from issues dealing with redistribution of assets. Taylor (1997) observes that, in South Africa, land reform and land restitution are not considered in parallel to programmes of sustainable livelihoods, food security, and micro-credit to benefit poor women; absent also is the training of women to play roles in secondary industries such as food processing, and making farm machinery and fertilizers. Similar observations can be made about national plans focusing on women in other developing countries. The fact that most indigent women are married to indigent men creates additional problems in uplifting women. Under conditions of poverty, men also experience feelings of helplessness and low self-esteem. If they cannot get jobs but women can, the men's roles and identities become confusing and contradictory (Silberschmidt, 2001).

What then is needed to address poverty? Since the World Bank wields such great influence in the Third World governments and bilateral agencies, it is pertinent to analyze the strategies it proposes in its most recent document on poverty (2000). In this document, the World Bank admits that market reforms cannot succeed without the necessary institutions in place. It proposes a three-pronged approach for governments: promoting opportunity, facilitating empowerment and enhancing security. Under promoting opportunity, it advocates national conditions such as having private investments, expanding international markets, building the assets of the poor, addressing asset

inequalities across gender, ethnic, racial and social divides, improving infrastructure and increasing knowledge in the poor rural areas. The document, however, is profoundly silent regarding measures that scholars from different disciplines, including economics, have proposed for a long time. Thus, the World Bank does not mention the need for changing the terms of trade, providing living wages, and the near impossibility of governments to implement social policies when neoliberal pressures call for a reduction of state responsibilities. Under facilitating empowerment, the document calls for inclusive and accountable legal institutions, a better public administration, decentralization and community development, promotion of gender equity, tackling social barriers and supporting poor people's social capital. Yet, amid this long list of proposals, it makes no mention of the need for organized action and how groups in civil society, particularly women NGOs, can play a substantial role in mobilizing people. As Oyen (2001) observes, the report ignores the role of labour unions even though these have historically protected workers' rights and thus the living wages.

A consequence of neo-liberal strategies is what is known as the "New Policy Agenda." Through this approach, the role of the state has been circumscribed to providing a supporting environment for private provision and to reduce public expenditures on social services (Rutherford, 1999). An important element of neo-liberal strategies, the widespread adoption of structural adjustment programmes, in reducing the size of the state, has weakened the administrative capacity of government to deliver social policies. All these developments are ignored by the World Bank and some of the recommendations it makes do not reflect solid theoretical anchoring or empirical research findings. As a case in point, its call for decentralization does not contemplate the likelihood - not mere possibility - that some community leaders may not be pro-poor (Oyen, 2001) or favour social justice in favour of women.

The third approach, enhancing security, refers to micro-insurance programmes to complement micro-credit programmes and macro-economic policies to protect against financial and natural disaster; further, it argues the need to design national systems of social risk management that are also pro-growth. Again, in the context of a reduced state with fewer civil servants and a chronically insufficient allocation to social sectors, it remains unclear how governments may engage in such security enhancement activities. More fundamentally, in the discussion of all of these measures, there is no identification of social actors. Women, for instance, appear at best as target populations rather than crucial groups to be mobilized.

When reading the kind of empowerment that the World Bank envisages for women, it is clear that it is to be obtained through formal political means. Yet, we know from the sociological, anthropological and feminist research findings that empowering women is not merely increasing their representation in national and

social assemblies and providing token instances of farming and micro-enterprise support. Women need to be allocated much greater funds at individual levels for credit and technical assistance on a nationwide scale. They also need to be given much more financial support at the collective level so that they may strengthen grassroots and non-governmental organizations with a greater degree of institutional capacity. How can the World Bank assertion that poor people need to receive support for the development of their social capital be taken seriously if no specific measures are identified for funding grassroot organizations and NGOs?

Micro-financing is the most popular type of poverty reduction today. While it does not get to the roots of the causes of poverty, it can create a difference in the livelihood of women. However, it is being offered on a scale obviously insufficient to function as a reasonable strategy. In 1999, 10 million women around the world were being reached by systems of small loans (UNDP, 1998, p. 34). There have been recent pledges by central countries to increase these loans to \$100 million by 2005 (UNDP, 1998). But since there are 1.2 billion people in the world earning less than \$1 a day and women constitute 50 per cent of the population, there are about 600 million indigent women. In this context, even if the \$100 million pledge were to materialize, it would be equivalent to providing loans of \$0.16 per woman.

Social Investment Funds (SIFs), introduced by the World Bank, and supported by the three regional banks and most bilateral agencies, were supposed to be a mechanism to attend to the needs of the poorest segments of the populations that were adversely affected by neo-liberal economic models. These SIFs are relatively small and provide temporary employment for the construction of schools, health posts, roads and water canals. It has been noted, in the case of Peru at least, that these funds do not cover the maintenance of such infrastructural construction. They tend to generate clientelism and increase the country's external debt since they are part of renegotiated loans (Ballon, 1999; Bejar, 1999). They do not help women because they are not the majority of those employed. More critically, since the support is not given as a social right but rather focuses on the poorest of the poor, SIFs often function as charity forms of assistance that depend on the goodwill of leaders or international organizations (Vargas, 1999). Such support does not contribute to a decrease in social inequality; at most it generates relief employment.

Colliding Discourses

The perspective on literacy as a basic skill, that is to say, the prevailing, official perspective, tends to be very rhetorical. It argues for the importance of literacy but shows little interest in becoming informed about its complexity (except in developed countries) and much less in committing the resources needed to address it. A particular disjuncture occurs between official declarations on the

importance of literacy and the funds actually assigned to it. In the US, federal and state investments in adult education, where investments have risen substantially in the last decade, are "still trivial with respect to investment in formal schooling and the growing needs in adult education" (Wagner and Venezky. 1999, p. 26). In most developing countries, the support for adult education, of which literacy constitutes the largest portion, amounts to less than 3 per cent of the national education budget. The prevailing pattern is to find a series of small, ungrounded literacy projects, poorly funded and with no attempt to develop literacy provision sensitive to the findings we know from the available research literature.

The 1990 Education for All (EFA) meeting in Jomtien, Thailand, concluded with a clear recognition of the importance of literacy by national representatives from 155 countries on the importance of literacy, all of which were signatories to the resulting document that expressed the goal of reducing -massively- national literacy rates by the year 2000 (UNDP et al., 1990). According to UNESCO statistics, the average illiteracy rate for developing countries was 33 per cent in 1990 and 26 per cent in 2000, signalling a decrease by one-fifth over the decade. This decrease has been slightly greater among men than among women (21 per cent points compared to 18 per cent points, respectively) (UNESCO. 1999). At the Dakar meeting in 2000, to evaluate the attainment of EFA objectives, it was resolved that the new literacy goal would be: "achieving a 50 per cent improvement in literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults" (World Education Forum. 2000, p. 36). The postponement of this significant goal by 15 years was not accompanied by any research findings on the likelihood of attaining the objective or by reflection on the implementation of past national efforts. Therefore, this new literacy goal has to be considered one of the most egregious examples of playing with rhetoric and expressing no serious intention to correct past performance.

Beyond Dakar, it can be observed that literacy does not appear in major national educational reform plans. Very little public funding continues to be allocated to literacy programmes. In fact, it has been observed that support for adult education today is a small fraction of what had been assigned at the end of the 1970s. Klees (forthcoming), analyzing the content of the most recent World Bank education sector policy (World Bank, 1999b), finds that the World Bank avoids the word 'adult education,' preferring to talk of lifelong learning- instead. Even so, lifelong learning, while mentioned in the text of the policy document, does not appear in its "recommended policy directions" (discussed on pp. 3 1-36 of the document). Initiatives being implemented for education in Latin America by an influential network of research centres with substantial backing by the Inter-American Development Bank and USAID refer exclusively to formal education (PREAL, 1997).⁷ Pressed between tendencies to improve the quality of formal education and reduced educational budgets, adult literacy remains a very secondary priority.

Education, perhaps more than any other social allocation, reflects the notion of a just society affording equal opportunity to all. Other services ensuring access to a minimum level of services (health, social security benefits, basic welfare support) have a compensatory character and thus are also distributive, but it is education that seeks to have an egalitarian character and on occasion even adopts forms for positive discrimination such as affirmative action and provision of scholarships (Enguita, 1996).

Literacy may be particularly useful for policymakers because it is not a redistributive policy. One reason for endorsing redistributive policies is that their impact on equity is more immediate than other policies. However, three shortcomings of redistributive policies are that: they are difficult to implement, transfers of wealth supposedly diminish the incentive to generate wealth, and redistribution policies - which touch the assets and income of wealthy people - tend to be highly conflictive (Saavedra-Rivano, 1987). Historically, asset redistribution has never taken place under normal (i.e., non-revolutionary) circumstances and it is feared that any benefits may be offset by the social disruption such policy might cause.

Concluding Remarks

The world of adult literacy is complex, difficult and is characterized by contradiction and neglect. Research has been making progress in the definition of literacy, in understanding the variations in which it exists, and in recognizing the importance of contextual support to permit the development of stable reading and writing habits. Feminist positions advocate literacy as a prerequisite to the attainment of an expanded citizenship for women but recognize that content and financial commitment to make literacy programmes successful need to be in place. The position of government and donor agencies visibly endorses literacy but tends to oversell the effects of literacy and to underestimate the difficulty of the implementation of literacy programmes. Governments and donor agencies have not yet demonstrated the kind of financial and intellectual commitment necessary to make literacy accessible to the adults they purport to serve. They tend to fund short-term programmes, typically focused on narrow coding/decoding skill acquisition. The clearest conclusion that can be drawn from looking at national and international investment in literacy is that adult literacy carries large symbolic and political value and thus its importance is publicly recognized. Unfortunately, symbolic recognition has been buttressed neither by an acknowledgment of the numerous valid research findings on literacy nor by investments congruent with what is needed to attain and maintain literacy skills and practices.

Enabling marginalized adults to obtain literacy skills is difficult and requires substantial effort and financial investment. This should not constitute grounds for skirting literacy and related education programmes because, were this to occur,

new generations will grow up illiterate and vulnerable to undesirable social and economic conditions. The investment in women, in particular, cannot be avoided if the objective is to promote greater social equality and stronger conceptions of citizenship.

Regarding poverty, that constant companion of literacy, the dominant view seems to be that it does not require special treatment, as economic growth by itself will take care of it. The world of the poor receives much attention today but the formulation of solutions is more palliative than deep and structural. So, amid large sets of minuscule projects to generate temporary income and even smaller attempts to provide literacy for adult women and men, the status quo prevails.

Notes

1. Comprising a set of three indicators of development, the HDI assigns a weight of one-third of its value to life expectancy; another third to adjusted average income; and another third to education, divided in turn into one-third for formal schooling (enrolment rates) and two-thirds for adult literacy (Gibson, 2001).
2. The different literacy camps find a parallel in the literature on reading and writing among children in formal schooling. Phonic approaches to reading concentrate on coding and decoding words, often isolated from familiar context, and give teachers very prescribed methods for drilling sounds and words, as reflected in the Open Court method widely used in the U.S. In contrast, all reading approaches emphasize meaning and seek to present reading materials whose content is close to the children's experience. Within this second camp, there is a group of literacy scholars concerned with the attainment of literacy skills among minority children and who pay attention to literacy content and methods to facilitate the students' social awareness (MacGillivray, 2001).
3. Illiterate women in Brazil seemed to recognize this when several observed that literacy would help them speak better (Stromquist, 1997).
4. Citing research by Snow, Dexter et al. (1998) assert that many reading or writing problems children encounter after acquiring a simple level of skill "are in fact problems of processing and producing decontextualized language, both oral and written.
5. On the other hand, participation in the safe spaces provided by literacy classes, produces positive and unintended effects in the development of assertiveness and empowering attitudes, particularly among women.
6. Most of the decrease in illiteracy since 1990 was achieved in East Asia, while the number of illiterates increased by 17 million in South Asia and by 3 million in Sub-Saharan Africa.
7. PREAL, which stands for *Programa de Promoción de la Reforma Educativa en América Latina*, has been in existence since 1995. It presently promotes greater public investment in K-12 education, the international assessment of learning through testing, school-based decentralization and teacher salary increases.

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Challenges of Globalisation on Higher Education in India'

S. Giriappa"

Abstract

General higher education in India has had its diminutive status owing to its emphasis on numeracy rather than quality and social relevance. Specialized higher education, on the other hand, with government and market support has been able to establish its supremacy not only in the job market but also in policy issues, both at national and international levels. With the advent of globalization, the plight of general education can be seen as one of further decimation. A stage may come when this will enable local innovativeness to embalm it with local specificity, enabling local comparative advantage and retailing, thus containing competition at the micro level, whereas specialized education could achieve an acquired comparative advantage and be intentionally competitive. While the former calls for a jointship in order to be locally sustainable, the latter requires a coalition in order to be globally relevant and value adding. Once the comparative advantage is established both at the local and global levels, higher education would be in a position to level play when the General Agreement on Trade in Services will be in full swing. In a way, the onslaught of globalization has generated a threat therapy to make higher education both relevant and competitive; if this is not achieved, it will be one of 'dumping' of foreign education services into the country.

Globalization Trends

There have been three major globalization trends - prior to World War I, when growth in international trade, labour migration and capital flows enabled economic integration among the countries at a fast rate; next during 1914 to 1960 when there was a retreat from globalization resulting in economic divergence and protectionism; and after 1960 when the new pace of globalization has been enabling openness and a trend toward internationalization of trade, capital,

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knowledge and technology (Williamson 1997). There is also the recent phase wherein globalization has been breeding extreme regionalism - in the creation of regional economic and trade blocs and other regional associations in culture and social capital. However, these different phases of growth in different countries have contributed to an increased dependency of the poor countries on the advanced, on the one hand, and growing inequality in many fields amongst and within the countries, on the other. Among the important aspects that have contributed toward this inequity are differing factor endowments, along with their intensities and prices. In this, human resource has been the major plank on which international inequity has been pronounced as rampant- not only between unskilled and skilled labour but also based on the outputs produced by that divergence. In the different phases of globalization the world had experienced, there has been a compression of time and space, on the one hand, and convergence into a 'fragmented centreless flexible and yet complex accumulation', on the other (Sengupta 2001). From one of market capitalism at the time of imperial nation state expansion of onward (in the sense of flow out from the imperial powers to the colonies) globalization to the monopoly and multinational capitalism of the present day integrative process, there has been an emergence of duality (sometimes plurality too) between the deep segment of globalization as experienced by the advanced countries and shallow globalization as experienced by the developing countries. This duality has enabled the hi-tech countries to dominate over the rest of the world in matters of determining the requirements of functional and spatial aspects of the integration to be realized toward the so-called global culture (DN 2001). This integration process seems to be rapid in the age of modernized service sector, which was not possible in the case of industry and agriculture owing to their unbridgeable gap among these countries.

Globalized Educational Services

Mention may be made of the divergences in the system of education as a resource that has resulted sequestering on major revolutions in the production process in different economies. After the industrial and agricultural revolutions in the West, the education system radically underwent a transformation so as to reflect and absorb the changes that have occurred in the society. The recent technological revolution in many spheres further capped the system quite into an innovative and adaptive process wherein pedagogy and research were transformed appropriate to the demands of the day. Current globalization trends have made the economies demand-oriented where the products and services are to be delivered to the demands of the consumers so that it may be said the age of consumer capital has been fast emerging. Hitherto, it was one of supply orientation wherein the services were provided according to the dictates of the transnational institutions. However, in countries like India, largely dependent on

the western technology for growth, the effect of the first phase of globalization in the nineteenth century had been one kind of imitation of the western pattern of education with limited local adaptiveness. In the second phase, tinged with aspersions on the alien system, there was a move to undo the past mistakes by developing local methods and in the recent phase, it has been one of greater diffusion of the global pattern so as to be internationally competitive. The growth of new disciplines and new methods has been increasingly adopted with value addition and job orientation. In this, education as 'making-of-the-person' and with 'Meaning-for-life' or 'learning-to-be' thrusts was ambivalently deliberated.

Challenges of Higher Education

In keeping with the factor endowment theory, which says that a country abundant, in say a resource, such as labour, could specialize in labour intensive commodities for production and export, India, which has a vast potential of human resources, has been specializing not only in producing and exporting primary products but also in the export of tertiary labour (9a case of 'raw' material export?). The pertinent question in this age of internet is how the national challenges are going to be met and how these could be reflected in the education system which has hitherto had given importance to higher and tertiary education, primarily through public funding. What shall be the correspondence between literacy and numeracy, with reference to geographical and sectoral diffusion of new methods of teaching, research and extension in the domain of globalization, has become a debatable issue. In this, both quantitative and qualitative measures of the effectiveness of the education system have been attempted toward justification of importance given to higher education *vis-a-vis* primary education and how this system could fulfil the national objective of improving the standard of living of common man. Has a turning point in universalization of formal education and education federalism facilitated the diffusion in a desirable and decentralised way and has the system become responsive to the labour market? All these issues require a rethinking on the status to be provided to education in its different dimensions. As and when new techniques and innovations are to be synthesized, adoption cycles of different approaches are to be comprehended wherein simultaneity in adoption and adaptation of different methods would result in conflicts and inappropriateness of adoption to suit local conditions. This becomes more complicated when local flexibility is lacking toward modernization of the system as to social relevance and future sustainability. The preference shown to some disciplines, neglect of research and development, inflexibility of the system and mushrooming of tertiary educational institutions in the private sector consequent on the neglect by the central government (the proportion of GDP expended on education has declined from 3.8 per cent in the early nineties to 3.4 per cent in the late nineties) have resulted in weak creditability, poor quality, lack of access and lack of

inquiry and analysis. Balance between supply and demand requires at least 6 per cent of GDP to be allocated to the sector with ample private participation. Hence, an urgency has arisen wherein the challenges of global competition have to be tackled simultaneously along with amelioration of internal divergences. If privatization has been empirically found to be more viable for this trend, let it be enshrined in commercialization, while that of public funding confined to areas where the externalities could not be internalized by the private sector (Megginson and Netter 2001). Internal dumping also results when inappropriate policies are intermingled with inadequate concern for demarcation between state and private role in different components of education.

Globalisation Opportunity

World over, there have three major developments - virtual classroom, integration of teaching, research and extension to solve the demands of the society and commodification of knowledge (as evidenced from protection of different Intellectual Property Rights). A time may come when teaching methods may be standardized across the continents and regional aspects sidelined in such an event. Knowledge development has been recognized by international institutions like World Bank wherein the focus has been weary of the separation of more developed and less developed countries in their levels of not only physical but more so in knowledge capital (Arrow 2000). When knowledge is a commodity and is protected by IPRs, the more developed countries enjoying the maximum leverage in patents and other IPRs would prevent the less developed countries to augment that resource unless the former come forward to share the fruits. It has become imperative to close this gap and it was argued only globalization could do it through policy instruments like World Trade Organization and its various agreements like General Agreement on Trade in Services (GATS) and so on. Hence, higher education has to serve twin purposes of both universal standardization for global competitiveness (competitive cooperation among the countries) and rationalization for regional competitiveness (cooperative competitiveness), at the same time integrating these trends toward solving national as well as international problems. As international bodies like the World Bank and the International Monetary Fund have necessitated the less developed countries of lowering of expenditure on social development, the private sector has to play a key role in the development of the system. Here, coordinated efforts of both government and private sectors become crucial. Coordinated synergy may be attempted through segmentation of different forms of education, decentralized development of primary education, private participation in management and research and integrating education with other sectors of the economy.

General Agreement of Trade in Services

Global public expenditure in the education sector exceeds over one trillion US dollars and covers more than 50 million teachers, a billion students and thousands of educational institutions. The process of privatizing and deregulating education services at par with other major services was started after the GATS (as a component of WTO) was signed by 40 countries in 1994. Since in more developed countries like the USA the service sector contributes to over 70 per cent of GDP and where more than 80 per cent of that sector is in private sector (so also the case with health and sanitation), the transnational practices would endeavour toward such a move, towing the less developed countries also into the net so that the same transnational characteristics could appropriate a wide market for their products globally. This is nothing but trickle down. But the globalization trend has not produced a unimodal economic or social system wherein the less developed countries could experience the fruits of growth the more developed countries had enjoyed, sooner or later. Article 13 of GATS excludes any government service which does not have any commercial purpose from the agreement, but it would be difficult to pinpoint on any service especially in higher education which can be kept outside this clause. The negotiations under GATS have to be finalized by December 2002 and by the close of the decade it would be fully binding on the members. Under national treatment clause, foreign players have to be extended the same facilities as the internal players are bestowed with. When this happens there will be no doubt a destat canopy in service provision. Any number of negotiations amongst the members has to lead to higher levels of liberalization and also agreement on investment. Here, education is to be commoditized and commercialized and an education market has to emerge wherein the signatory countries have to see that educational institutions rally around this market, as the World Development Report 2002 would require all institutions to support the market mechanism. In the case of integration, cross-border supply (distance education), service consumption (course of study abroad), commercial presence (activities of foreign universities) and presence of natural persons (courses offered by foreign teachers) constitute different stages (Quinn 2000). Through these it may be possible for the domestic education service to be collaborating with foreign institutions toward a process of modernization and acquiring comparative advantage.

Fall-out of General Higher Education

With little knowledge development over the ages, the less developed countries had to imitate the education standards of the more developed countries in the past and they have to continue the process owing to any creation of comparative advantage. In this era of globalization and liberalization, higher education management has assumed dynamism toward achievement of both national and

international competitive strength and movement toward a sustainable and holistic development. In this type of participatory and comparative management, all participants of the system - be they teachers, researchers, academicians, government, public and private institutions involved in the process of education and development and society at large - have decisive roles to play for achievement of the set goals. The education system is the corner-stone of any civilization in its various components of democracy, human rights and governance. When institutions of higher education are required to be innovative and enterprising, no doubt emergence of what are called 'academic entrepreneurs' and 'multipreneurs' becomes crucial, where the academia have to assume various roles of change agent. Such a process of transformation in education governance is aimed at making them more relevant to the needs of the society and be partners in sustained development.

Infrastructure development becomes crucial in the less developed countries, which demands various incentives and amenities to be provided which are essential for a smooth functioning of teaching-learning process, research, extension and consultancy. The recent AT Kearney report postulates that as India has advantages in both current and growth competitive indices, it may be possible for the country to register a 10 per cent growth, provided red tapism is removed and infrastructure facilities are made adequate. Nowadays, internet connectivity, counselling and other means of providing the required information are available to the academic staff in their activation of teaching, learning, consultancy and expertise. These facilities, if to be provided in the desired extent, would demand optimization of the existing resources and additional funds as the case may be. The purpose has to encourage growth of academic entrepreneurs who would be undertaking new ventures in the field of innovative education. A major development during the last decade has been neglect of scientific research as seen from the declining contribution of science to the nation's gross domestic product. There is also the decline in students opting for arts and science subjects owing to overselling of some disciplines. This, of course, may be cyclic; nonetheless, communication and information technology has to be given its due importance; at the same time the core sciences, arts and humanities need not be neglected and a concerted effort is overdue for their refurbishment. For knowledge growth, it is the basic sciences and arts that will usher in the necessary revolution in applied fields like information or communication. If the country were not to have the type of development in basic sciences, the positive change in the information technology would have been delayed, as evidenced in many countries. And where higher education institutions have the responsibility of furthering research, an amiable environment has to be created for the smooth functioning of academic groups. Hence, provision of necessary infrastructure becomes even more crucial at this juncture. If integration is achieved between domestic and foreign service systems, provision of infrastructure can greatly be

reduced owing to virtual education. Further, since the heart of a higher education institution is the library and provision of bibliographical resources for the conduct of various academic endeavours is essential, the concept of virtual library and virtual classrooms has been gaining much currency and toward this transformation, the library has to be modernized at par with international standards. The internet technology facilitates this achievement through cost-effective means, provided the library is stocked with the required infrastructure and tools. While division of labour is good, it has to be practised in academic field also. As no one can be at the same all in all, the library also has to be geared to the specialization of the particular institution; this would require identification of comparative advantages of various institutions and equipping them with the appropriate library and physical infrastructure.

In Whose Service?

As academic endeavours have to have a direct impact on the social and rural foundations, it is essential that efforts are made to educate the academia in appropriate socio-technical tools so as to enable them to acquire skills for poverty alleviation, rural development and equitable growth of the economy as far as possible. Teaching or research has to have a bearing on the current problems facing the country - specifically in this regard, rural reconstruction, slum development and eradication of corruption and other social evils. For, only when we are able to usher in a viable socio-economic change and augmented labour force that diversification in the economy and an all-round development would be possible. Hence the support system has to see that proper grounding and empathy are created amongst the academia for undertaking need-based activities. Supplementary and non-formal means of education also have to be encouraged for this purpose. It is this aspect of local comparative advantage that the general higher education system has to provide. It requires a decentralized system wherein the local institutions will have the responsibility and accountability to develop and modernize the general course in tune with local requirements such that over a time they become locally viable enterprises. The globalization process in enabling free trade in higher education will be in position to separate the low knowledge and less commercial nature of education to be locally specific. This will enable emergence of a distinct local culture, which, over the years, will be complementing with the specialized and more commercialized service in further sequestering various syntheses. It is in some way automatic protection of effectively applied general education system for development of the local areas owing to their specificities. This may be akin to education blocs, once the fruits of globalization are really enjoyed.

Hi-teching of Services

The higher education system during the last decade has had many surprises - the growth of communication and information technology and the resulting shift of emphasis on IT enabled education, IT service provision at the international level and IT enterprising contributing an increasing share to GDP. At the same time, basic science suffered neglect, its contribution to GDP actually declining. The allocation on education has been at around three per cent of GDP during various plan periods, the bulk of it being in the domain of higher education. Currently, the policy is to wean away higher education institutions from government funding and making them self-reliant. This is what GATS is supposed to aim at. Besides alternative forces of modern 'brain drag' in information technology and 'brain squeeze' consequent on recent neglect of science and humanities, the system is beset with problems like mushrooming of institutions with little concern for quality, monitoring and audit; substandard and outdated methods of teaching and learning; inadequate emphasis on research and extension; disparities in the quality of education and weaknesses such as poor assessment of quality and lukewarm rapport with the society. These issues have been on the anvil since many years and Plan efforts to contain them and to usher in an affable and affordable education system have eluded the planners. As a result of openness, the thrust areas have to be: prioritization among different types of higher education, emphasizing due recognition of arts, humanities, science and technology development; improvement in the quality of education, keeping in the view its integrated nature to human development; providing cost-effective means of equitable education even to the under-privileged, which means no small role of government; development of self-reliant courses and delinking them from the general stream such that a self-financing system emerges in all disciplines. The very fact of opening up of the sector with due liberalization means that there is some comparative advantage in that, otherwise the impact will be negative.

There has been many a deliberation on the sustainability of higher education system toward providing the basic needs of the economy and even before its nuances are properly appropriated. A question has been cast on its over-selling and hence for its downsizing by the state, at the same time calling for reduced state intervention. This is indeed the predicament of the less developed countries, which have not yet derived the fruits of market or state intervention. Here afterwards, it is the market which is slated for a wider role in determining not only the supply aspects of higher education, but also the demand aspects emanating from multiple choices thrown open to the consumers as a result of openness and intra-industry trade. Investment in human capital, especially in education and health, has been viewed as important as that on physical capital toward progressive economic development. The latest vintage of this characterization has been the computation of human development index and also the extended triangle index wherein literacy and health standards occupy crucial

positions. The relevance of social capital as that which could be both generated and imported and that of social technology (as essential for the effective employment of physical capital) which can be adaptable despite environmental variations has been amply exemplified in respect of recent experiences in the developing countries (Woolcock and Narayan 2000). However, there has been a divergence between the absorptive and the carrying capacities, which is best explained by the chasm between primary and higher levels of education in fulfilling social objectives. Total expenditure on education had stagnated for a long time, say, in countries like India, which is termed as grossly inadequate, considering the level of development to be achieved henceforth. This share has been in a stationary equilibrium level in most of the developed countries after fulfilling the required demands and even in China at more or less 6 to 8 per cent of GDP over the years.

In India, the allocation of resources between primary and higher education has been lop-sided, the latter being favoured though its share is about one-fourth of total education funds (of course, this has resulted in India becoming a major supplier of technical personnel). The state's lower emphasis on primary education has enabled private participation to some extent, of course with its own marketeering objectives. One may ask here if university education were to be profitable as was in the case of primary and secondary education, by this time there would have been a horde of private universities embedded in the system.

If primary education has mostly long-term aspirations, returns from higher education are slated for the short run but sometimes they may be slow. Hence the short-term oriented higher education has been given a peppered status hitherto, where the state subsidy enables the institutions to be protected, on the one hand, and the individuals getting benefit not accountable, on the other. In future, these subsidies have to be extended to the foreign players also according to GATS. Education as a multi-disciplinary exercise has had the requirements of value for money, standardization at par with international quality and transformation of the individual incorporated into the system such that the demands on it have increased manifold over and above the supply parameters, which of course have been also on the increase. Globalized education will be demand-oriented rather than supply oriented which has been the case hitherto. From a system of value added demand, the tendency sometimes becomes one of value debased supply.

The gap that persists in the case of primary versus higher education scenario is further compounded by the problem that primary education is having in respect of leakage of funds, ill-equipment, too low or overcrowded attendance, mismanagement, absentee teachers and inappropriate syllabi. Education as an infrastructure, when not integrated with other development initiatives, results in sub-optimal allocation of manpower and also to its lower productivity. It is in respect of quality assurance and quality assessment that the system further faces innumerable hurdles peculiar to under-development of both economic and

administrative systems. Further, once some infrastructure is created, maintenance is left to roost and monitoring and evaluation standards are not infused in the desired proportions. Not content with the existing infrastructure, the demand has always been one of craving for a better one, which of course requires huge investment and increased prioritization. As such, higher education in India has had a turn-around, at the same time lacking the initiative toward higher levels of employment and cultural transformation. Both educated and uneducated unemployment levels have been on the increase and traditional subjects and courses attract less number of students every year. In the new fields, already signs are familiar of excess supply from India and the fast catching up by other Asian countries. In the virtual education system of tomorrow, where the chalk-walk-and-talk system would give way to a wired system, the whole gambit of education will change beyond imagination. We will have to prepare for that at any cost. However, who knows that the traditional system of lineage and disciple learning method may become the best bet for any age as regards imparting knowledge with a non-impersonal touch. This may be the terminality of the learning-for-life education of the global system. Machine or other, it is occupational environment that has to define what sorts of educational drags have to result when confronted with sub-optimal instruction and research. When education is still labour intensive and involves multiplicity of structures and management levels, it becomes paramount to work it out systematically to achieve the goals of regionalization within the global system.

New Sources of Financing

It is in financing that decentralization assumes greater significance from both counts of local participation and financial autonomy. It is not only primary but also secondary and higher education, which could be left to the folds of local institutions. However, specialized higher education has to be in a position to extend assistance toward fulfillment of the basic requirements of schooling, housing, water and sanitation. Only a decentralized system could tackle these problems, given the incentives and innovativeness in decision-making. This is to say that education system is somewhat centralized which has caused its deviation from local reality. Compulsory cess, business and industrial contribution toward education fund, and many other sources of finance, besides government budget and voluntary donations, become more crucial in a regime of decentralization.

Another thing to ponder over is the distinction between consumption and investment functions of finance. That is to say, education has been merely looked down as a consumption expenditure and bulk of expenditure on that account is spent on salary payments and maintenance rather than equipping the students in better skills and opportunities. Where the resource allocation is high, education could be considered as an investment; this is the viewpoint of Becker. Schultz and others in recommending investment in human capital, especially in the

developing countries as a prerequisite of overall development. When consumption expenditure has a higher share, subsidization and grants-in-aid and other forms of funding result in inadequacy, rigidity, insecurity, instability and discontinuity in the particular disciplines. This is even more intensified in rural areas where the system has been breeding discrimination and apathy. Further, the role of institutions in the rural areas has been non-existent or weak, laden by urban bias. This again is the result of non-development of decentralized and local level institutions to cater to basic needs of the rural people.

With virtual education in spiralling a new concept of learning and knowledge-acquiring method, a type of joint stock education will have much relevance in the future. This will greatly reduce the state's funding schema and also with that much of politicizing. In these joint ventures, the state, private institutions, venture capitalists and other financial and local level institutions will cooperate in a synthesizing way to share the fruits of each other and optimize the system toward holism. It is the method of safeguarding local interests in the wake of global competition and possible dumping.

Acquired Comparative Advantage

The important fall-out of globalization has been the critique of poor countries and that of environmental NGOs, which has prompted the IMF/WB to agree for a discussion of anti-globalization. The same thing may happen in respect of globalized education services in which case the less developed countries have to depend on the modern systems of more advanced countries. This has a benefiting effect, in that the world over, there could be only one system in the long run, provided there is mobility and free flow of all resources required for development. When the regional trade blocs form economic coalitions for better bargaining power and improvement in welfare, such a process will emerge in respect of education also. This type of equation may be different in respect of education owing to the importance of what is called acquired comparative advantage, the less developed countries could acquire, based on their emphasis on specialized higher education. With this, it may be possible to have niche markets domestically which may not after all be met by foreign players, for example, in the neglected rural areas, on the one hand, and facilitate intra-industry trade among urban and across national boundaries in services, on the other. It is not only 'survival of blocs of the fittest', but also diversifying the survival process in respect to many dimensions. When unemployment rate is increasing among the youth and when countries age with inadequate manpower, acquired advantage may be made to bring in developments like Bologna Declaration of 1999 wherein the entire European space is to be made available to higher education in another decade. Once locally adaptable innovations are made and made applicable to rural and other niche areas, over long term, the same may be transformed into an acquired advantage so that its replication will be sought

after over time and space. For this, quality assurance, uniformity, credit transfer facilities, global accreditation and international research management and so on have to be improved in the member nations. On the one hand, there has to be a declining government involvement and interference in this liberalization process, but the tendency has been increasing government control especially on domestic institutions in the name of regulation and supervision. Coupled with this, a decline in job as well as knowledge security (as typified by variegated cyber-crimes), that has resulted in marginalization and casualization of occupations. The growth of a super service sector no doubt will be superfluous in the long run, if the core sectors are left to fend for themselves.

After the oil crisis of 1973, globalization has assumed a supply orientation and hence, if the less developed countries could cooperate and found knowledge cartels for export, even complete specialization may be possible wherein those countries will be in a position to specialize in poverty and pollution abatement studies and provide the world community with innovative environment oriented futuristic studies (export of environment and poverty amelioration schools, for instance), the more developed countries might also want to develop. As for the less developed countries, acquired comparative advantage in cross-border exchanges, commercial and natural presence and consumption abroad instances may be synthesized with necessary micro and macro trade-offs.

Conclusion

The challenge of global demands, if converted into opportunities, is possible to be achieved, at the same time, assuring knowledge security irrespective of time and space. Regionalizing the education services (cartelization amongst the less developed countries welcome) can best provide this security through a shift in innovative collaborations, shift in employment and improvement in skill development, to cap amongst all. As long as 90 per cent of nation's labour force remains semi-skilled and unskilled, any development in the education field or transfer of technology is not going to usher in the desired impact. The recent trends in globalization do indeed necessitate a transformation in the knowledge gear in evolving efficiency driven competition, on the one hand, and converting this into a competition driven creative cooperation - what has been termed as 'glocalization', on the other. Whatever be the trend of globalization or de-globalization, market will assume an increasing role in determining the pace of growth even in the less developed countries-

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Is Functional Literacy a Prerequisite for Entering the Labour Market?

An Analysis of the Determinants of Adult Literacy and Earnings in Ghana¹

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Abstract

The determinants of literacy and earnings in Ghana are linked with a variety of factors, including age, gender, family educational background, distance to school and income. Literacy and age are negatively correlated. Efforts at strengthening the supply and quality of basic education programmes in recent years have been successful in raising literacy rates. Females are less literate than males. Parents' education is positively associated with literacy. Distance to the nearest primary school, residency in a rural area and poverty affect literacy negatively. Functional literacy appears to be a prerequisite for entering the labour market. As a policy implication, basic education and literacy programmes should target females and poorer households, especially in rural areas.

Introduction

Significant and rapid increases in earnings and education have taken place over the past hundred years in industrial economies. In developing economies, the picture is different. High illiteracy rates and very low incomes, and thus, widespread poverty are realities for large parts of the world. Literacy and income are closely linked. Establishing and assessing the nature of these links may help increase both literacy rates and earnings, thereby eradicating poverty.

This analysis of the determinants of literacy and earnings in Ghana, based on two household surveys, reveals their link with a variety of factors, including age, gender, family educational background, distance to school and income. Literacy and age are found to be inversely correlated, implying that younger generations

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are more literate than older generations. This relationship indicates that recent efforts to strengthen the supply and quality of basic education programmes have been successful. Females are found to be less literate than males, controlling for other factors. Parents' education is positively correlated with their children's literacy. Distance to the nearest primary school and residency in a rural area, are negatively correlated with literacy rates. Poverty and literacy are also negatively correlated.

This analysis of the determinants of earnings reveals no significant returns to education other than middle school and technical/professional training, indicating that the quality of education in Ghana is generally poor. Alternatively, it could suggest that education is not serving as a signaling device in Ghana.

Functional literacy affects selection into the labour market. In developing countries, jobs are rationed (that is, demand-side determined). We, therefore, interpret this result to indicate that functional literacy is a prerequisite for entering the labour market. This interpretation may partly explain the lack of returns to education.

The policy implications of these results are that greater efforts should be devoted to developing functional literacy skills and basic education. Policy-makers should aim at increasing both the supply and the quality of basic education and literacy programmes, which should target females and poorer households, especially in rural areas.

Changes in and Determinants of Literacy

Opinions differ widely over how best to define literacy. Any person 15 or older who can "read and write a simple statement on his or her everyday life" is called functionally literate (UNESCO 1993, p.24). The World Development Report (1997) also adopts this definition of functional literacy. Others propose a broader and more explicitly political definition. Another definition sees literacy as a process of 'conscientization' involved in 'reading the world' rather than merely "reading the word" (Friere and Macedo 1987).

Widespread literacy is a twentieth century phenomenon. Before the nineteenth century, when public school systems were developed, education was reserved for the few. School systems developed in industrial countries largely in response to increased and more specialized industrialization, which in turn led to increased economic growth and demand for an even more educated labour-force.

Over the past decade, education has exploded worldwide, as a result of the ever-increasing demand for still more specialized labour. Attitudes toward education have also shifted. Less than 50 years ago, education, especially higher education, was reserved largely for men. Today, people in industrial countries believe that the entire population has the right to education.

Developments in Literacy in the United States

Literacy progressed by stages in the United States. Initially, according to Haas (1996), literacy spread because radical Protestants wanted to read the Bible. Their need for literacy to agitation for general public education in the nineteenth century. Literacy rates later rose as a result of several societal changes, beginning with Reconstruction (Coy 1988). Immigration during the Industrial Revolution and the Progressive Reform Movement increased literacy later in the nineteenth and early twentieth centuries. World War I and the Depression forced the federal government into a more active and direct role, and literacy rose even farther. The Civil Rights Movement of the 1960s shifted the focus to minority groups, broadening efforts to fight illiteracy. Coy believes that the concept of functional literacy developed during this period and that the formalization of that concept helped increase the number of adult literacy programmes.

Developments in Literacy in Great Britain

In Great Britain, also literacy progressed by stages. Street (1995) identified three distinct stages in the modern development of adult literacy programmes. First, the recognition of adult illiteracy as a widespread phenomenon - in the 1960s - to increased focus on the issue. Government grants were provided, a national "Right to Read Campaign" was launched, and local practice and experience was developed. During the 1970s and early 1980s, the government-funded agency 'Adult Literacy and Basic Skills Unit' emerged. The unit provided materials and guidelines for good practice and funded small research projects. Since the late 1980s, there has been a shift in policy and focus, aiming at adjusting education toward changing national and economic needs.

Rates of Literacy in Developing Countries

Substantial regional differences in illiteracy rates exist. The rate of illiteracy is relatively low in Latin America and the Caribbean (13.4) and very high in South Asia (50.6 per cent) (Table 1). Ghana is in the middle of the spectrum with an illiteracy rate of 35.5 per cent. Regions with high illiteracy rates also tend to have low per capita GNP and high pupil-teacher ratio. Within Sub-Saharan Africa, substantial differences exist between Anglophone and Francophone countries (Table 2). Illiteracy rates in Anglophone countries are 16 percentage points lower than in Francophone countries. Average per capita GNP in Anglophone countries is more than twice as high as in Francophone countries, school enrollments are higher and pupil teacher ratios are lower (37.8 pupils per teacher in Anglophone countries versus 47.3 pupils per teacher in Francophone countries).

TABLE 1
**Selected Social and Macro-Economic Indicators,
 Ghana and Six Regional Groups, 1995**

<i>Indicator</i>	<i>Ghana</i>	<i>East Asia A Pacific</i>	<i>Europe * Central Asia</i>	<i>Latin America and the Caribbean</i>	<i>Middle East and North Africa</i>	<i>South Asia</i>	<i>Sub- Saharan Africa</i>
Adult illiteracy rate (per cent)	35.5	16.9		13.4	38.7	50.6	44.0
GNP per capita	350.0	807.8	-	3,419.8	-	354.1	485.6
Gross primary enrolment ratio (per cent)	76.0	115.4	99.6	111.5	96.5	99.0	74.6
Ratio of primary school pupils to teachers	27.6	24.2	20.0	24.5	27.8	62.7	40.6

Notes: - Not available, gross primary enrolment ratio and ratio of primary school pupils to teachers for Ghana are for 1993.

Source: World Bank Edstats database.

TABLE 2
**Selected Social and Macro-Economic Indicators, Ghana and Anglophone
 and Francophone Countries in Sub-Saharan Africa, 1995**

<i>Indicator</i>	<i>Ghana</i>	<i>Anglophone Countries in Sub- Saharan Africa</i>	<i>Francophone Countries in Sub- Saharan Africa</i>
Adult illiteracy rate (per cent)	35.5	36.1	51.9
GNP per capita	350.0	675.7	333.4
Gross enrolment ratio (per cent), primary	76.0	88.8	64.4
Ratio of pupils to teachers, primary	27.6	37.8	47.3

Notes: Gross primary enrolment ratio and ratio of primary school pupils to teachers for Ghana are for 1993.

Source: World Bank Edstats database.

Worldwide Increase in Literacy

For the world as a whole, illiteracy rates have declined significantly, falling from almost 40 per cent in 1970 to just 25 per cent in 1990. Rates of illiteracy fell even more dramatically in developing countries, declining from 50 per cent in 1970 to

35 per cent in 1990 (Lim 1996). Wide differences across gender, geographical region, and age exist within countries, however. For the most part, males have higher literacy rates than females, urban areas have higher literacy rates than rural areas, and younger generations have higher literacy rates than older generations. Lim (1996) also draws attention to the fact that while total illiteracy rates have been falling, the proportion of women in the world's total illiterate population has been rising. Three reasons for this tendency are suggested: the technologies of goods production, the nature of human reproduction, and institutionalization of violence in the state.

Literature on the Determinants of Literacy

Little has been written on the determinants of literacy. Lavy, Spratt and Leboucher (1995) analyze the determinants of literacy in Morocco. They find that illiteracy is more widespread among females than among males, higher in rural areas than in urban areas, and inversely correlated with age. The negative relationship between age and literacy may reflect both deteriorating literacy skills over time and improvements in the quality of education. Lavy, Spratt and Leboucher also find that parents' literacy and household expenditure level positively affect the level of children's literacy, suggesting that poverty and family background are important determinants of literacy.

Veraer (1999) analyzes the determinants of worldwide literacy rates by applying a human capital framework. She finds that enrollment rates, average years of schooling of adults, and life expectancy at birth are the main determinants of literacy. Income affects literacy in a non-linear fashion, with a negative impact until a threshold of about \$2,000 income per year per capita, after which the effect is positive. Institutional and regional variables are not very important in explaining literacy across countries. Literacy rates differ widely across regions, a finding that can be explained by social and economic conditions.

An Overview of the Ghanaian Economy

Ghana is a low-income country, with per capita income of \$406 in 1998 (World Bank, 1999a). It relies heavily on the agricultural sector, in particular cocoa, which accounts for almost half of GDP (World Bank, 1999b).

From the mid-1970s to the mid-1980s, declining cocoa production and trade restrictions stalled economic growth in Ghana. The return of more than a million Ghanaians from Nigeria in 1982-83 and a prolonged drought in 1982 caused growth rates to fall to all-time low levels by about 1984.

In conjunction with the IMF and the World Bank, the Ghanaian government initiated the Economic Recovery Program (ERP) in 1983 and implemented a number of policy reforms aimed at restoring macro-economic stability,

encouraging savings and investment, providing an enabling environment for the private sector and improving public sector management, including privatization of some of the many publicly owned enterprises.

The ERP places significant emphasis on education. The Education Sector Reform Program, established in 1987, improved the efficiency, quality and relevance of education. It also increased access to education and shortened the length of pre-university schooling from 17 to 12 years. As a result of the reform, spending on education rose from 1.4 per cent of GDP in 1983 to 3.8 per cent of GDP in 1994.

The government's plans for additional reforms are outlined in its development strategy, "Ghana-Vision 2020" (Republic of Ghana 1995). A substantial part of the program's social agenda is aimed at basic education. Specific goals include achieving universal basic education and adult literacy, increasing access to secondary and tertiary education and strengthening labour-force skills by increasing technical and vocational training. To achieve these goals, the government, with the assistance of the World Bank and other donors, launched the Basic Education Sector Improvement Program in 1996, which plans to increase investment in school facilities and teacher housing in rural areas and to strengthen science and mathematics in the curriculum by raising education expenditure from 3.8 per cent of GDP in 1998 to 4.1 per cent in 2001.

The Economic Model and the Econometric Framework

The framework for the analysis is standard human capital theory, in which individuals build up knowledge and skills through education and experience - specific on-the-job experience as well as general experience (Becker 1975; Mincer 1974). According to the theory, individuals who invest in human capital are subsequently rewarded with higher earnings. Formally, the economic model may be derived from the theory of either household or individual demand for schooling, both of which view education as an investment in human capital. In industrial economies, in which subsidies for education are common, the investment decision may be viewed as an individual decision; in developing economies the relevant decision unit may be the household (Khandker, Lavy, and Filmer 1994; Mason and Khandker 1997). Households will invest in education up to the point at which the marginal benefit from an additional year of schooling equals the marginal cost of an additional year of schooling.²

In the traditional human capital literature, earnings are determined by education and other individual, household, and possibly, community characteristics. Earnings are observed, however, only for individuals who have positive earnings (that is, who actually supply labour). To take this into account, we specify a labour supply function. Our model then becomes:

$$(I) \quad E_i = E(I_h, H_i, C_i)$$

$$(2) \quad S_j = S(L, H, O)$$

Where E_j (earnings of individual i) and S_j (the labour supply of individual i) are the dependent variables; L is a vector of individual characteristics, such as age and age squared (to capture possible nonlinearities), gender, the individual's level of education, and the level of education of the individual's parents; H is a vector of household characteristics, such as the wealth of the household; and C is a vector of community variables, such as urban versus rural location. Literacy, L , is then determined by the following simple model:

$$(3) \quad L_i = L(L_h, H_h, d)$$

The explanatory variables are similar to those in the earnings equation, with some differences. In order to investigate the possible link between poverty and literacy, we include earnings and the poverty quintile of the household in H . We also include a measure of the distance to the nearest primary school in C .

To analyze the determinants of earnings, we use a Heckman selection model (1976, 1979), which can be briefly described as follows. Consider the earnings regression:

$$(4) \quad \ln W_i = X_i\beta + e_i$$

wherein W_i is log-earnings for individual i , X_i is a vector of explanatory variables for individual i , β is a vector of parameters, and e_i is an error term capturing unobserved variables. The problem in estimating equation 4 is that we implicitly apply a sample selection rule because we observe only earnings of individuals who work; potential earnings of people who do not supply labour are not incorporated. If the sample has characteristics that differ from those of the underlying population in a non-random fashion, it will suffer from a selection bias, which, if not taken into account, will lead to biased parameter estimates. Heckman's solution to this problem is to incorporate the labour supply choice in the earnings equation. The earnings and labour supply choice equations thus become:

$$(5) \quad \ln W_i = X_i\beta + e_i$$

$$(6) \quad I_i^* = Z_i\gamma + v_i$$

where equation 5 is the earnings equation (equivalent to equation 4), I_i^* in equation 6 is a latent variable that reflects the excess utility from participating in the labour market, and Z_i is a vector of variables explaining the labour supply decision of individual i . The latent variable I_i^* corresponds to the indicator variable:

$$I_i = \frac{1}{\lambda} \exp(\lambda X_i \beta) \cdot \lambda, \lambda > 0, 0 \text{ otherwise}$$

The model is estimated by first estimating the inverse Mill's ratio and then including it as an additional regressor in equation 5:

$$(7) \quad \ln w_i = X_i \beta + \lambda A_i + e_i$$

where A_i is an estimate of the inverse Mill's ratio for individual i .³

The Heckman model views labour supply as an individual choice. This view may be inappropriate in a development context, where the absence of (public) safety nets means that there is not likely to be much of a choice involved in the labour supply 'decision.' The labour actually supplied to the market is likely to be determined more from the demand side than from the supply side. This contrasts with industrial economies, in which the labour supply decision is likely to be made in a different way. Skilled workers are more likely to supply their labour than unskilled workers since they forego more income than do skilled workers by staying idle (given that there is a social safety net whose benefits are high enough not to "force" them into working).

We view the Heckman model as the general model, the validity of which must be tested against the reduced model. The reduced model here is the standard earnings equation, which is nested within the selection model. That is, the standard earnings equation is a special case of the selection model in which the selection correction terms, X_i , are statistically insignificantly different from zero.

The Data and Descriptive Statistics

We test the model using data from two household surveys, the 1991/92 Ghana Living Standards Survey (GLSS3) and the 1997 Core Welfare Indicators Questionnaire (CW1Q). GLSS3 aims at obtaining measures of the living standard in Ghana on several dimensions, including health and education/literacy. The survey is very extensive and includes 4,565 households. The CW1Q aims mainly at providing data applicable for analyzing factors affecting poverty, education, and labour markets issues. It contains a much smaller number of questions (questions about earnings, for example, are not included) but a larger sample of households (14,514) and individuals (60,686).

Results on Literacy

Investigating literacy and its covariates for the GLSS data enables differentiating between several types of literacy and reveals that being able to read and write in English is associated with higher earnings than is being able to read and write in one or more Ghanaian languages (Table 3).⁴ The various measures of literacy are

highly correlated, however, a problem that is likely to cause collinearity in the regression analysis of the next section. To circumvent these problems, we combine the various literacy variables into a single composite measure of functional literacy. Specifically, we define individuals as functionally literate if they can read or write in English or any Ghanaian language and perform arithmetic calculations.

The results of the GLSS3 survey reveal a significant gender gap in literacy (Tables 3 and 4). The rate of literacy among males (37.6 per cent) is more than twice as high as among females (18.2 per cent). In contrast, the results of the CWIQ survey do not indicate major gender-related differences in literacy. In order to rigorously establish whether systematic gender-related differences in literacy exist, we need to control for other factors that may influence literacy. This is done in the regression analysis in the next section.

TABLE 3
Correlations of Earnings, Literacy and Gender

<i>Variable</i>	<i>Earnings</i>	<i>Reade</i>	<i>Readg</i>	<i>Write</i>	<i>Writg</i>	<i>Wcalc</i>	<i>Female</i>
Earnings	1.000						
Reade	0.215	1.000					
Readg	0.160	0.765	1.000				
Write	0.221	0.947	0.758	1.000			
Writg	0.159	0.764	0.902	0.769	1.000		
Wcalc	0.173	0.855	0.782	0.842	0.752	1.000	
Female	-0.074	-0.234	-0.223	-0.221	-0.211	-0.238	1.000

Note: Reade: 1 if individual can read in English, 0 otherwise
 Readg: 1 if individual can read in (at least) one Ghanaian language, 0 otherwise
 Write: 1 if individual can write in English, 0 otherwise
 Writg: 1 if individual can write in (at least) one Ghanaian language, 0 otherwise
 Wcalc: 1 if individual can do written calculations, 0 otherwise.
 Source: Ghana Living Standards Survey 1991-92.

TABLE 4
Literacy Rates by Gender

<i>Gender</i>	<i>Literacy rate based on GLSS3 data</i>	<i>Literacy rate based on CWIQ data</i>
Female	18.20	31.14
Male	37.64	63.13
Total	25.78	49.40

Source: Ghana Living Standards Survey 1991/92; Core Welfare Indicators Questionnaire 1997.

TABLE 5
Literacy Rates by Age Range

(per cent)	
<i>Age range</i>	<i>Literacy rate</i>
15-20	45.30
21-25	39.91
26-30	30.28
31-35	31.66
36-40	27.84
41-45	20.31
46-50	15.49
51-55	12.39
56-60	8.54
en-	6.82
All ages	25.78

Source: Ghana Living Standards Survey 1991-92.

TABLE 6
Literacy Rates by Age Range

(per cent)	
<i>Age range</i>	<i>Literacy rate</i>
15-19	50.04
20-24	52.55
25-29	50.31
30-34	51.48
35-39	52.34
40-44	49.75
45-49	49.89
50-54	48.10
55-60	46.75
61+	41.86
All ages	49.40

Source: Core Welfare Indicators Questionnaire 1997.

Literacy rates also vary with age (Tables 5 and 6). Older cohorts are less literate than younger cohorts, suggesting that recent efforts toward strengthening the supply and quality of basic education and literacy programmes have been successful. (This relationship is further explored in the regression analysis in the next section, where we include several additional control variables.)

Literacy varies considerably across sectors. The GLSS data indicate that government employees have the highest literacy rate (71 per cent), followed by private sector (64 per cent) and public enterprise (55 per cent) employees (Table 7). These observations are confirmed by the CWIQ data (Table 8), which show that 90 per cent of public sector employees are literate, followed by the public

parastatal sector (86 per cent), the private formal sector (83 per cent) and, finally, the private informal sector (37 per cent). Hence people employed in the informal part of the economy have much lower rates of literacy than those employed in the formal part. This finding suggests that literacy is a prerequisite for employment in the formal sector (that is, a screening device). People who are illiterate are mainly employable in the informal sector, where skills such as entrepreneurship are likely to be in greater demand (or more relevant) than literacy. Wide differences in literacy rates exist across industries, ranging from only 30 per cent in agriculture to 93 per cent in finance (Table 9).

TABLE 7
Literacy Rates by Sector
(per cent)

<i>Sector</i>	<i>Literacy rate</i>
Government	71.37
Public enterprises	55.26
Private	63.76
Other	33.33
Total	65.36

Source: Ghana Living Standards Survey 1991-92.

TABLE 8
Literacy Rates by Sector
(per cent)

<i>Sector</i>	<i>Literacy rate</i>
Public	90.31
Private formal	83.32
Private informal	36.67
Public parastatal	85.71
Total	42.53

Source: Core Welfare Indicators Questionnaire 1997.

TABLE 9
Literacy Rates by Industry
(per cent)

<i>Industry</i>	<i>Literacy rate</i>
Agriculture	29.59
Mineral	92.45
Construction	70.65
Manufacturing	54.66
Transport	81.01
Wholesale	69.54
Retail	41.58
Finance	93.04
Service	74.55
Total	42.51

Source: Core Welfare Indicators Questionnaire 1997.

Literacy rates increase as poverty declines. The rate of literacy among people in the lowest quintile (29 per cent) is less than half that of people in the highest quintile (73 per cent) (Table 10).

TABLE 10

Literacy Rates by Household Earnings Quintile
(per cent)

<i>Earnings Quintile</i>	<i>Literacy rate</i>
Highest	73.10
Next to highest	56.53
Middle	48.46
Next to lowest	39.07
Lowest	29.33
Total	49.40

Source: Core Welfare Indicators Questionnaire 1997.

TABLE 11

Literacy Rates and Distance to Primary School
(per cent)

<i>Distance (minutes)</i>	<i>Literacy rate</i>
Near (<10 minutes)	56.69
10	53.06
20	46.45
30	40.10
40	28.61
50	40.43
60	23.38
Total	49.40

Source: Core Welfare Indicators Questionnaire 1997.

Turning to supply side factors, the distance from the nearest primary school seems to have an adverse effect on literacy rates (Table 11).

Results on Earnings

Earnings vary by sector (Table 12). Government employees' account for 59 per cent of the highest earnings quintile and just 6 per cent of the bottom quintile. In contrast, private sector employees accounted for just 32 per cent of the highest earnings quintile and 84 per cent of the bottom quintile.

TABLE 12
Earnings by Sector (per cent of total)

<i>Earnings Quintile</i>	<i>Government Employees</i>	<i>Employees of Public Enterprises</i>	<i>Private Sector Employees</i>	<i>Other</i>
Highest	59.3	7.04	31.66	2.01
Next to highest	52.29	6.42	38.07	3.21
Middle	29.46	10.71	54.46	5.36
Next to lowest	17.14	2.86	71.43	8.57
Lowest	6.25	3.12	84.38	6.25
All quintiles	45.81	7.05	43.46	3.69

Source: Ghana Living Standards Survey 1991-92.

Functional literacy is also correlated with earnings. Almost 60 per cent of people in the highest earnings quintile in the GLSS3 and just 14 per cent of people in the lowest earnings quintile are literate (Table 13).

TABLE 13
Functional Literacy and Earnings

<i>Earnings Quintile</i>	<i>Literacy Rate</i>
Highest	58.59
Next highest	47.37
Middle	34.78
Next to lowest	32.73
Lowest	13.55
Total	36.16

Source: Ghana Living Standards Survey 1991-92.

Income distribution differs for men and women. Women account for larger shares of the lower and middle earnings quintiles, while men dominate the upper income levels (Table 14).

TABLE 14
Earnings by Gender

<i>Earnings Quintile</i>	<i>Men</i>	<i>Women</i>
Highest	52.74	47.26
Next to highest	53.55	46.45
Middle	46.40	53.60
Next to lowest	43.62	56.38
Lowest	33.8	66.2
All quintiles	45.98	54.02

Source: Ghana Living Standards Survey 1991-92.

Earnings are correlated with age (Table 15). The trend reflects the increase in experience that takes place over the life cycle

TABLE 15
Earnings by Age Range

	(per cent)									
<i>Earnings Quintile</i>	15-20	21-25	26-30	31 -35	36-40	41-45	46-50	51-55	56-60	61-99
Highest	2.86	5.49	12.89	16.71	16.47	15.27	11.22	9.79	4.3	5.01
Next to highest	1.9	6.4	15.17	20.38	13.51	14.69	11.37	6.64	5.21	4.74
Middle	4.64	10.44	18.56	15.31	13.69	8.82	7.42	6.73	5.8	8.58
Next to lowest	5.34	11.37	16.01	13.69	11.14	7.89	10.44	6.96	5.57	11.6
Lowest	7.75	12.91	11.74	10.09	10.56	9.62	7.28	7.98	5.16	16.9
All ages	4.51	9.35	14.89	15.22	13.06	11.23	9.53	7.61	5.21	9.39

Source: Ghana Living Standards Survey 1991-92.

People with higher levels of education dominate the higher earnings quintiles (Table 16). University graduates, for example, represent less than 2 per cent of the entire sample but account for more than 5 per cent of the top income quintile.

TABLE 16
Earnings by Level of Education

<i>Earnings Quintile</i>	<i>Primary-School</i>	<i>Middle School</i>	<i>Vocational Training</i>	<i>Teacher Training</i>	<i>A-or 0-level</i>	<i>Techm-cat or Profnl.</i>	<i>University <BA. MA. Ph.D.)</i>	<i>Other</i>
Highest	20.18	40.36	2.41	4.82	21.08	5.42	5.41	0.30
Next to highest	20.00	50.94	6.88	4.36	15.94	1.25	0.94	0.00
Middle	31.44	54.18	2.68	1.00	8.36	1.00	1.00	0.33
Next to lowest	46.97	46.21	1.89	0.76	3.41	0.38	0.38	0.00
Lowest	52.28	41.12	2.54	0.00	3.05	0.51	0.00	0.51
All Quintiles	32.01	46.88	3.40	2.41	11.40	1.91	1.76	0.21

Source: Ghana Living Standards Survey 1991-92.

Determinants of Functional Literacy and Earnings in Ghana

To analyze the determinants of literacy, we performed multivariate regression analysis using a probit regression model. Although the determinants of earnings have been rigorously analyzed in the empirical human capital literature, the link to functional literacy has not been addressed. Hence, although our main interest is identifying the determinants of literacy, we incorporate an analysis of the determinants of earnings, focusing on the role of functional literacy.

Determinants of Functional Literacy

We regress functional literacy on the explanatory variables discussed above for individuals 15 years old and older by applying probit regression techniques. A priori, we hypothesize that, following standard human capital theory, earnings positively influence the probability of being literate (note that the hypothesized causality runs from literacy to earnings here, even though, in a sense, all variables are endogenous in the literacy probits presented below) and that literacy and age are inversely related. Older cohorts are expected to be less literate than younger cohorts both because their literacy skills deteriorate over time and because the quality of education they received was likely to have been lower than that enjoyed by younger cohorts. We would also expect to see gender and sectoral differences in literacy rates. We, therefore, control for gender and sectoral differences by including gender and sectoral variables. We also include regional differences, as individuals from urban areas are likely to be more literate than individuals from rural areas because of the greater supply of schooling in urban areas. These differences are captured by including a dummy in the regression, which takes the value of 1 for individuals from urban areas and 0 for individuals from rural areas, where urban areas are defined as localities with a 1984 population of more than 5,000. This specification is consistent with the specification applied in the analysis for Morocco by Lavy, Spratt and Leboucher (1995) discussed above.

The variables are all statistically significant at the 5 per cent level of significance — except the variable for private sector workers which is only borderline significant — and have the expected signs (Table 17). Age negatively affects the likelihood of being functionally literate, although the effect is small: A one-year increase in age is associated with a 1 per cent decrease in the likelihood of being literate. This decline in illiteracy over time may mean that increased attention toward and supply of education and literacy programmes in recent years has had a positive effect on literacy. Alternatively, it may indicate that the quality of education and literacy programmes has improved.

Poverty and literacy are positively correlated: Moving up one quintile in the income distribution increases the likelihood of being literate by almost 3 per cent. The result suggests that illiteracy is mainly a problem for low-income individuals. Being female decreases the likelihood of being literate by almost 30 per cent, suggesting a substantial gender gap in functional literacy. Living in an urban area greatly increases the likelihood of being literate.

These results are consistent with those of Lavy, Spratt and Leboucher (1995) for Morocco. Other results obtained here differ from their results, however. Lavy, Spratt, and Leboucher, for example, find that the effect of mothers' and fathers' education on children's literacy is similar in magnitude. Our findings show that the mothers' education increases the likelihood of a person's being literate by 15 percentage-points whereas the father's education increases it by just 10

percentage-points. This difference may reflect cultural differences between Morocco and Ghana.

TABLE 17

Determinants of Adult Functional Literacy Using GLSS3 Data

<i>Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>Z</i>	<i>P> z </i>
Age	-0.011	0.001	-8.63	0.000
Female	-0.298	0.037	-8.04	0.000
Government worker	0.391	0.064	5.80	0.000
Public sector worker	0.301	0.108	2.78	0.005
Private sector worker	0.118	0.064	1.91	0.056
Mother's education	0.146	0.052	2.86	0.004
Father's education	0.101	0.027	3.84	0.000
Earnings quintile	0.027	0.013	2.08	0.038
Urban	0.128	0.036	3.58	0.000
Observed probability	0.345			
Predicted probability	0.309			

Note: Number of observations = 1,123, Wald - 2 (9) = 277.75, Prob > - 2 = 0.000, Log likelihood = -485.192, Pseudo R 2 = 0.34, Coefficients are changes in the probability of an infinitesimal change for continuous variables and the discrete change in the probability for dummy variables, z and P>|z| are the test of the underlying coefficient being zero. The sectoral reference category is "other."

Source: Ghana Living Standards Survey 1991-92.

We also control for sectoral occupation, something that Lavy, Spratt and Leboucher do not do. As might be expected, working for the government affects the likelihood of an individual being functionally literate the most, at almost 40 per cent, followed by working for public enterprises (30 per cent) and private enterprises (12 per cent). The requirements for functional literacy skills are highest for government positions, followed by positions at public enterprises and positions in the private sector.

We analyze the CWIQ data set in much the same way. As a surrogate for income, which is not measured directly in the CWIQ, we use a poverty measure based on the wealth quintile of the household in the overall distribution. We weigh households according to various predictors of poverty, such as how often a household consumes meat, whether the household uses toothpaste, and so forth (Fofack 1998). With this data set we also look at distance to school, as measured in minutes.

In accordance with the previous results, the results reveal the existence of a gender gap, in which the likelihood of a female being literate is 25 per cent lower than that of males (Table 18). Age and literacy are inversely related, with literacy decreasing by a modest 0.4 per cent a year.

TABLE 18

Determinants of Adult Literacy Using CWIQ Data

<i>Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>z</i>	<i>P> z </i>
Female	-0.245	0.013	-18.43	0.000
Age	-0.004	0.000	-10.24	0.000
Private, formal	-0.170	0.023	-6.61	0.000
Private, informal	-0.412	0.018	-19.18	0.000
Parastatal/Semi-public	-0.028	0.080	-0.35	0.727
Minerals	0.380	0.061	4.97	0.000
Construction	0.113	0.026	4.33	0.000
Manufacturing	0.140	0.020	6.89	0.000
Transportation & communication	0.195	0.028	6.85	0.000
Wholesale	0.125	0.065	1.93	0.054
Retail	0.092	0.015	6.33	0.000
Finance	0.390	0.061	5.06	0.000
Service	0.158	0.016	9.98	0.000
Distance to school (in minutes)	-0.041	0.003	-12.69	0.000
Poverty quintile	0.100	0.004	23.62	0.000
Urban	0.143	0.010	13.81	
Observed probability	0.410			
Predicted probability (evaluated at the mean)	0.400			

Note: Number of observations = 30,438, Wald - 2 (15) = 2327.8661, Prob > - 2 = 0.000, Log likelihood = -15820.678, Pseudo R² = 0.23, Coefficients are changes in the probability for an infinitesimal change for continuous variables and the discrete change in the probability for dummy variables, z and P>|z| are the test of the underlying coefficient being zero. The industry reference category is agriculture, forestry, and fishing. The sectoral reference category is private, informal.

Source: Core Welfare Indicators Questionnaire 1997.

Private formal and informal sector employees tend to be less literate (a negative effect of 17 and 41 per cent respectively) than the reference category of public sector employees. This result supports our previous results and suggests that the skills required by the private sector, and in particular the informal part of the private sector, differ from those required by the public sector. Workers from all industries tend to be more literate, and with different magnitudes, relative to agriculture, forestry and fishing (the reference category). This result should be interpreted as indicating that skills requirements vary across industries.

The distance to the nearest primary school is negatively associated with literacy, with a 10-minute increase in the time it takes to reach the school associated with a 4 per cent decline in the rate of literacy. Although the impact is relatively modest, the result points to the importance of increasing the supply of primary schooling. Individuals from urban communities are found to be more

literate than individuals from rural areas and, which supports the earlier finding since the supply of education is generally greater in urban communities. Poverty and literacy appear to be closely linked: Moving up one quintile in the poverty distribution increases the likelihood of being literate by 10 per cent.

Determinants of Earnings

The omission of non-workers from the sample may bias the results if workers' characteristics are different from those of non-workers. Although we questioned the relevance of the Heckman selection model for developing countries in our discussion of the econometric methodology, following the general-to-specific approach we first estimate this model as the general model and then investigate whether the selection term may be tested out.

We hypothesized above that the main determinants of earnings are education, age and age squared (proxies for experience) and gender. Regional differences are also likely to exist (because workers from urban areas receive higher average earnings to compensate them for the higher cost of living in urban areas).

It may be that basic literacy rather than education is an important earnings-generating factor in low-income countries. We include (dummy) variables for the highest level of education completed, together with our composite measure of functional literacy. We also introduce interaction terms between the highest level of education completed and functional literacy. Including these terms allows us to investigate whether education serves as a screening device (that is, a signal to employers of potential employees' "quality") rather than as a productivity-enhancing (and thus income-enhancing) factor. If education does not serve as a signal in Ghana, we would expect to see statistically insignificant educational variables, while the composite measure of adult functional literacy and the interaction variables would be statistically significant in the earnings equation. Finally, we control for sectoral earnings differences by including sectoral dummies.

After the earnings function is sketched, we model the selection equation. Initially, we propose that "family dependence" in a broad sense is likely to affect the labour supply decision. It is not clear a priori in which direction the effect should go. It is possible to argue both that high family dependence induces a higher earnings requirement, which would positively affect labour supply, and that there may be increasing returns to the household from an additional household member, which could negatively affect labour supply. We try to capture this effect by including a variable that indicates whether an individual is married or not.

The other variables from the earnings equation, except the sectoral variables, are relevant for capturing the characteristics of individuals supplying labour. Viewing the selection equation, as characterizing the labour supply decision may not be appropriate in developing countries, where limited access to public safety

nets implies that labour supply is demand determined. Individuals without access to safety nets will work at any positive wage (their reservation wage will be virtually zero). With this in mind, it seems more intuitive to view possible selection taking place on the demand side. That is, the selection equation quantifies the characteristics of individuals that are sought by prospective employers. Being married, for example, may signal commitment and thus represent a desirable worker characteristic. Because this effect may be different for females and males, we include an interaction term (1 for married women, 0 otherwise).

The results of the estimation of the Heckman selection model of earnings are presented in Table 19. The general lack of statistical significance of variables in the earnings equation is striking, and the large drop-out of the sample is quite alarming - and implies that the results should be interpreted with caution. In the earnings equation, age and the female and private sector dummy variables are statistically significant at the 1 per cent level while the marginal returns to middle school graduates and individuals with technical/professional training are statistically significant and positive. The result suggests the existence of a gender-related earnings gap and seems to indicate that experience is an important earnings-generating factor.⁶ The educational variables are generally not statistically significantly different from zero, possibly indicating that the quality of education in Ghana is low, with middle school graduates and technically/professionally trained workers as an exception. The latter may imply that a positive earnings premium is only obtained after a certain level (and since there are only few secondary school and very few university graduates in the sample, the possible earnings premium for the latter may vanish in the sample as a whole). Workers in the private sector obtain earnings that are higher than those of workers in other sectors. The fact that private sector employees obtain higher than average earnings while the premium for public employees is statistically insignificant suggests that workers obtain benefits other than earnings from working in the public sector. These may include increased job security and greater scope for applying one's education.

From the table it is seen that the inverse Mills' ratio is marginally statistically significant. This indicates that sample selection should be taken into account in order to avoid biased estimates in the earnings equation. Moving on to the selection equation, we note that the variables age and *Educom1* (which takes a value of 1 when middle school is the highest level of education completed and zero otherwise) are positive and statistically significantly different from zero. Experience and middle school completion thus positively affect the likelihood of working. Completing O/A-levels negatively affects the likelihood of working. This may reflect the fact that students who complete their O/A- levels often put off working in order to continue their education.

TABLE 19
Heckman Selection Model of Earnings

<i>Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>Z</i>	<i>P> z </i>
Earnings Equation				
Age	0.675	0.104	6.483	0.000
Age squared	-0.007	0.001	-5.265	0.000
Female	-1.447	0.537	-2.696	0.007
Urban	0.389	1.133	0.343	0.731
Government	0.445	0.448	0.994	0.320
Public	0.723	0.834	0.868	0.385
Private	2.135	0.701	3.047	0.002
Funclit	-1.589	1.132	-1.403	0.160
Educom0	0.404	1.045	0.387	0.699
Educom1	2.737	1.129	2.425	0.015
Educom3	-1.256	0.8674	-1.449	0.147
Educom4	1.248	1.397	0.894	0.372
Educom5	2.803	1.430	1.961	0.050
Educom0*Funclit	0.244	1.439	0.169	0.866
Educom1 *Funclit	-0.992	1.540	-0.644	0.520
Educom3*Funclit	3.540	1.556	2.276	0.023
Constant	-3.957	2.293	-1.725	0.084
Selection Equation				
Age	0.150	0.039	3.902	0.000
Age squared	-0.002	0.001	-3.566	0.000
Female	0.178	0.208	0.857	0.391
Urban	-0.722	0.325	-2.223	0.026
Educom0	-0.350	0.399	-0.883	0.377
Educom1	6.024	0.468	12.862	0.000
Educom3	19.915	-	-	-
Educom4	-1.658	0.567	-2.927	0.003
Educom5	19.965	-	-	-
Educom0*Funclit	-0.467	0.589	-0.794	0.427
Educom1 *Funclit	-7.272	-	-	-
Educom3*Funclit	9.953	-	-	-
Funclit	1.090	0.511	2.134	0.033
Married	0.882	0.299	2.954	0.003
Female* Married	0.116	0.427	0.271	0.786
Constant	-2.276	0.672	-3.386	0.001
Athrho	-0.587	0.154	-3.799	0.000
Lnsigma	1.297	0.064	20.258	0.000
Rho	-0.528	0.112	-1.776	0.076
Sigma	3.658	0.234		
Mill's lambda	-1.929	0.499		

Note: Number of observations = 345. Censored observations = 268. Uncensored observations = 77. Wald χ^2 (16) = 308.75. Prob > f = 0.000. Log likelihood = -803.1458. Wald test of independent equations ($\rho = 0$): f (1) = 14.43 Prob > f = 0.000. The sectoral reference category is "other." The educational reference category is "no completed education." Educom2, Educom6, Educom7, Educom2*Funclit, Educom4*Funclit, Educom5*Funclit, Educom6*Funclit and Educom7*Funclit are dropped due to collinearity.

Source: Ghana Living Standards Survey 1991-92.

Being married and being functionally literate positively affect the likelihood of working for both men and women (the female-married interaction variable is statistically insignificantly different from zero). This result suggests that marriage is an important determinant of labour supply and may indicate that being married signals commitment to a prospective employer. Note that functional literacy works through the selection mechanism rather than directly through earnings, possibly because functional literacy is a prerequisite for entering the labour market.

The monetary returns to skills and education are not statistically significantly different from zero. This result conceals the fact that being functionally literate is a prerequisite for entering the labour market in the first place, however, which is realized when the results of the selection equation are taken into account.

Conclusion

Using two different household surveys on Ghana, we analyze the determinants of literacy and earnings. Our results establish important links between various variables and literacy and earnings.

Age negatively affects the likelihood of being functionally literate, suggesting that literacy has increased over time. This trend may reflect the increased attention toward and supply of education and literacy programmes in recent years or improvements in the quality of educational programmes that already existed.

A substantial gender gap in literacy exists, with female literacy rates far below those for males. Rural residents are less literate than urban residents, which seems intuitive given the relative scarcity of schools in rural areas. Distance to the nearest primary school negatively affects the likelihood of being literate. These results suggest that supply factors are important determinants of literacy.

Parents' educational level affects the likelihood of their children being literate, with mothers' education having a greater effect than fathers' education. Literacy rates differ across sectors, a reflection of the fact that job requirements vary across sectors. As might be expected, working for the government affects the likelihood of an individual being functionally literate the most, while working for semi-public and private informal enterprises affects it the least. Finally, poorer households tend to be less literate than wealthier households. Moving up one quintile in the income distribution increases the likelihood of being literate by 10 percent.

Our analysis of earnings reveals that income rises with age but at a decreasing rate. Gender also affects earnings, with men earning more than

women. Both of these results agree with the existing empirical evidence in the human capital literature. People employed in the private sector earn more than people employed elsewhere. The premium for public sector employees is not statistically significant, suggesting that public sector employees enjoy other benefits, such as job security or the ability to apply their education, from working in the sector.

The educational variables are generally not statistically significant. This finding may indicate that the quality of education in Ghana is poor. Alternatively, it may suggest that education is not serving as a signaling device in Ghana. Any conclusions about these results should be viewed with caution, however, because of the small number of observations included in the earnings part of the analysis.

The basic earnings equation is extended with a selection equation. The results indicate that being married and being functionally literate positively affect the likelihood of working. Marriage, which is an important determinant of labour supply for both men and women, may signal commitment. Functional literacy works through the selection mechanism rather than directly through earnings. One interpretation, which is in line with our earlier discussion of selection in labour markets in developing economies, is that functional literacy is a prerequisite for entering the labour market. Monetary returns to skills and education are generally not statistically significantly different from zero. Being functionally literate is a prerequisite for entering the labour market in the first place, however, which is realized when the results of the selection equation are taken into account.

The primary policy implication of this study is that greater efforts should be directed at developing functional literacy skills and increasing the quality of education. The focus should be primarily on increasing the supply of basic education and literacy programmes, particularly in rural areas. Such programmes should target poor households and females, who generally have lower literacy rates than the rest of the population. These conclusions are consistent with the goals and intentions set forth in the Republic of Ghana's development strategy, "Ghana-Vision 2020."

Notes

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2. This implicitly assumes that the household decision maker possesses perfect information and that capital markets are perfect. Both assumptions are very restrictive and appear unrealistic in developing economies.
3. We applied the maximum likelihood version of the Heckman selection model — rather than the Two-Step version — in order to be able to weight the data.
4. Both surveys rely on self-assessment of literacy, which puts the validity of their findings in some question. The fact that self-reports of literacy are reasonably consistent with educational levels suggests that under-or over-reporting are not serious problems, however.
5. We use sample weights in the regression analysis in this section in order to account for the possible non-representativeness of the sample, due to the sample design. Hence, these weights remedy possible over/under representation of observations on certain variables. However, the difference between parameter estimates and their statistical significance is quite robust across the weighted and unweighted specifications.
6. The gender gap in earnings and the fact that earnings rise (at a decreasing rate) over the life cycle are among the best-established stylized facts of the empirical human capital literature for industrial economies (see Becker 1957, 1975; Blau 1996; Blau and Kahn 1992).

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Appendix

Definition of Variables

Ghana Living Standards Survey (GLSS3)

Age	Age (in years)
Age squared	(Age) ²
Female	1 if female, 0 otherwise
Urban	1 if living in a urban area (1984 population [^] ,000), 0 otherwise
Mother's education	Continuous variable, 1: primary, 2: middle, etc.
Father's education	Continuous variable, 1: primary, 2: middle, etc.
Earnings	The sum of wage income, incomes in kind, housing/transport benefits, etc.,
Earnings quintile	Quintile in the earnings distribution (1-5).
Government	1 if working for the government, 0 otherwise.
Public	1 if working for a public enterprise.
Private	1 if working for a private enterprise.
Funclit	1 if being able to write or read in either English or a Ghanaian language and being able to do written calculations.
Highest level of education attained	
Educom00	1 if none, 0 otherwise.
Educom0	1 if primary school, 0 otherwise.
Educom1	1 if middle3 school, 0 otherwise.
Educom2	1 if vocational training, 0 otherwise.
Educom3	1 if teacher training, 0 otherwise.
Educom4	1 if A or 0 level, 0 otherwise.
Educom5	1 if technical/professional, 0 otherwise.
Educom6	1 if university, 0 otherwise.
Educom7	1 if other, otherwise
Educom0*Funclit	Educom0*Funclit:
Educom1*Funclit	Educom1*Funclit:
Educom2*Funclit	Educom2*Funclit:
Educom3*Funclit	Educom3*Funclit:
Educom4*Funclit	Educom4* Funclit:
Educom5* Funclit	Educom5*Funclit:
Educom6* Funclit	Educom6*Funclit:
Educom7* Funclit	Educom7*Funclit:
Married	1 if married, 0 otherwise.
Female*Married	Female* Married.

Core Welfare Indicators Questionnaire (CWIQ)

Age	Age
Female	1 if female, 0 otherwise.
Sector variables	
Public	1 if public employee, 0 otherwise.
Private, formal	1 if private formal sector employee, 0 otherwise.
Parastatal/Semi public	1 if parastatal/semi-public sector employee.
Industry variables	
Minerals	1 if working in the minerals industry, 0 otherwise.
Construction	1 if working in construction, 0 otherwise.
Manufacturing	1 if working in manufacturing, 0 otherwise.
Transportation and communication	1 if working in transportation and communication, 0 otherwise.
Wholesale	1 if working in wholesale trade, 0 otherwise.
Retail	1 if working in retail trade, 0 otherwise.
Finance	1 if working in finance, 0 otherwise.
Service	1 if working in services, 0 otherwise.
Other variables	
Distance to school	Distance to nearest primary school (minutes).
Poverty quintile	Household wealth quintile

Educational Public Expenditure, Marginal Willingness to Pay for Education and the Determinants of Enrolment in Mexico¹

Gladys Lopez-Acevedo¹

Abstract

Education in Mexico has played a crucial role in the process of earnings formation. Returns to education have increased only in the higher levels of education and in the upper tail of the conditional earnings distribution. Some of the most interesting results are: i) the poorest income groups receive the bulk of primary education subsidy, while at higher levels of education, they receive progressively smaller subsidies; and ii) Governments educational expenditure pattern changes across regions. The marginal willingness to pay analysis attempted here shows: i) the non-poor and those in urban areas get a large share of the subsidy or "savings" from the government provision of educational services; ii) the valuation for private educational services is higher for the wealthy as compared to for the poor; and iii) school quality differences are higher at primary level. These results reinforce the finding that those households with a high level of educational expenditures get the largest subsidy from public educational services. These findings tend to indicate that increase in enrollment will be more readily obtained if resources are successfully targeted towards the poorer income group.

Introduction

Research has shown that education has played a crucial role in the process of earnings formation and that the returns to education have increased only in the higher levels of education and in the upper tail of the conditional earnings distribution². In this context, it is essential to analyze the impact of the public educational expenditure on school enrollment, the groups that have been

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benefited with the public expenditure and the public expenditure trends. Thus, the need to investigate government's educational expenditure patterns in the face of possible further increases in earnings inequality. In doing so, a benefit-incidence analysis is carried out, using unit cost per student by state and by educational level.

In addition, a new approach is used to prevent this drawback. The marginal willingness to pay analysis measures the government's provision for public schools effect on the educational spending behavior of an average household. What would an average household with a given set of characteristics be willing to spend on an individual child, if subsidized public education facilities were not available? What would the household have 'saved' by sending the child to public schools instead of private schools? How large are these 'savings' for various income groups? Furthermore, this paper investigates the link between the government's educational policy and the household's decision-making with regards to its educational expenditure and schooling enrollment. Consequently, the focus is on answering the following questions: Which are the determinants for enrollment by income groups and location? How do individuals' educational expenditures affect enrollment patterns?

The data used is from the National Household Income and Expenditures Survey (ENIGH) for 1996, as collected by the *Instituto Nacional de Estadística, Geografía e Informática* (INEGI). This survey is available for 1984, 1989, 1992, 1994 and 1996³. Each survey is representative at national level, urban and rural areas. For 1996, the ENIGH is also representative for the states of Mexico, Campeche, Coahuila, Guanajuato, Hidalgo, Jalisco, Oaxaca and Tabasco.

The survey design was stratified, multi-stage and clustered. The final sampling unit was the household and all the members within the household who were interviewed.⁴ In each stage, the selection probability was proportional to the size of the sampling unit. Then, it is necessary to use the weights⁵ in order to get suitable estimators.

The available information can be grouped in three categories:

- Income and consumption: the survey has monetary, no monetary and financial items.
- Individual characteristics: social and demographic, i.e., age, school attendance, level of schooling, position at work, economic sector, etc.
- Household characteristics.

In addition, data from the *Direction General de Planeación, Programación y Presupuesto* (DGPPyP, Ministry of Education) regarding educational government expenditures (federal plus state) assigned to the different levels of schooling for each state is used in order to calculate the unit costs.

Public Educational System

The structure of Mexico's educational system has the following main characteristics:

First, there is basic education, which is the government's priority. The basic education system consists of: (i) early childhood education (or pre-school), which is optional for children, 3 to 5 years old; (ii) mandatory primary education where the official entry age is 6 and ideally should be completed in 6 years, in fact, due to late enrollment and grade repetition, however, the target population is 6 to 14 years; (iii) mandatory lower secondary school consist of a 3-year cycle, and it is intended for children aged 12 to 16, at this level, the structure is divided in two areas: general and vocational/technical. In parallel, the system also includes the *telesecundaria*, a distance educational program designed to reach remote areas through the transmission of recorded lessons via television network supported by face to face assistance from tutors.

The next level, following basic education, is middle level education with options available to students who may choose technical schools and upper secondary education. The duration of these programs is 3 years. A high percentage of the students go for *bachillerato* also called upper-secondary which allows them to pursue tertiary instruction. On the other hand, a demand for technical studies has been increasing steadily in recent times.

Finally, there is tertiary education. This level of education encompasses three lines of study: a system of federal technological institutes, state and autonomous universities, and teacher training institutes. There is at least one university for each state, and the large universities have campuses in various cities.

Enrolment and Public Expenditures in the Benefit-Incidence Analysis

The benefit-incidence methodology, applied here, ranks individuals into groups by income deciles. It then draws information on individual public school enrollment by state and decile to tally up number of beneficiaries of each group. These numbers are then multiplied by the government's unit cost of provision allowance for each state and educational level. This provides a profile of distribution for a specific category of educational public expenditures throughout the distribution of income or the 'benefit incidence'. Thus, this technique assumes that the benefit derived from education is equal to the government cost of providing this service.

The incidence analysis brings together two sources of information. First, data from income-expenditure surveys (ENIGH) used to construct the deciles. The ENIGH surveys identify the educational level, type of school and total income/expenditure. Second, government expenditures (federal plus state) on education assigned to the different levels of schooling for each state from the

Dirección General de Planeación, Programación y Presupuesto, (DGPPyP, Ministry of Education) and used for calculating unit costs.

Equity issues are then analyzed using the Lorenz Curves based on the pattern of government subsidies to education received by different population groups, highlighting the results of changes in the use of educational services and changes in government's expenditures for education by levels and by state.⁶

TABLE 1
Total and Public Enrollment Rate by Poverty Status, Location and Level of Education 1996, INEGI/CEPAL Poverty Line

<i>Poverty Status</i>	<i>Urban</i>		<i>Rural</i>		<i>Total</i>	
	<i>All</i>	<i>Public</i>	<i>All</i>	<i>Public</i>	<i>All</i>	<i>Public</i>
Primary (6-11 years old)						
Extreme	93.2	93.2	93.5	93.5	93.3	93.3
Moderate	96.4	96.4	94.6	94.6	96.0	96.0
Non-poor	96.1	95.7	96.4	96.3	96.1	95.7
Total	95.4	95.2	93.9	93.9	94.9	94.7
Lower Secondary (12-14 years old)						
Extreme	49.1	48.9	29.0	28.8	37.9	37.6
Moderate	68.7	68.8	51.0	51.2	64.8	64.9
Non-poor	81.4	81.3	59.5	59.8	79.1	78.8
Total	68.5	67.7	36.8	36.6	58.4	57.4
Upper Secondary (15-17 years old)						
Extreme	23.5	21.4	6.9	5.9	14.5	12.9
Moderate	39.6	36.8	22.2	21.7	36.0	33.5
Non-poor	61.7	54.0	24.5	21.8	58.0	50.1
Total	45.7	39.8	12.8	11.7	36.4	31.2
University (18-24 years old)						
Extreme	3.4	2.9	0.4	0.4	1.8	1.6
Moderate	7.4	7.0	2.3	2.2	6.4	5.9
Non-poor	24.0	17.6	5.9	5.4	22.0	16.1
Total	15.3	11.5	2.0	1.8	12.0	8.9

Source: Own calculations based on ENIGH, 1996

Enrolment Rates

Variability of enrollment between poor and non-poor individuals is not substantial at the primary educational level (Table 1). However, urban areas show slightly larger primary enrollment rates than rural areas, which might be explained by higher accessibility and affordability to the private system. Enrollment rates for the educational levels beyond primary and probable lower-secondary levels decrease dramatically, particularly for the extremely poor, thus resulting in an increase in the educational gap between poor and non-poor.

(Tables 1 and 2 in Annex 1 show enrollment by educational level and types of schools used in the benefit incidence analysis).

Given that coverage at primary level and the first years of lower secondary is already sizable and decreasing due to demographic factors which cause the population in this group to stagnate and start to shrink at the beginning of the next century.⁷ This in turn frees some resources so that coverage may be increased at the upper-secondary level.

Public Educational Expenditures

Total public educational spending per student in Mexico increased steadily up to 1994 and peaked in 1998, even though the total student population increased from 26 million in 1994 to 28 and a half million in 1998. By 1998, total spending in education increased by 5.2 per cent of GDP, less than a full percentage point above the 4.9% of GDP reached in 1995. The federal government currently accounts for close to 80% of total sector spending.

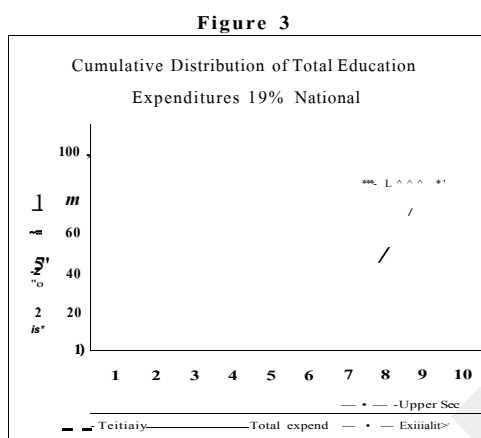
A desegregation of public expenditures in education by instruction level for 1994 and 1996 is shown in Tables 2 and 3 and Figures 1 and 2. Public expenditures in primary and lower secondary absorb a large proportion (59% in 1996) of federal budgetary resources for formal education services. Yet, public expenditures in upper secondary and tertiary level were 13.7% and 27.3% each respectively. Another observation about the evolution of educational public spending evolution is that it has become more egalitarian in per capita terms across different schooling categories.⁸ In the early 1980s, the amount of federal spending per university student was 10 times the amount spent per primary student. This ratio fell to around 7 times in the early 1990s. Federal spending on the other levels relative to the primary level indicates a similar decline, even though the absolute amounts increased at all levels. In 1996, upper-secondary received 1.5 as much as each primary school student and each university student received five times as much as a primary student, compared to 2.1 and 6.8 in 1994 respectively.

TABLE 2
Federal and State Expenditures on Public Education, 1994
(Thousands of current pesos)

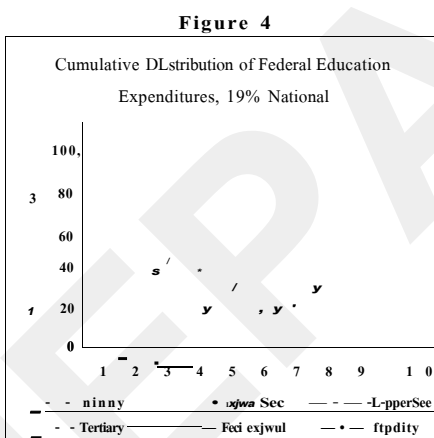
	<i>Primary</i>	<i>Lower Secondary</i>	<i>Upper Secondary</i>	<i>Tertiary</i>
Federal Expenditure	17,947,229	8,603.383	6,610,913	13,141,420
State Expenditure	N/A	N/A	N/A	N/A
Total Expenditure	17,947,229	8,603.383	6,610.913	13,141,420
Enrollment	13,593,797	4,661.522	2,386,758	1,461,189
Subsidy per Student (pesos)	1,320	1,846	2,770	8,994
Primary Student equivalence	1.00	1.40	2.10	6.81

Sources: ENIGH 94 and DGPPyP (1999), SEP

level benefits the middle and upper classes. Finally, the tertiary level is strongly regressive in that it mainly benefits the richest deciles. At national level, public expenditures seem quite equal, as shown by the fact that the expenditure line lies very close to the 45-degree diagonal.

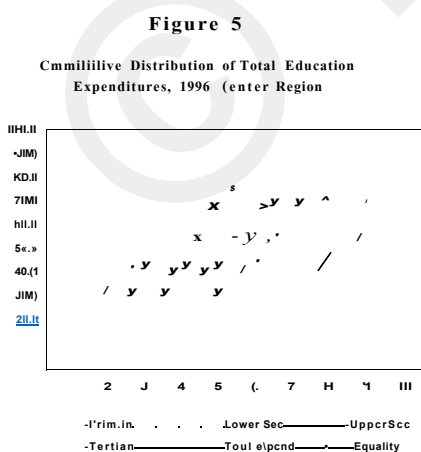


Source: ENIGH % and DGPPyP. SEP

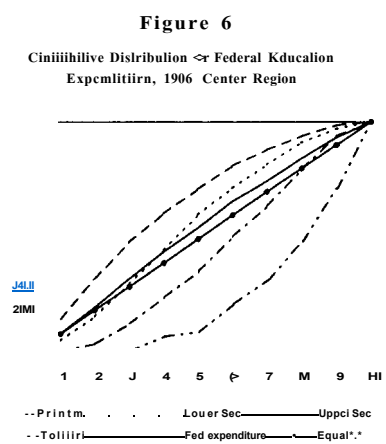


Source: ENIGH 96 and DGPPyP, SEP

When desegregated by region, (Figures 5 and 6), it becomes evident that the educational inequality in the Central Region of Mexico leads the national pattern. Still, in the Central Region, the curve for total and federal schooling expenditures lies above the equality line. This implies that on an average total schooling expenditures for that region are more uniformly distributed than the national pattern.



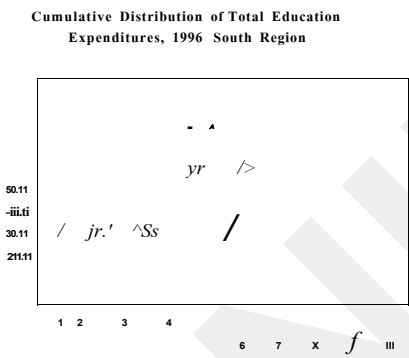
Source: ENIGH 96 and DGPPyP. SEP



Source: ENIGH 96 and DGPPyP. SEP

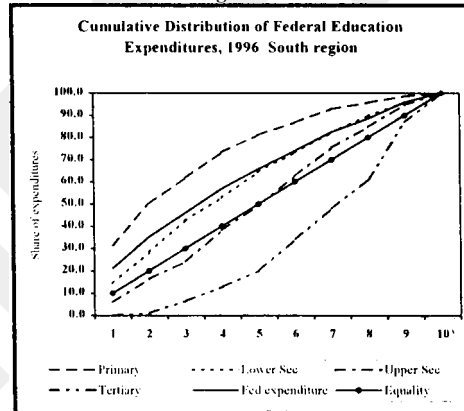
The distribution of the average subsidy in the South Region and Tabasco State lies above the average distribution for the North Region (Figures 7 through 10). One plausible explanation is the higher concentration of the enrollment in the lower deciles (mainly in primary) in the South Region and Tabasco compared to the concentration in the North, where the students are in the medium and top deciles. In the South, public enrollment is highly progressive particularly for primary school, as shown by the fact that public school enrolment is above and far from the 45-degree diagonal. It should also be mentioned that public education spending in upper-secondary in Tabasco is basically neutral at high level of income, while progressive at the bottom of the distribution.

Figure 7



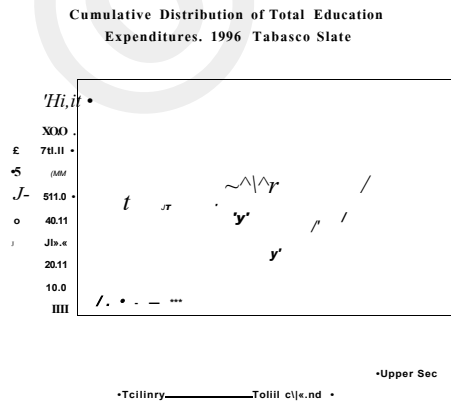
Source: ENIGH % and DGPPyP, SEP

Figure 8



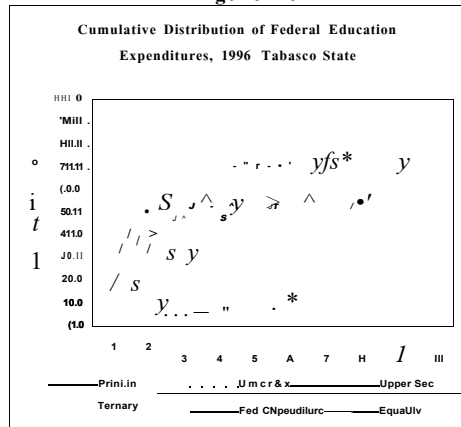
Source: ENIGH 96 and DGPPyP, SEP

Figure 9



Source: ENIGH 96 and DGPPyP, SEP

Figure 10

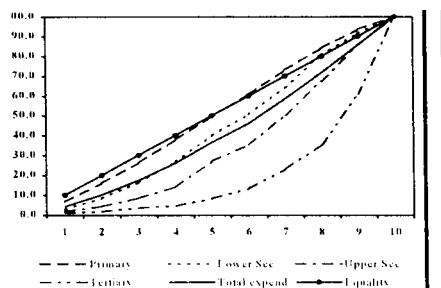


Source: ENIGH 96 and DGPPyP, SEP

In the North Region (Figures 11 and 12), the cumulative distribution of educational subsidy lies below the 45-degree diagonal, except for primary schooling, which is near the equality line. In general, this can be explained by both larger populations in the medium and top deciles and higher enrollment rates in higher levels, which probably reflect higher incomes in the North Region and easier access to schools.

Figure 11

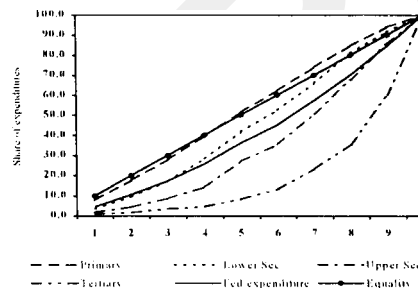
illative Distribution of Total Education Expenditures, 1996 North Region



Source: ENIGH 96 and DGPPyP, SEP

Figure 12

Cumulative Expenditures



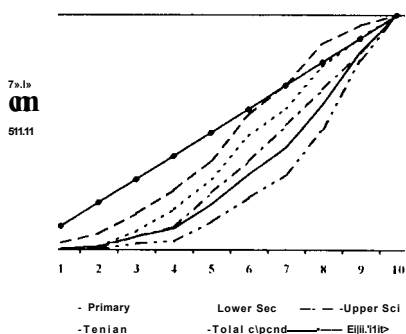
Source: ENIGH 96 and DGPPyP, SEP

The distribution of per capita public expenditures in Mexico City (Figures 13 and 14) is far below the 45 degree diagonal indicating that it is very regressive. Public expenditures in primary level are progressive for the high-income deciles, in that the primary curve lies above the 45-degree axis and it is much more progressive than the distribution of per capita expenditures, reflecting the fact that fewer higher income children attend public primary schools. Spending at the lower and upper secondary level is more progressive than the public expenditures, although the curves still lie below the 45-degree diagonal. Only university instruction is more regressive than the average distribution of total expenditures. Interestingly, public expenditures in education in Nuevo Leon (Figures 15 and 16) are far below the 45-degree diagonal following a pattern similar to Mexico City.

The evidence presented suggests that public subsidies for education, particularly at the tertiary level, are regressive. A large share of public resources is given to the high-income level students. A strategy to re-allocate public expenditures from tertiary to secondary level in order to favor the poor would involve a comprehensive agenda that would meet the challenges posed in upper-secondary level such as financing and quality of education.

Figure 13

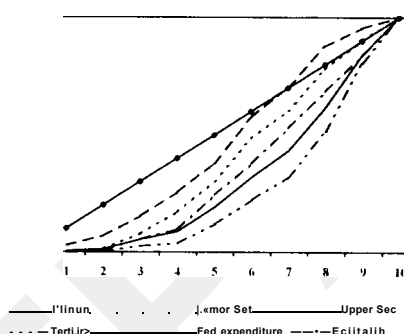
Cumulative Distribution of Total Education Expenditures, 1996 Distrito Federal



Source: ENIGH 96 and DGPPyP, SEP

Figure 14

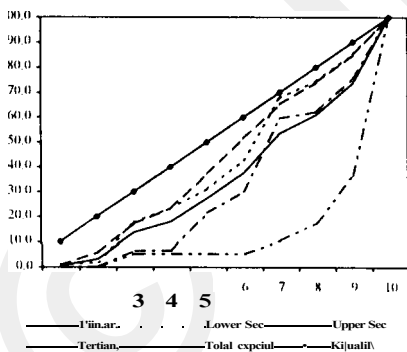
Cumulative Distribution of Federal Education Expenditures, 1996 Distrito Federal



Source: ENIGH 96 and DGPPyP, SEP

Figure 15

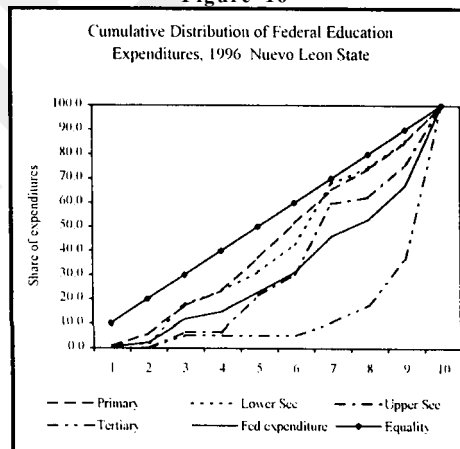
Cumulative Distribution of Total Education Expenditures, 1996 Nuevo Leon State



Source: ENIGH 96 and DGPPyP, SEP

Figure 16

Cumulative Distribution of Federal Education Expenditures, 1996 Nuevo Leon State

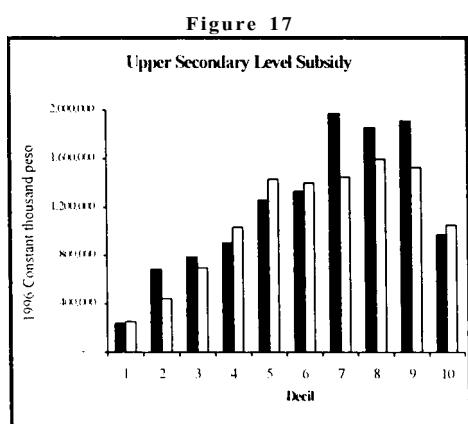


Source: ENIGH 96 and DGPPyP, SEP

Comparison of the Federal Subsidy Distribution for 1994 and 1996

Comparing the year 1994 and 1996 to assess a change over time in the targeting of education spending, Figures 17 through 20 show the subsidy received by students in each income decile for all levels of education in 1994 and 1996. As indicated, the subsidy in primary level increased from 1994 through 1996. Such increment was slightly higher for the bottom income decile as compared to the top deciles. In contrast, subsidies decreased from 1994 to 1996 for the lower secondary level. Such

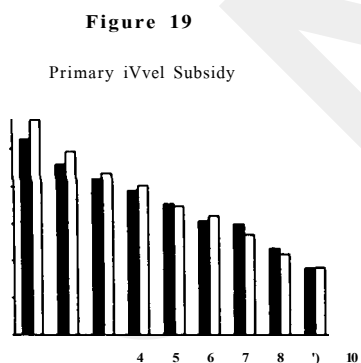
reduction had a higher impact on deciles 6 through 9. For upper secondary educational level, per capita subsidies decreased on an average by 200,000 thousand pesos for students in deciles 7 through 9. Finally, the tertiary level also experimented a reduction of approximately 1,000,000 thousand pesos in the ninth decile.



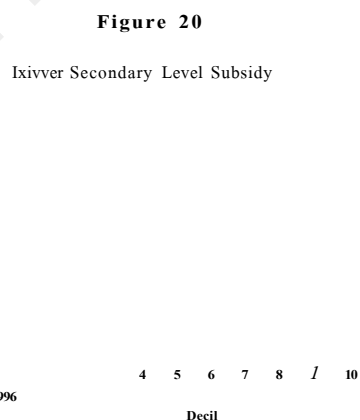
Source: ENIGH 96 and DGPPyP. SEP



Source: ENIGH 96 and DGPPyP. SEP



Source: ENIGH 96 and DGPPyP. SEP



Source: ENIGH 96 and DGPPyP. SEP

In both years, the pattern is progressive for the primary level, as it was found in the previous section, meaning that the subsidy is higher for the poor. On the other hand, the subsidy for upper secondary and tertiary levels is still regressive, benefiting mainly the non-poor, although, the distribution of subsidy has become more egalitarian in 1996 compared to 1994. For lower secondary educational level, the middle-income groups receive most of the subsidy.

Marginal Willingness to pay for the Educational Services

Standard benefit-incidence analysis assumes that the subsidy and the quality of educational services are the same for all income deciles. This is a strong assumption that has the tendency to minimize the distributional inequity within educational levels. This section uses a new approach that prevents this drawback. The marginal willingness to pay analysis measures the government's provision for public schools effect on the educational spending behavior of an average household. What would an average household with a given set of characteristics be willing to spend on an individual child, if subsidized public education facilities were not available? What would the household have 'saved' by sending the child to public schools instead of private schools? How large are these 'savings' for various income groups?

Private Expenditures in Education

On the demand side, household enrollment patterns are highly dependent on the cost of schooling. The total monetary cost for the household, without considering the opportunity cost, comprises school fees, tuition and unforeseen expenses, transportation cost, textbooks, stationery and uniforms. Table 4 in Annex 1 shows how much an average household spends on education by poverty status and educational level. Table 4 below illustrates the fact that most students who are in private schools spend on education more than twice than those students who are in public schools. As per this Table, the share of the expenditures in services and materials are similar for both private and public school, while the fees and unforeseen expenses constitute the differences in total school expenditures between private and public schools. In private schools, fees and unforeseen expenses account for 70% of the school expenditures compared to 38% in public schools. Moreover, the educational expenditures in the urban areas are twice as high as in rural areas (Table 5 in Annex 1).

Table 5 compares the expenditure of poor and non-poor students by education level, showing significant disparities. At primary level, non-poor students in public school spend four times the amount than extreme poor students spend in education while at the university level non-poor individuals spend 1.4 times as much as poor students. These differences might be partly explained by scholarships or discounts on tuition fees among the poor.

Information at the individual level on schooling expenditures is available only for school fees, tuition and unforeseen expenses, but assuming that the amount spent on materials and services is fixed for all levels of education, the individual total educational expenditures are much lower than the government subsidy. In fact, the public subsidy compared to the average student expenditure

is 2.8 times for primary level, 2.3 for lower secondary, 2.2 for upper secondary and 5.2 for university.

TABLE 4
Household Expenditures in Education by Poverty Status, 1996

Poverty Status	Expenditures per student (%) Eees/Unfore- seen expenses	Services	Materials*'	Total	Educational Expenditures (%)''	Services, materials Expenditures (%f	Number of Households
Private schools							
Extreme	70.3	1.0	28.7	100.0	14.6	4.3	12
Moderate	75.1	4.3	20.7	100.0	11.1	2.8	50
Non-poor	70.8	5.5	23.7	100.0	16.7	4.9	499
Total	70.9	5.4	23.7	100.0	16.6	4.8	561
Public schools							
Extreme	32.2	1.2	66.6	100.0	6.3	4.3	2825
Moderate	35.2	2.4	62.4	100.0	7.0	4.5	2511
Non-poor	41.8	5.4	52.7	100.0	6.7	3.9	2544
Total	38.3	3.8	57.8	100.0	6.7	4.2	7880

Source: ENIGH 96

* Textbooks, stationery, etc.

As percentage of household's expenditures

The total cost (student expenditure plus government subsidy) per student in primary public school corresponds to about 35% of the private primary school cost. For students in lower and upper secondary, it represents 43% and 53% respectively. On the other hand, the cost of tertiary level is 13% higher in public schools as compared to private (Tables 6 and 7). An interesting question that arises is, why the cost at tertiary level is higher in public than in private schools. Is it because the subsidy is not being used efficiently, or because the infrastructure (research institutes, libraries, museums, entertainment centers, etc.) they offer is costly?

The preliminary results on the pattern of individual expenditures with children in public schools suggest that the burden on poor households can be substantial, and that it is unlikely that a poor household would afford to attend a private school.⁹

TABLE 5
Expenditures in Education Per Student (Fees/tuition/unforeseen expenses)* by Level of Education, 1996

<i>Poverty</i>	<i>Status</i>	<i>Primary</i>	<i>Lower</i>	<i>Secondary</i>	<i>Upper</i>	<i>Secondary</i>	<i>Tertiary</i>
Public and Private schools							
Extreme		76.7	268.2		851.9		1828.7
Moderate		186.3	491.6		975.9		835.9
Non-poor		1378.9	1404.7		2965.1		5448.7
Total		425.4	750.1		1996.2		4466.8
Public schools							
Extreme		74.6	262.4		760.1		1828.7
Moderate		179.4	485.2		883.7		817.4
Non-poor		307.4	712.5		1292.1		2577.7
Total		156.8	492.9		1057.4		2141.6
Private schools							
Extreme		1422.5	1252.5		2845.0		0.0
Moderate		1739.0	1088.7		2540.3		1179.4
Non-poor		6468.1	6539.0		8515.2		12950.5
Total		6241.9	5915.4		7495.3		12451.3

Source: ENIGH 96

* Annual pesos per student

TABLE 6
Individual Educational Expenditures* Plus Subsidy in Public Schools by Poverty Status*

<i>Poverty</i>	<i>Status</i>	<i>Primary</i>	<i>Lower</i>	<i>Secondary</i>	<i>Upper</i>	<i>Secondary</i>	<i>Tertiary</i>
Extreme		2799	3266		5002		16970
Moderate		3267	3852		5489		16322
Non-poor		3941	4626		6444		18629
Total		3268	3883		5686		17670

Source: ENIGH 96 and DGPPyP. SEP

* Fees/tuition/unforeseen expenses, services and materials, # Annual pesos

TABLE 7
Individual Educational Expenditures* in Private Schools by Poverty Status"

<i>Poverty</i>	<i>Status</i>	<i>Primary</i>	<i>Lower</i>	<i>Secondary</i>	<i>Upper</i>	<i>Secondary</i>	<i>Tertiary</i>
Extreme		2295	2125		3717		
Moderate		2390	1740		3191		1831
Non-poor		9851	9922		11898		16334
Total		9387	9060		10640		15596

Source: ENIGH 96 and DGPPyP, SEP

* Fees/tuition/unforeseen expenses, services and materials. # Annual pesos

Estimating the effect of government spending on household educational expenditures

Looking at the impact of public educational expenditures by deciles, it is usually assumed that the subsidy and the quality of education are uniformly the same for all income deciles. This is a strong assumption that tends to minimize the distributional inequity within educational levels. The Marginal Willingness to Pay approach prevents this drawback and estimates a willingness to pay equation for private school services corrected for self-selection bias, using standard Heckman methodology (Annex 2 reviews this methodology).

In analyzing the impact of public spending on household behavior, one could ask the following questions: What would an average household h with a given set of characteristics (X_h) be willing to spend on an individual child i with traits (X_c), if subsidized public education facilities were not available? What would the household have 'saved' by sending the child to public schools instead of private schools? How large are these 'savings' for various income groups?

Intuitively, one would think that household 'savings' could be estimated as the difference in household education spending on public versus private schooling of children of comparable characteristics. While the concept appears straightforward, the estimation is not. The challenge is to ensure that these two groups of children are comparable. One can argue that due to observable and unobservable factors, the two groups of children are in fact different. Examples of measurable variables are family income and parents' education. Examples of unobserved variables that can generate self-selection bias is preference for religious instruction, high rate of return to quality due to child's exceptional intelligence and taste for individualized instruction. Lack of control for these unobservable factors would overstate the potential household 'savings' associated with the provision of subsidized public education. Households send their children to private schools, despite availability of public school places, because they want higher quality and additional services that they cannot find in public schools.

The Heckman's methodology starts by estimating a probit equation. The probit equation or step 1 (see Annex 2) has as dependent variable whether child i is attending private school (value of 1) or public school (value of 0). The explanatory variables are per capita household income, years of school of household head (hh), area (urban/rural), age, gender, number of rooms, type of floor and number of children in household. The trigger variable that identifies the model is the number of students per classroom, by type of education at municipal level. Table 8 provides the results of the estimation.

TABLE 8
Probit on Private School Attendance

<i>Explanatory variable</i>	<i>Coefficient</i>	<i>Marginal Effect</i>
Per capita income	0.78	0.064
Years of schooling of head	0.03 *	0.002
Area (rural)	0.80 *	0.046 +
Age	0.16	0.014
Age squared	0.00	0.000
Gender (female)	-0.12 **	-0.01 +
Number of rooms	0.09 *	0.008
Floor (not finished floor)	0.40 *	0.037 +
Sewage (not sewage)	0.32 *	0.024 +
Number of Children	-0.10 *	-0.00
Trigger Variable	-0.09 *	-0.00
Constant	-7.56	

Source: Own calculations based on ENIGH 96 and DGPyP, SEP

* Significant at 5%

** Significant at 10%

Italics indicates the reference category for dichotomous variables

(+) dl/dx stands for the discrete change in the dummy variable from 0 to 1

The first column on Table 8 has the coefficient and the second shows the marginal effects as estimated from the probit.¹⁰ Notice that all explanatory variables are significant at 5% level, except for gender. In addition, all explanatory variables show the expected sign on the probability to attend private school. For instance, the probability to attend private school is positively influenced by per capita household income and area.

The household's willingness to pay for private education (P_v) of child i (step 2) in Heckman's methodology is estimated using total educational expenditures on private schools (fees, tuition, unforeseen expenses and school materials") as dependent variable.¹² Explanatory variables are Mills' ratio and the variables from the probit estimation except the trigger variable."

Using the estimates from step 2 and step 3 and the mean of all explanatory variables, one can compute the amount of money that households would be willing to pay for the child's private education ($MMWP_v$, step 4) or public education ($MMWP_{it}$, step 5). Notice that the difference between $MMWP_v$ and $MMWP_{it}$ measure the effect of the government provision of public schools on the education spending behavior of an average household. Note that this difference reflects the relative quality and payments (fees and unforeseen expenses) associated with public and private schools.

Next, how large household 'savings' is computed for different population sub-groups by area, poverty status, educational level and total educational expenditures by quantile?

Tables 1 through 9 in Annex 2 show the average values of the explanatory variables for the different population sub-groups. As said before, these values are used to compute the marginal willingness to pay corrected for self-selection bias.⁴

As indicated on Table 1 in Annex 2, all the explanatory variables turned are significant in the process of computing the marginal willingness to pay for public educational service except for gender. In the case of private education, the relevant variables are income, years of schooling of the head of the household and sewage.

TABLE 9
Effect of Public Schools Provision on an Average Household
Education Spending *

MMWP _v	6274.88
MMWP _u	1080.92
Effect or "savings"	5193.96

Source: Own calculation based on ENIGH 96

* Annual 1996 pesos

Assuming that there are no differences in the quality of education between a public and a private school, it is seen in Table 9 (after controlling for observed and unobserved factors) that family's savings from sending a child to a public school amount to approximately \$5,000 pesos per year (0.56 minimum wages in 1996). In addition, the results suggest that such savings are correlated with the schooling of the household head, location and number of children at home.

Now, assuming that the difference between private and public schools students' scores is only 10%, then, ninety per cent of the effect or "savings" is due to relative payments and unforeseen expenses. The rest will reflect the amount that the average child would have to pay for "quality difference" in moving from a public to a private school.

The marginal willingness to pay desegregated by area is shown in Table 10. Supposing that the quality between public and private schools in both rural and urban areas is the same, then it turns out that the government provision of public schools is higher in urban areas than in rural areas. This result could be explained, among other things, by the following factors: (i) poor location of public educational services; (ii) distance that an individual has to travel to the nearest school; (iii) the population dispersion; and (iv) lastly the opportunity cost of the children in rural areas.

On the other hand, assuming that there is not a quality difference between private-public schools in rural areas and the quality difference between public-private schools in urban areas is a little above 50%, the relative payments and unforeseen expenses would be the same in both areas. Finally, assuming that the quality difference between public and private rural schools is zero but the quality difference in urban areas is 10%, then the relative payments and unforeseen expenses (as part of the "effect") in urban areas is higher than in rural areas (urban effect \$4,016 pesos and rural effect \$2,245 pesos). In summary, such scenarios suggest that students in urban areas get a larger share of the subsidy or 'savings' from the government provision of educational services compared to these in rural areas.

TABLE 10
Effect* of Public Schools Provision on Household Education
Spending by Area

	<i>Urban</i>	<i>Rural</i>
MMWP_v	6459	2674
MMWP_u	1438	429
Effect	5021	2245

Source: Own calculation based on ENIGH 96

* Annual 1996 pesos

As shown in Table 1 1, the government provision to public schools has a smaller impact on the poor as compared to the non-poor. Notice Table 4 in Annex 2, that for both poor and non-poor, gender is not important in the determination of the *MMWP_u*, while per capita household income, age and number of children do have an impact. It is important to note that while the education of the household head determines the *MMWP_u* for the poor, it does not affect it for the non-poor. With respect to *MMWP_v* for poverty status, Table 5 in Annex 2 shows that the educational level of the household head affects the *MMWP_v* for both groups, while the per capita household income does affect the non-poor. The age of the children impacts on the *MMWP_v* of the poor, but it does not have any effect on the non-poor. Finally, again gender is not important in the *MMWP_v* for the poor as well as the non-poor.

The analysis by poor/non-poor and region suggests the following: i) the non-poor and those in urban areas get a large share of the subsidy or 'savings' from the government provision of education services; and ii) the valuation for private educational services is higher for the wealthy as compared to for the poor. In light of these results, plausible alternatives for the government include: (i) to better target public educational services; (ii) charge a fee for public educational

services to the non-poor; and (iii) increase the quality of educational services for the poor.

TABLE 11
Effect* of Public Schools Provision on Household Education
Spending by Poverty Status¹⁵

	<i>Extreme</i>	<i>Moderate</i>	<i>Non-Poor</i>
MMWP_v	2114.63	2963.22	7229.76
MMWP_u	849.23	1241.22	1073.99
Effect	1265.40	1722.00	6155.77

Source: Own calculation based on ENIGH 96

* Annual 1996 pesos

As follows from Table 6 in Annex 2, at the primary level, all explanatory variables turned are significant for explaining the *MMWP_u*. In lower secondary level, the variables household per capita income, region, number of rooms, type of floor and number of children are important in the determination of the *MMWP_u*, while for upper secondary instruction, household per capita income and age are relevant. Interestingly, household per capita income is also a significant variable in explaining *MMWP_v* (Table 7 in Annex 2). This suggests that parent's valuation for private educational services relies solely on income while for public educational services, there are other important factors in addition to income that determines *MMWP_u*.

In Table 12, the effect of government provision of school services is very similar for both primary and lower secondary schooling level (basic education).¹⁶ This effect is higher in basic education as compared to upper secondary or technical education. Assuming that the quality difference between private and public schools is only 10% for all levels of education, relative payments and unforeseen expenses ("savings") will be much higher in basic school as compared to upper secondary level. For primary through upper secondary level, there is a positive decreasing relationship between the payments difference (in private versus public schools) and instruction level. Allowing such difference to be a proxy for quality, then the quality difference between private and public schools in primary level is 70%, in lower secondary is 60% and in upper secondary is 50%. This indicates that quality differences are higher in primary level. The remaining savings are due to payments and provisions.

In addition to Least Squares Regression (LSR), quantile regressions¹⁷ were computed to test for robustness of the above results. The aim is to assess how large these 'savings' are for various educational expenditure groups. Results of this test indicate that the distribution of 'savings' might be right-skewed since the *MMWP_u*, *MMWP_v* and the savings effect, evaluated at the median of the total educational expenditure distribution, are lower than in the LSR. Note that at the

median of the public educational expenditures distribution all explanatory variables are significant for explaining *MMWPU* (see Table 8 in Annex 2). Yet, at the tails of this distribution, variables such as gender, number of children and schooling of the household head are not significant in explaining *MMWPU*.

TABLE 12
Effect* of Public Schools Provision on Household Education Spending by Educational Level

	<i>Pre-Primary</i>	<i>Primary</i>	<i>Lower Secondary</i>	<i>Upper Secondary</i>	<i>Technical Education</i>
MMWP_v	5856.12	6920.00	8024.88	7156.88	3688.08
MMWP_u	880.36	714.68	1725.68	2541.96	2539.2
Effect	4975.76	6205.32	6299.2	4614.92	1148.88

Source: Own calculation based on ENIGH 96

* Annual 1996 pesos

TABLE 13
Effect* of Public Schools Supply on Household Education Spending Throughout the Conditional¹⁸ Expenditure Distribution

	<i>Quantile 0.1</i>	<i>Quantile 0.25</i>	<i>Quantile 0.5</i>	<i>Quantile 0.75</i>	<i>Quantile 0.9</i>
MMWP_v	1101.48	2843.56	5781	16291.04	39533.6
MMWP_u	16.52	252.12	1636.2	6241.2	12897.04
Effect	1084.96	2591.44	4144.84	10049.88	26636.56

Source: Own calculation based on ENIGH 96

* Annual 1996 pesos

Another observation is that at the median and lower tail of the private educational expenditure distribution, variables such as income, household head schooling and housing facilities are important to determine the *MMWP_v*. At the upper tail of the distribution, household per capita income is the only relevant variable that determines *MMWP_v* (Table 9 in Annex 2).

It is seen from the above analysis and from Table 13 that those households with a high level of educational expenditures receive the largest subsidy from public educational services. Given that there is a strong positive relationship between educational expenditures and per capita household income, a reasonable conclusion might be that the government should charge a fee to those in the upper tail of the income distribution especially considering that the wealthy individuals have both a high valuation for quality of schooling and are able to pay for the educational service.

Factors that Determine Upper Secondary Enrollment

Next, the factors that determine enrollment in upper secondary school level are analyzed.¹⁹ This is done in order to assess which household and government variables affect enrollment and retention at upper secondary level.

For purpose of the following analysis, the probability being modelled is enrollment in upper secondary school for individuals aged 15 to 19, the official school age for this level of education. The child and household level variables are: (a) demographic variables, including the number of babies, children, and adults, as well as the square of the number of babies, children and adults, the age of the household head and its square, and the household head gender; (b) the age and age squared of the child; (c) education variables: the educational level of the head in categories (some primary school, primary school completed, lower secondary complete, upper secondary complete and higher); and (d) occupation variables: the household head's industrial sector of employment and position occupied, as well as an indicator for the formal sector. The government variables are measured at state level and include: federal expenditures in 1996 pesos per student at both the basic and upper secondary school level and the number of teachers per thousand individuals in age range 15-19.

Table 1 in Annex 4 presents the marginal effects as estimated from the probits for enrollment at a national level as well as the impact of the exogenous variables across the income distribution and through urban and rural areas. This is of interest in the examination of the impact of government subsidies and schooling variables on the poor. If government concerns for equity are translated into higher school enrollment, one might expect to see a stronger impact of government transfers and a supply of educational services for the poorer income groups and rural areas, as opposed to the relatively wealthy groups. Table 1 in Annex 4 also shows the probit regressions results run separately on for the 'Poor' and "Wealthy" income groups, which in turn are formed by the bottom 40% and the top 40% of the income distribution.

For the overall population, the probability of enrollment is positively influenced by head of household's educational level after lower secondary, dwelling's services such as sewage and household income per capita. Aside from being sewage an important indicator of family wealth, the absence of sewage suggest the possible necessity for children to be involved in a greater number of household chores. The positive marginal effects from such variable increases by 7% the probability of enrollment.

Variables with a negative influence include student's age, female gender (not significant) and family size. Note the 12% negative impact of some primary schooling for the household head in the poorer group as compared to the statistically insignificant impact of this variable on enrollment probability amongst the richer group. Similarly, household head income per capita has a 5%

positive impact on the probability of enrollment in urban areas, and the impact of household head income per capita is absent among the rural.

TABLE 14
Determinants of Upper Secondary School Enrollment

	<i>Full Sample</i>	<i>Poorest 40%</i>	<i>Richest 40%</i>	<i>Urban</i>	<i>Rural</i>
Probability of Enrollment	0.66	0.49	0.82	0.73	0.39
Mean Income	7.44	6.63	8.14	7.56	7.03
Mean Teachers	1.89	1.80	1.95	1.90	1.84
Income Elasticity	0.58	-1.11	0.44	0.53	0.11
Teachers Elasticity	0.20	0.49	0.04	0.08	1.19

Source: Own calculations based on ENIGH 96

As can be seen in Table 14, the probability of enrollment in upper secondary is much higher for both the top 40% of the income distribution and in urban areas as compared to those in the bottom 40% and in rural areas. The variable teachers (government effort) has a significant marginal impact which is many times larger for the 'Poor' as compared to for the 'Wealthy' and for rural areas as compared to urban areas. In elasticity terms, the teacher's variable is more effective for the poor and for the rural areas by factors of 12 and 15 respectively. The differential impact suggests that the goal of efficiency in terms of maximizing enrollments in upper secondary school does not have a trade-off with the goals of greater equity of educational opportunity. Indeed, the above findings indicate that increases in enrollment will be more readily obtained if resources are successfully targeted towards the poorer income group. It is of interest to note the negligible impact of educational transfers which could probably be explained by the null variance of educational transfers among states. Investigation in this phenomenon would play an important note in policy decisions regarding the allocation of resources in upper secondary.

Conclusions

Enrollment rates for the educational levels beyond primary and probable lower-secondary levels decrease dramatically, particularly for the extremely poor, thus resulting in an increase in the educational gap between poor and non-poor. Given that coverage at primary level and the first years of lower secondary is already sizable and that demographic pressure is decreasing, the population of this group is virtually stagnated and will start to shrink at the beginning of the next century. This in turn frees some public resources, which can eventually be used to increase coverage at the upper-secondary level.

Government spending per student steadily increases until 1994 and stays the same until 1995, peaking again in 1998. On the other hand, after 1994,

government spending per student becomes better distributed. Nevertheless, government spending still favors tertiary education. Spending on education continues to be concentrated in the federal sector, which accounts for over 80 per cent of total sector spending.

Another noteworthy observation about the evolution of public spending on education in Mexico is that it has become a little bit more egalitarian in per capita terms across different schooling categories. By moving towards a more evenly distributed of per capita spending across different levels, equity seems to have improved. At the same time, the external environment changed in a manner that raised the relative return to higher education, thereby tending to make more efficient what had initially been an inefficient allocation of resources.

With respect to the public educational expenditures by income strata, the results indicate that at national level, the poorest income groups receive the bulk of primary education subsidy (federal plus state expenditures). This same group, at higher levels of education receives progressively smaller subsidies and the pattern changes across regions. In the North Region, primary education is near equality line and regressive for other levels of instruction. In the Central Region, primary schooling lies above the equality line while lower secondary is very close to it. Upper secondary and tertiary instruction benefit the richest income deciles. In the South Region, basic education is very progressive, upper secondary is at the equality line and tertiary education level lies below the 45-degree line. In Mexico City, the cumulative distribution at all levels of education, except primary, is far below the 45-degree diagonal.

At national level, public subsidy for primary education slightly increases from 1994 through 1996. By contrast, subsidies for all other levels of education decreased. The pattern of primary subsidy for both years is progressive meaning that the subsidy is higher for the poor. On the other hand, subsidies for tertiary education are regressive, benefiting primarily the non-poor. Overall, the distribution is slightly more egalitarian in 1996 than in 1994. Federal educational expenditures on upper secondary level tend to be regressive. In 1994, the pattern was more regressive than in 1996. For lower secondary, the middle-income groups receive the bulk of the subsidy. The public educational system can improve its targeting to the poor by increasing its focus on the secondary (lower and upper) levels versus university levels.

Public expenditure at the tertiary level is more regressive than the pattern of household expenditure. A large share of public resources given to this level of education tends to favor non-poor students in urban areas. A strategy to reallocate the educational public expenditures from a higher to a lower level of instruction in order to favour the poor groups would have to involve the development of higher educational credit markets.

Preliminary evidence suggests that the burden of educational expenditures on poor households is high. This finding suggests that actions aimed at increasing

the participation of poor children should comprise subsidies for secondary textbooks, scholarships for transports and school materials to reduce the burden on other schooling costs (i.e., unforeseen expenditures).

At primary level, non-poor students in public school spend four times the amount that extreme poor students spend in education, while at the university level non-poor individuals spend 1.4 times as much as poor students. The public subsidy, compared to the average student expenditure, is 2.8 times for primary level, 2.3 for lower secondary, 2.2 for upper secondary and 5.2 for university.

The total cost (student expenditure plus government subsidy) per student in primary public school corresponds to about 35% of the private primary school cost. For students in lower and upper secondary it represents 43% and 53% respectively. On the other hand, the cost of tertiary level is 13% higher in public schools as compared to private

Probability to attend private school is positively influenced by per capita household income, number of house rooms, household head education level and $\text{area}(\text{urban}=1)$.

All explanatory variables are significant in the process of computing the marginal willingness to pay for public education services except for gender. As one moved through the expenditures distribution, gender, number of children and the schooling of the household head are not significant in explaining $MMWPU$ at the tails of this distribution. Yet, at the median of the distribution, these variables are relevant. The non-poor and urban students get the most of the "savings" or effect from the public provision of school services at the basic education level. Our results show that it is likely that a large share of the effect or "savings" in basic schooling are due to differences in the quality of education between private and public schools. v

There is a strong positive relationship between educational expenditures and per capita household income. Then government should charge a fee to those in the upper tail of the income distribution especially considering that the wealthy individuals have both a high valuation for quality of schooling and are able to pay for the educational services.

The analysis indicates that the age, schooling, sector of activity and income per capita of the household head, as well as government effort (transfers or supply of teachers) are all relevant variables in explaining the probability of enrollment in upper secondary level. Special attention should be given to the per capita income of the household head as well as the government's effort in light of the large marginal effect it has on upper secondary enrollment, particularly on the poor.

Notes

1. This research was completed as part of the "Earnings Inequality after Mexico's Economic and Educational Reforms" study at the World Bank. We are grateful to

INEGI and SEP (Ministry of Education) for providing us with the data. These are views of the authors, and need not reflect those of the World Bank, its Executive Directors, or countries they represent.

2. Lopez-Acevedo, Gladys et al.(1999)
3. The sample in a given year is independent from another.
4. The sample size for 1996 is as follows: households 14,042 and individuals 64,359.
5. The weights should be calculated according to the survey design and correspond to the inverse of the probability n .
6. For a review see Dominique Van de Walle and Kimberly Nead (1995).
7. From 1973-1994, there was a change in the population structure: the population ages between one year through 14 dropped 36%, between those 15 and 64 increased 59.8% and the age group over 65 rose 4.2%.
8. IV Informe de Gobierno, 1998.
9. An illustration of the disproportional burden of education on the poor can be obtained by comparing household expenditures on education with non-food expenditures per capita.
10. The marginal effect for continuous variables is the marginal effect as evaluated at the mean of the particular exogenous variable. Dichotomous variables have been coded as '0' or '1', and the marginal effect for such variables represents the impact of the probability of having a T value for the exogenous variable, as compared to a '0' value, the other variables being held constant at their mean values.
11. Included only those students with positive fees, tuition and unforeseen expenses.
12. Step 3 uses public educational expenditures instead of private ones.
13. See Annex 2.
14. Note that it is not possible to compare directly actual average payments with the marginal willingness to pay since the later controls observed factors.
15. If we assume that the income distribution for the extreme poor is uniform, therefore an average poor household will get \$9510.00 annual 1996 pesos (it is assumed that the household average size is 5 and that the poverty extreme line is \$317.00 monthly per capita 1996 pesos).
16. The analysis was not performed for the tertiary level because the "trigger variable" was not available at that level of education.
17. See Annex 3 for a brief review of the quantile regression technique.
18. Conditional to per capita income, years of schooling of head, area (rural), age, age squared, gender, number of rooms, type of floor, sewage, number of children, trigger variable.
19. For a review of factors that affect basic education enrollment, see World Bank (1999). Government Programs and Poverty in Mexico, Green Cover.
20. Vicente Paqueo and Lopez-Acevedo (1999). Methodological Note, mimeo.

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Enrollments and Expenditures on Education

TABLE 1

Enrollments by Type of School, 1994

<i>Education level</i>	<i>Public</i>	<i>Private</i>	<i>Others</i>	<i>Total</i>
Primary	13,593,797	895,913	40,689	14,530,399
Lower Secondary	4,661,522	388,806	12,004	5,062,332
Upper Secondary	2,386,758	778,587	49,385	3,214,730
Tertiary	1,461,189	530,754	1,503	1,993,446

Source: ENIGH 94

TABLE 2

Enrollments by Type of School, 1996

	<i>Public</i>	<i>Private</i>	<i>Others</i>	<i>Total</i>
Primary	13,802,395	768,748	1,746	14,572,889
Lower Secondary	4,972,116	326,229	4,153	5,302,498
Upper Secondary	2,767,993	875,129	15,782	3,658,904
Tertiary	1,459,820	580,962	7,680	2,048,462

Source: ENIGH 96

TABLE 3

Federal Expenditure (Thousands of 1996 constant pesos)

	<i>1994</i>	<i>1996</i>
Primary	32,351,871	33,328,323
Lower Secondary	15,508,552	13,394,898
Upper Secondary	11,916,903	10,884,850
Tertiary	23,688,868	21,651,986

Source: DGPPyP, SEP

TABLE 4
Household Expenditure on Education by Poverty Status ⁴, 1996

Type of school	Expenditures per student			Total	Educational Expenditures (%) ^a	Sample size *
	Fees/Unforeseen expenses	Services	Materials ^b			
Private schools						
Extreme	2063.7	29.8	842.4	2935.9	14.6	12
Moderate	1959.9	111.7	539.4	2611.0	11.1	50
Non-poor	8216.8	632.7	2750.4	11599.9	16.7	499
Total	7662.3	584.6	2560.1	10807.0	16.6	561
Public schools						
Extreme	147.0	5.3	304.4	114.2	6.3	2825
Moderate	365.9	24.9	648.0	259.7	7.0	2511
Non-poor	876.6	113.8	1 105.3	523.9	6.7	2544
Total	432.9	43.5	652.6	282.3	6.7	7880
Urban schools						
Extreme	253.3	8.9	422.4	171.1	8.2	1186
Moderate	432.1	29.8	702.2	291.0	7.6	1867
Non-poor	2454.3	227.6	1486.6	1042.1	10.5	2561
Total	1245.4	108.6	970.2	581.0	9.7	5614
Rural schools						
Extreme	69.9	2.4	206.0	69.6	4.4	1651
Moderate	213.2	10.8	412.9	159.2	4.9	694
Non-poor	417.7	58.2	724.9	300.2	4.5	482
Total	139.2	10.3	307.9	114.3	4.6	2827

Source: ENIGH 96

* Textbooks, stationery, etc.; ** As percentage of household's expenditures

Number of households: 4/ Annual pesos per student

TABLE 5
Household Expenditure on Education by Poverty Status, 1996

Poverty Status	Expenditure Per Student				Educational Expenditures (%) ^a	Services, Materials, Expenditures (%) ^b	Number of Households
	Fees/Unforeseen expenses	Services	Materials ^c	Total			
Urban Schools							
Extreme	37.0	1.3	61.7	100.0	8.2	5.1	1186
Moderate	37.1	2.6	60.3	100.0	7.6	4.8	1867
Non-poor	58.9	5.5	35.7	100.0	10.5	4.3	2561
Total	53.6	4.7	41.7	100.0	9.7	4.5	5614
Rural Schools							
Extreme	25.1	0.8	74.0	100.0	4.4	3.3	1651
Moderate	33.5	1.7	64.8	100.0	4.9	3.2	694
Non-poor	34.8	4.8	60.4	100.0	4.5	2.9	482
Total	30.4	2.3	67.3	100.0	4.6	3.2	2827

Source: ENIGH 96

* Textbooks, stationary, etc.; ** As percentage of household's expenditures

Effect of Government Spending on Household Education Expenditures

Marginal Willingness to Pay Methodology²⁰

Step 1. Estimate the selection equation, using probit to analyze the factors determining household choice between public and private school for child i :

$$(1) Y_i = Y(X_i, Z_i)$$

where $Y_i = 1$ if child i is in private school; 0 if public

$X_i =$ a vector of independent variables such as father's income, parent's education, household assets, location, age and sex of child, etc.

$Z_i =$ a trigger variable (to identify the whole model) that appears in this selection equation but not in the willingness to pay equation (see below).

One can develop an underlying household utility maximization model to generate the above specification.

Step 2. Estimate the household's willingness to pay for private education (P_v) of child i , e.g.

$$(2) P_i = P_v(X_i, M_i, U_i)$$

where $P_i =$ household willingness to pay for private education of child i

$M_i =$ mill's ratio calculated from the above probit equation

$U_i =$ error term with mean value zero

Step 3. Estimate the household's willingness to pay for public education (P_u) of child i , e.g.

$$(3) P_i = P_u(X_i, M_i, U_i)$$

The following counterfactual exercise could then be done. Consider an average child with mean values of $X_i = x_i$ and $M_i = m_i$. What would his household be willing to spend for his private education?

Step 4. Using eq. 2 and plugging the mean value of x_i and m_i , the willingness to pay P_i for private education could be estimated. Denote estimate as $MeanPVi$. This is different from the actual observed mean P_v , which is the average for the self-selected sample of private school children.

Similarly, one could ask of such an average child: What would his household be willing to spend for public education? To answer this question:

Step 5. Using eq. 3 and plugging the mean value of x_i and m_i , we get an estimate of the amount of money the household would be willing to pay for the child's public education. Denote estimate as $MeanPUi$. Again this will be different from the observed average

education spending of households for children in public schools, which would reflect the behavior of a self-selected sample of users of public education.

Step 6. Take the difference between $MeanPVi$ and $MeanPUi$ to measure the effect of the government provision of public schools on the education spending behavior of an average household.

Note that this difference would reflect the relative quality and payments (fees and contributions) associated with public and private schools. We can calculate this effect for various income groups by plugging their respective mean values for Xi and Mi into eqs. 1-3.

A key question in this type of analysis is the availability of the trigger variable (Z_i) to identify the model, which can be the provincial average learning achievement score of public schools relative to that of private schools, as index of the relative quality of these two types of schools.

TABLE 1

Household Expenditures on Educational Service

	<i>Public Service</i>			<i>Explanatory Variables</i>	<i>Private Service</i>		
	<i>Coef.</i>	<i>Mean</i>	<i>M. W. to P.</i>		<i>Coef.</i>	<i>Mean</i>	<i>M. W. to P.</i>
<i>Explanatory Variables</i>							
Log Nat per capita H income	0.76 *	7.21	5.46	Log Nat per capita H income	0.57 *	8.30	4.69
Years of Schooling of HH	0.01 *	5.91	0.05	Years of Schooling of HH	0.02 *	10.11	0.19
Region (<i>rural</i>)	0.66 *	0.77	0.50	Region (<i>rural</i>)	0.06	0.97	0.06
Age	0.12 *	11.12	1.30	Age	0.02	13.62	0.32
Squared Age	0.00 *	143.74	-0.35	Squared Age	0.00	222.68	-0.13
Gender (<i>female</i>)	-0.04	0.53	-0.02	Gender (<i>female</i>)	0.05	0.46	0.02
Number of rooms	0.09 *	2.91	0.27	Number of rooms	-0.02	4.16	-0.08
Floor (<i>not finished floor</i>)	0.22 *	0.27	0.06	Floor (<i>not finished floor</i>)	0.02	0.71	0.01
Sewage (<i>not sewage</i>)	0.26 *	0.66	0.17	Sewage (<i>not sewage</i>)	0.48 *	0.94	0.45
Number of Children	-0.12 *	2.35	-0.29	Number of Children	-0.02	2.00	-0.04
Mill's Ratio	0.45 *	2.47	1.12	Mill's Ratio	-0.01	0.87	-0.01
Constant	-2.67 *		-2.67	Constant	1.87 *		1.87
<i>Dependent Variables</i>				<i>Dependent Variables</i>			
Log Nat Expenditure		5.60	5.60	Log Nat Expenditure		7.32	7.36
Evaluated in pesos		270.64	270.23	Evaluated in pesos		1506.59	1568.72
	0.42			R ³	0.35		

Source: Own calculations based on ENIGH 96 and DGPyP. SEP

* Significant at 5%, ** Significant at 10%

Italics: Reference category

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TABLE 2

Household Expenditure on Educational Public Service by Area						
Explanatory Variables	Urban			Rural		
	Coef	Mean	M. W. to P.	Coef	Mean	M. W. to P.
Log Nat per capita income	0.65 *	1A	4.84	0.97 *	6.6	6.38
Years of Schooling of HH	0.02 *	6.7	0.12	-0.02	3.2	-0.06
Age	0.11 *	11.4	1.30	0.09 *	10.2	0.94
Squared Age-	0.00 *	151.3	-0.35	0.00	119.0	-0.10
Gender (female)	-0.02	0.5	-0.01	-0.09	0.5	-0.04
Number of rooms	0.08 *	3.1	0.24	0.18 *	2.2	0.39
Floor (not finished floor)	0.29 *	0.3	0.10	-0.05	0.1	0.00
Sewage (not sewage)	0.25 *	0.8	0.20	0.26 *	0.2	0.04
Number of Children	-0.09 *	2.3	-0.20	-0.21 *	2.5	-0.52
Mill's Ratio	0.47 *	2.2	1.04	0.38 *	3.3	1.25
Constant	-1.39 *		-1.39	-3.60 *		-3.60
<i>Dependent Variables</i>						
Log Nat Expenditure		5.9	5.88		4.7	4.68
Evaluated in pesos		359.70	359.57		106.90	107.31

Source: Own calculations based on ENIGH 96 and DGPyP, SEP

* Significant at 5%. ** Significant at 10%

TABLE 3

Household Expenditure on Educational Private Service by Area						
Explanatory Variables	Urban			Rural		
	Coef	Mean	M. IV. to P.	Coef	Mean	M. W. to P.
Log Nat per capita income	0.58 *	8.3	4.81	0.42 *	7.34943	3.065
Years of Schooling of HH	0.02 *	10.3	0.20	0.01	4.92671	0.050
Age	0.02	13.5	0.33	0.19 **	17.2694	3.366
Squared Age	0.00	219.3	-0.13	0.00	319.836	-1.303
Gender (female)	0.06	0.5	0.03	-0.40 *	0.41872	-0.166
Number of rooms	-0.02	4.2	-0.10	-0.04	3.10346	-0.123
Floor (not finished floor)	0.04	0.7	0.03	-0.51 *	0.22027	-0.113
Sewage (not sewage)	0.62 *	1.0	0.59	0.46	0.41467	0.190
Number of Children	-0.03	2.0	-0.05	-0.16	2.53821	-0.394
Mill's Ratio	0.01	0.8	0.01	0.15	1.94875	0.300
Constant	1.68 *		1.68	1.63		1.634
<i>Dependent Variables</i>						
Log Nat Expenditure		7.3	7.39		6.54069	6.50
Evaluated in pesos		1548.0	1614.7		692.8	668.4

Source: Own calculations based on ENIGH 96 and DGPyP, SEP

* Significant at 5%. ** Significant at 10%

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TABLE 5

Household Expenditure on Educational Private Service by Poverty Status

Explanatory Variables	Extreme			Moderate			No Poor		
	Coef	Mean	M.W. to P.	Coef.	Mean	M. W. to P.	Coef.	Mean	M. IT. to P.
Log Nat per capita income	-1.14	6.55	-7.43	0.43	7.30	3.12	0.59 *	8.52	5.02
Years of Schooling of HH	0.22 **	5.40	1.20	-0.06 **	5.63	-0.32	0.02 *	10.96	0.19
Region (rural)	Dropped	1.00	0.00	Dropped	1.00	0.00	-0.09	0.96	-0.08
Age	1.25 **	14.61	18.21	0.13 *	16.47	2.15	0.01	13.17	0.19
Squared Age	-0.05 *	230.96	-12.11	0.00 *	305.14	-1.18	0.00	210.31	-0.06
Gender	0.43	0.25	0.11	0.02	0.43	0.01	0.05	0.48	0.03
Number of rooms	0.76	3.08	2.33	0.07	2.97	0.21	-0.02	4.38	-0.09
Floor (not finished floor)	-1.57 **	0.49	-0.77	-0.37 *	0.36	-0.14	0.06	0.77	0.05
Sewage (not sewage)	1.29	0.86	1.11	0.45 **	0.80	0.36	0.71 *	0.96	0.68
Number of Children	-0.64	2.09	-1.33	-0.20 *	1.95	-0.39	0.00	2.00	-0.01
Mill's Ratio	-0.57	2.18	-1.24	-0.20	1.39	-0.27	-0.02	0.77	-0.02
Constant	6.19		6.19	3.05		3.05	1.62 *		1.62
Dependent Variables									
Log Nat Expenditure		6.61	6.27		6.59	6.61		7.45	7.50
Evaluated in pesos		745.90	528.66		726.01	740.81		1725.7	1807.44

Source: Own calculations based on ENIGH 96 and DGPYP. SEP

* Significant at 5%, ** Significant at 10%

TABLE 6

Household Expenditure on Educational Public Service by Type of Education

	<i>Pre-Priman</i>			<i>Priman</i>			<i>Lower-Secondary</i>			<i>Upper-Secondary</i>			<i>Technical Education</i>		
	<i>Coef</i>	<i>Mean</i>	<i>M.W. 10%</i>	<i>Coef</i>	<i>Mean</i>	<i>Mil: in %</i>	<i>Coef</i>	<i>Mean</i>	<i>MM: 10%</i>	<i>Coef</i>	<i>Mean</i>	<i>MM: 10%</i>	<i>Coef</i>	<i>Mean</i>	<i>MM: 10%</i>
<i>Explanatory Variable*</i>															
Log Nat per capita income	0.83	7.20	5.98	0.79	7.05	5.53	0.50	7.33	3.63	0.18	7.63	1.36	0.50	Lib	3.78
Years of Schooling of HH	0.02	6.14	0.10	0.01	5.40	0.07	-0.01	6.17	-0.03	-0.01	7.47	-0.06	-0.01	6.12	-0.09
Region (<i>rural</i>)	0.71	0.66	0.47	0.64	0.71	0.45	0.55	0.83	0.45	0.05	0.89	0.05	-0.30	0.92	-0.28
Age	-1.29	4.99	-6.45	0.07	8.91	0.62	-0.05	13.56	-0.66	-0.09	17.26	-1.49	-0.07	20.03	-1.49
Squared Age	0.11	24.93	3.19	0.00	84.08	-0.16	0.00	187.34	-0.03	0.00	311.73	0.22	0.00	449.99	0.46
Gender (<i>female</i>)	0.08	0.53	0.04	-0.09	0.52	-0.04	-0.01	0.53	-0.01	0.12	0.59	0.07	0.39	0.38	0.15
Number of rooms	0.09	2.68	0.24	0.08	2.62	0.22	0.07	3.20	0.22	0.02	3.65	0.08	0.11	3.47	0.39
Floor (<i>not floor finished</i>)	0.19	0.22	0.04	0.09	0.23	0.02	0.38	0.32	0.12	0.15	0.39	0.06	-0.07	0.35	-0.03
Sewage (<i>not sewage</i>)	0.22	0.58	0.13	0.31	0.58	0.18	0.15	0.73	0.11	-0.04	0.83	-0.04	-0.45	0.82	-0.37
Num. Children	-0.04	1.96	-0.08	-0.10	2.45	-0.25	-0.14	2.38	-0.33	0.02	2.19	0.05	0.03	1.87	0.06
Mills Ratio	0.58	2.59	1.51	0.39	2.56	0.99	0.26	2.44	0.64	-0.05	2.22	-0.11	0.03	1.75	0.06
Constant	0.22		0.22	-2.45		-2.45	1.95		1.95	6.27		6.27	3.81		3.81
<i>Dependent Variable*</i>															
Log Nat Expenditure		5.39	5.39		5.19	5.19		6.07	6.07		6.46	6.45		6.39	6.45
Evaluated in pesos		220.09	220.09		178.67	178.67		431.42	431.42		636.77	635.49		596.92	634.80

Source: Own calculations based on ENIGH 96 and DGPYP, SEP

* Figures in bold are significant at 5%

TABLE 7

Household Expenditure on Educational Private Service by Type of Education

	<i>Pre PriHiIn</i>			<i>Primary</i>			<i>Lower Secundan</i>			<i>Upper Secondary</i>			<i>Technical Education</i>		
	<i>(coef)</i>	<i>Mean</i>	<i>ANR, in %</i>	<i>(coef)</i>	<i>Mean</i>	<i>A. H. lo %</i>	<i>(coef)</i>	<i>Mean</i>	<i>MW. to P.</i>	<i>Coef.</i>	<i>Mean</i>	<i>A. H. IO P.</i>	<i>Coef.</i>	<i>Mean</i>	<i>MW. to P.</i>
<i>Explanatory Variables</i>															
Log Nat per capita income	0.81	8.36	6.79	0.39	8.54	3.30	0.67	8.43	5.67	0.45	8.32	3.71	0.33	7.69	2.53
Years of Schooling of HH	-0.03	12.24	-0.40	0.02	1.99	0.22	-0.01	10.37	-0.06	0.03	9.54	0.28	0.01	6.47	0.10
Region (<i>rural</i>)	1.41	0.98	1.38	D	1.00	0.00	-0.16	0.97	-0.15	0.15	0.95	0.14	-0.16	0.93	-0.15
Age	D	5.00	0.00	0.18	8.47	1.53	-0.09	14.07	-1.27	-0.17	17.39	-2.94	-0.14	20.41	-2.85
Squared Age	D	25.00	0.00	-0.01	74.86	-0.80	0.00	207.27	0.10	0.00	309.31	0.80	0.00	452.93	1.16
Gender (<i>female</i>)	0.01	0.52	0.00	0.08	0.48	0.04	0.02	0.47	0.01	0.17	0.49	0.08	0.17	0.35	0.06
Number of rooms	0.16	3.66	0.58	-0.06	4.41	-0.29	-0.04	4.37	-0.17	-0.05	4.38	-0.20	0.01	3.41	0.05
Floor (<i>tint floor finished</i>)	0.17	0.71	0.12	-0.01	0.80	-0.01	-0.25	0.81	-0.20	0.00	0.75	0.00	0.02	0.40	0.01
Sewage (<i>not sewage</i>)	1.06	0.91	0.97	1.30	0.98	1.28	0.44	0.95	0.42	0.44	0.93	0.41	0.08	0.85	0.06
Num. Children	0.25	1.63	0.42	0.00	2.04	0.00	0.00	2.10	0.00	0.04	1.94	0.09	-0.11	2.08	-0.23
Mills Ratio	0.37	0.94	0.34	-0.32	0.96	-0.31	-0.03	0.94	-0.03	-0.19	0.76	-0.14	0.40	0.77	0.31
Constant	-2.92		-2.92	2.51		2.51	3.29		3.29	5.27		5.27	5.77		5.77
<i>dependent Variables</i>															
Log Nat Expenditure		7.21	7.29		7.44	7.46		7.50	7.60		7.48	7.49		6.74	6.83
Evaluated in pesos		1353.7	1464.03		1699.5	1730.00		1814.2	2006.22		1776.6	1789.22		843.65	922.02

Source: Own calculations based on ENIGH 96 and DGPyP, SEP

* Figures in bold are significant at 5%

D=variable dropped

TABLE 8
Quantile Analysis of Household Expenditure on Educational Public Service

	Quantile regression 0.01			Quantile regression 0.50			Quantile regression 0.90		
	Coef.	Q0.10	M. W. to P.	Coef.	Q0.50	M. W. to P.	Coef.	Q0.90	M. W. to P.
<i>Explanatory Variables</i>									
Log Nat per capita H income	0.82 *	6.21	5.11	0.72 *	7.22	5.22	0.51 *	8.17	4.14
Years of Schooling of HH	0.00	0.00	0.00	0.01 *	6.00	0.08	0.02 *	12.00	0.24
Region (rural)	0.80 *	0.00	0.00	0.64 *	1.00	0.64	0.37 *	1.00	0.37
Age	0.16 *	6.00	0.98	0.13 *	11.00	1.44	0.12 *	16.00	1.92
Squared Age	0.00 *	36.00	-0.13	0.00 *	121.00	-0.31	0.00 *	256.00	-0.58
Gender (female)	0.05	0.00	0.00	-0.06 *	1.00	-0.06	0.02	1.00	0.02
Number of rooms	0.06	1.00	0.06	0.09 *	3.00	0.28	0.07 *	5.00	0.33
Floor (not finished floor)	0.43	0.00	0.00	0.21 *	0.00	0.00	0.13 *	1.00	0.13
Sewage (not sewage)	0.42 *	0.00	0.00	0.22 *	1.00	0.22	0.14 *	1.00	0.14
Number of Children	-0.02	1.00	-0.02	-0.11 *	2.00	-0.23	-0.11 *	4.00	-0.44
Mill's Ratio	0.59 *	1.30	0.77	0.41 *	2.45	1.01	0.22 *	3.68	0.81
Constant	-5.35 *		-5.35	-2.28 *		-2.28	1.00 *		1.00
<i>Dependent variables</i>									
Log Nat Expenditure		4.01	1.42		5.79	6.01		6.98	8.08
Evaluated in pesos		54.91	4.13		326.44	409.05		1075.65	3224.26

Source: Own calculations based on ENIGH 96 and DGPyP, SEP

* Significant at 5%. ** Significant at 10%

TABLE 9
Quantile Analysis of Household Expenditure on Educational Private Service

<i>Explanatory Variables</i>	<i>Quantile regression 0.01</i>			<i>Quantile regression 0.50</i>			<i>Quantile regression 0.90</i>		
	<i>Coef.</i>	<i>Q0.10</i>	<i>M. W. to P.</i>	<i>Coef.</i>	<i>Q0.50</i>	<i>M. W. to P.</i>	<i>Coef.</i>	<i>Q0.90</i>	<i>M.W. to P.</i>
Log Nat per capita H income	0.50 *	7.24	3.64	0.53 *	8.30	4.39	0.72 *	9.40	6.79
Years of Schooling of HH	0.04 *	3.00	0.13	0.03 *	9.00	0.25	0.00	16.50	0.00
Region (rural)	-0.27	1.00	-0.27	-0.18	1.00	-0.18	0.35	1.00	0.35
Age	0.10 *	6.00	0.58	0.03 *	14.00	0.44	0.00	20.00	0.08
Squared Age	0.00 *	36.00	-0.11	0.00 *	196.00	-0.17	0.00	400.00	0.02
Gender (female)	-0.10	0.00	0.00	0.08	0.00	0.00	0.10	1.00	0.10
Number of rooms	-0.04	2.00	-0.08	0.03	4.00	0.10	0.01	6.00	0.06
Floor (not finished floor)	-0.12	0.00	0.00	0.03	1.00	0.03	0.15	1.00	0.15
Sewage (not sewage)	0.71 *	1.00	0.71	0.39 *	1.00	0.39	-0.16	1.00	-0.16
Number of Children	0.09	1.00	0.09	-0.06	2.00	-0.11	-0.02	3.00	-0.06
Mill's Ratio	-0.06	0.17	-0.01	0.06	0.75	0.05	-0.03	1.71	-0.06
Constant	0.94		0.94	2.09 *		2.09	1.93 *		1.93
<i>Dependent Variables</i>									
Log Nat Expenditure		6.13	5.62		7.31	7.28		8.61	9.20
Evaluated in pesos		460.01	275.37		1497.22	1445.25		5490.24	9883.40

Source: Own calculations based on ENIGH 96 and DGPpP, SEP

* Significant at 5%, ** Significant at 10%

Quantile Regression Models

This kind of regression model has some desirable characteristics, especially when one is interested in the analysis of certain variable throughout its distribution. The main features of the quantile regression models can be summarized as follows:

- i) The model can be used to characterize the entire conditional distribution of the dependent variable;
- ii) The quantile regression objective function is a weighted sum of absolute deviations, which gives a robust measure of location, so that the estimated coefficient vector is non-sensitive to outlier observations of dependent variable;
- iii) When the error term is non-normal, quantile regression estimators may be more efficient than least squares estimators; and,
- iv) Different solutions at distinct quantiles may be interpreted as differences in the responses of the dependent variable to changes in the independent variables at various points in the conditional distribution of the dependent variable [see Buchinsky (1998)].

Assume that earnings, or other monetary variable, (Y_i) depends on a set of independent variables X_i such as that function can be written as a quantile regression. Then, we have

$$\log Y_i = \beta' X_i + \epsilon_i$$

with $\text{Quant}(\log y, p) = \beta' X_i + \epsilon_i$ ($i=1, \dots, n$)

Where β , and X_i are $K \times 1$ vectors, and $X_i = 1$;

$\text{Quant}(\log Y | X)$ denotes the α h conditional quantile of Y given X ;

Also let $f(\cdot | X)$ denote the density of n , given X [it follows that $\text{Quant}(\log Y | X) = 0$].

Note that the X_i vector may include a set of explanatory dummy variables as well as some controls. [For an extensive review see Buchinsky (1994)].

Decomposition of the Factors that Determine Enrollment

TABLE 1

Determinants of Upper Secondary School Enrollment

Variables	Full Sample		Poorest 40%		Richest 40%		Urban		Rural	
	Marginal Effect	Level Sign.	Marginal Effect	Level Sign.	Marginal Effect	Level sign.	Marginal Effect	Level sign.	Marginal Effect	Level sign.
Individuals Characteristics										
Age	0.78	0.02	1.58	0.01	0.08	0.85	0.43	0.21	1.44	0.04
Age Square	-0.03	0.01	-0.05	0.00	-0.01	0.67	-0.02	0.12	-0.05	0.03
Female Gender	-0.02	0.39	-0.04	0.30	-0.02	0.45	-0.02	0.41	0.00	0.98
Head of Household (HH) Characteristics										
HH Age	0.02	0.00	-0.01	0.40	0.03	0.00	0.02	0.00	0.02	0.08
HH Age square	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.09
HH female gender	0.06	0.05	0.06	0.32	0.06	0.09	0.02	0.52	0.24	0.00
HH Some Primary	-0.06	0.06	-0.12	0.02	0.03	0.58	-0.01	0.84	-0.22	0.00
HH Primary complete	0.05	0.14	0.01	0.90	0.10	0.03	0.05	0.14	-0.04	0.58
HH L-Secondary complete	0.16	0.00	0.10	0.19	0.15	0.00	0.14	0.00	0.03	0.77
HH U-Secondary or higher	0.29	0.00	0.32	0.01	0.26	0.00	0.26	0.00	0.33	0.09
Agriculture/Mining	0.04	0.61	-0.28	0.06	0.14	0.09	0.08	0.30	-0.17	0.38
Manufacturing	-0.12	0.00	-0.14	0.04	-0.08	0.10	0.04	0.44	-0.13	0.10
Utilities	-0.03	0.41	0.01	0.90	-0.01	0.88	-0.01	0.71	-0.14	0.18
Commerce	0.00	0.92	-0.12	0.08	0.08	0.12	0.03	0.54	-0.08	0.44
Transports/Communications	0.01	0.85	0.03	0.69	0.04	0.33	0.03	0.33	-0.11	0.28
Financial Services	-0.01	0.83	0.02	0.83	0.06	0.21	0.00	0.97	-0.05	0.75

Contd...

<i>Variables</i>	<i>Full Sample</i>		<i>Poorest 40%</i>		<i>Richest 40%</i>		<i>Urban</i>		<i>Rural</i>	
	<i>Marginal Effect</i>	<i>Level Sign.</i>	<i>Marginal Effect</i>	<i>Level Sign.</i>	<i>Marginal Effect</i>	<i>L&el sign.</i>	<i>Marginal effect</i>	<i>Level sign.</i>	<i>Marginal Effect</i>	<i>Level sign.</i>
Services	-0.03	0.78	-0.33	0.22	0.09	0.45	-0.02	0.89	-0.09	0.79
Agricultural Worker	0.03	0.53	-0.02	0.80	0.17	0.02	0.05	0.50	-0.09	0.29
Business Owner	0.04	0.29	0.24	0.01	-0.10	0.04	0.05	0.23	0.04	0.65
Self Employed	0.03	0.69	-0.22	0.17	0.14	0.08	0.05	0.55	-0.02	0.92
Formal worker	0.02	0.77	-0.20	0.21	0.11	0.31	0.03	0.66	-0.03	0.88
Dwelling Characteristics										
Electrified	-0.03	0.60	-0.01	0.95	-0.11	0.34	-0.13	0.10	0.08	0.38
Sewage	0.07	0.00	0.08	0.05	0.12	0.01	0.05	0.08	0.08	0.13
Family Characteristics										
Number of babies	-0.06	0.02	-0.02	0.58	-0.18	0.00	-0.05	0.13	-0.04	0.40
Number of babies square	0.01	0.56	-0.01	0.58	0.06	0.02	0.00	1.00	0.01	0.67
Number of children	0.03	0.15	0.04	0.34	0.04	0.25	0.01	0.56	0.08	0.09
Number of children square	-0.01	0.03	-0.01	0.10	-0.01	0.31	-0.01	0.17	-0.02	0.05
Number of Adults	0.01	0.73	0.06	0.41	-0.01	0.75	-0.01	0.86	0.08	0.39
Number of Adults square	0.00	0.30	-0.01	0.14	0.00	0.86	0.00	0.62	-0.01	0.20
HH income per capita	0.05	0.00					0.05	0.01	0.01	0.88
Government Effort										
Teachers per 1000 15-19 years old population	0.07	0.00	0.13	0.01	0.02	0.52	0.03	0.19	0.25	0.00
Federal Expenditure	0.00	0.33	0.00	0.08	0.00	0.44	0.00	0.93	0.00	0.04

Source: Own calculation based on ENIGH 96

RESEARCH NOTE

Demand for Government and Private Schools: Evidence from Rural India

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Abstract

Examining differences between government and private schools by estimating demand for schools to determine factors that motivate choice of schools, in two districts in Uttar Pradesh, and by combining regression analysis with qualitative analysis, the estimation shows that demand for schools decreases with fee increases. Thus, lower income groups are excluded from private schools. It is found that learning achievement scores are on an average higher for private schools. The qualitative analysis shows that the image of private schools in the community is because of good infrastructure, discipline, teaching, and punctual, well-behaved teachers. Implications for government schools are also examined.

Introduction

In an attempt to universalise primary education in the country, the Government of India launched the District Primary Education Programme (DPEP) in 1993. The objectives of the programme were to: increase enrolment; increase retention; raise the quality of primary education in the country through district-designed activities; and make performance-based resource allocation specially tailored to meet the local needs.

DPEP objectives were thus consistent with the goals for primary education in the country, that is, of increasing access, raising learning achievement and

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reducing inequalities and gaps among states and various sub-sections of the population.

Statement of Problem

While the goal of educational inequality among states and groups is addressed by DPEP, there are growing differences in quality within the Indian states between government and private schools, which have not received attention. In reality, there are substantial disparities between private and government schools in various aspects. Inputs like teaching infrastructure, student-teacher ratio, and performance measures such as student attendance, graduation rates are substantially better in private than in government schools. Naturally, rationality forces better-educated parents to send their children to private rather than government schools. This is quite curious in light of the fact that teachers in private schools are paid substantially lower than those in government schools.

Thus, the government-private dichotomy in primary education is a question of open debate especially in large Indian states like Uttar Pradesh (U.P.), which is characterised by the low literacy rate; and poor quality of government schools.

This study examines the differences between government and private schools by estimating the demand for private and government schools in DPEP phase II districts in U.P.

The specific objective of the study is to examine the question: What are the effects on performance of demand-side and supply-side interventions in schools, i.e., what are the factors that determine demand for private and government schools? Specifically, are these factors the same? More generally, what factors motivate parents to choose private schools?

Literature Survey

The literature has looked at the effect the demand-side incentives have on enrolment and attendance of students. Based on a study of schools in Allahabad district in U.P., it was found (Malhotra, 1998) that while enrolment in schools giving incentives to students was higher than those that were not, attendance in schools without incentives was higher than those with incentives. Overall, the retention rate was higher in schools without incentives than their counterparts. The study concluded that the two schemes - Poshahar and scholarship scheme - helped in raising enrolment of students in these schools. Another study (Bhandari, 1998) examined the effect of mid-day meal scheme on enrolment and retention in primary schools in Rampur, Mathura, and Maholi blocks in Sitapur district in U.P. It found that the distribution of mid-day meal did not have any bearing on attendance. The suggestions for improving the scheme included changing the criteria of attendance to 80% for eligibility for mid-day meal. The study found that in Rampur and Mathura blocks, all drop-outs were from

government schools against 80% drop-outs out of government schools in Maholi block. The rest in Maholi block were aided school drop-outs.

A study (Agarwal, 1998) looked at the relationship between supply-side incentives (availability of human and physical resources) and learning achievement of primary school students in Sitapur district in U.P. It found that most of the schools lacked drinking water, toilet and playground facilities, and also had poor school buildings. It was found that students of rural areas scored better than their urban counterparts.

Another study (Ramkumar, 1998) looked at the present status of classroom practices in DPEP phase II districts in Kerala, the only Indian state with universal literacy. It observed reliance on traditional methods of teaching aid and disinterest in using newer teaching aids even in the most progressive state. The study suggested the administrative delinking of primary education from upper primary and secondary education.

The closest to this study in the literature is a comparative analysis of government and private schools in Gorakhpur and Saharanpur districts in U.P. (Singh, 1998). This study found that government schools that were old had poorly maintained school buildings. Teachers in government schools were found to be well-trained, being paid according to the pay scales of the state government, whereas private school teachers were untrained and low paid. The study also found that the enrolment rate was higher in government (class I) than in private schools. However, performance (measured by the pass rate) was found to be better in private schools. The study attributed this to the regular homework given to students in private schools which it found to be absent in government schools.

Another study, that is similar to the one conducted here, is a comparison of government and private schools in the rural areas of Muzzafarpur and Darbhanga districts in Bihar (Singh and Kumar, 1999). It found that most of the private schools had poor quality physical infrastructure, but better pre-primary teaching facilities that were nearly absent in government schools. Government schools were found to have fewer, but well-trained teachers, although learning achievement was found to be higher in private than in government schools. Private school teachers worked harder and refrained from going on leave, which was not the case with government school teachers. A comparison of the profile of parents showed that preference for private schools was linked to their educational status and aspirations.

A study (DRS, 1999) examined enrolment of children in government and private (recognised and unrecognised) schools and out-of-school children in villages in two districts of U.P. - Hardoi and Moradabad and found that 86% of villages in Hardoi and 63% of villages in Moradabad had just one school, with most of the villages having only one government primary school. Teacher strength and pupil-teacher ratio were found to be higher in private recognised schools. Although the availability of drinking water was similar in schools across

the districts, usable toilets were found to be much better in private than in government schools. The net enrolment rate was more or less the same across the districts (80 per cent and 73 per cent in Hardoi and Moradabad respectively). The study found an overwhelming majority (75-79%) of children enrolled in primary schools to be in government schools. However, different social groups were found to participate in different ways. The participation of Scheduled Castes (a socially oppressed group) in government schools was higher compared to their participation in private schools. The attendance rates were also only marginally lower in government schools when compared to private schools.

Another study in the literature (Agarwal, 1998) using similar indicators, looking at access and retention under DPEP over 1995-98 and focusing on enrolment, equity and internal efficiency of the school system in the DPEP Phase I districts found large inter-state and inter-district variations in the student-classroom ratio, with serious problems in Assam. It found that net enrolment was 9.4% between 1995-96 and 1996-97 and 6.5% between 1996-97 and 1997-98, with the share of girls in 42 DPEP districts increasing from 45.5 per cent in 1995-96 to 46.3 per cent in 1997-98. Over the period, the study found a marginal decline in repetition rates from 8.39% to 8.29%, with Assam having the highest repetition rates even in class I, which was largely due to admission of underage children who could not be promoted to class II. Finally, the gross enrolment ratio for all DPEP districts was 83.9 per cent in 1995-96 which increased to 91.6% in 1996-97, varying from 75% in Haryana to 10% for Maharashtra.

An interesting study (Dreze and Gazdar, 1996) reports the findings of an informal field investigation of the functioning of private and government primary schools in rural Uttar Pradesh, covering 16 villages in four different districts: Moradabad, Rae Bareilly, Pratapgarh, and Banda. They looked at the physical condition of schools, teacher attendance and teaching practices, enrolment and attendance, among other observations. They found that most of the sample government schools had buildings that were dilapidated, and were poorly utilised due to pending repairs, incomplete construction and lack of maintenance. In some cases, school buildings were utilised for other purposes such as cattle shed or as headmaster's residence. In such cases teachers and children were found sitting under trees near the school building. In most sample government schools, the buildings were bare, except for the occasional table and chair used by the headmaster. In other cases, whatever furniture was there was appropriated by the village headman, the school teacher or other local influential residents. Teaching material was limited to the use of notebooks, slates and some basic textbooks.

Dreze and Gazdar (1996) found that teacher absenteeism was an endemic problem in sample schools. They found that two-thirds of teachers in the sample government schools were absent at the time of their unannounced field visit,¹ with only 2 out of the 15 schools they visited having full attendance of teachers. In single-teacher schools, absenteeism meant that the school remained closed.

Another part of teacher absenteeism was that they came late and left early, making an average school day last for only 3 hours. In contrast, private schools turned up for work and did their job. This was despite private school teachers earning less salary (about Rs.500 per month) when compared to government school teachers (who started at Rs.2,000 a month).

In terms of teaching practices, Dreze and Gazdar found that teaching time was very less in these schools. Teachers were found to be giving exercises to students and indulging in various activities such as playing cards, talking with each other, reading comics, and preparing for the forthcoming election of the management committee of a local credit co-operative. None of the sample schools had a female teacher. Private school teachers were found to be poorly qualified and trained.

Finally, with respect to enrolment and attendance, Dreze and Gazdar noted only 50% attendance in the sample schools. High level of absenteeism was found during periods of high activity in the agricultural cycle. Female enrolment and attendance was about one-third of all children. In contrast, private schools (only recognised) had high attendance and low drop-out rates, characterised by significant dominance of male students. Finally, Dreze and Gazdar found school fees in government schools to be nominal - around 10 paise per month in class 1, rising to 1.50 rupees per month in class 5, compared to Rs. 15 per child per month in private schools.

Based on the brief survey of the literature, it may be seen that so far, the literature has found the impact of demand-side and supply-side incentives on retention (primarily attendance) to be insignificant. Other literature has found essentially what we already know about the system - that the performance of private school students is much better than those in government schools, which is attributed to more motivated teachers and better teaching practices in private schools than in government ones. This is a curious finding given the low salaries of private school teachers when compared to their government school counterparts. This work is an attempt to address the gap in the educational literature that has not examined whether or not demand for government and private schools is determined by similar factors and if so, what are the implications for government schools.

Data

In order to understand the factors that persuade parents to send their children to private as opposed to government schools, four kinds of data - at the school-level, at the level of the community, parents, and objective data about the students from the students themselves were collected through survey at the school-level from a sample of government and private schools in the chosen districts of the state regarding schools' enrolment, supply-side infrastructure including the number of classrooms, those with blackboards, and supply of other

infrastructure, besides data regarding teacher quality (their academic and professional qualifications), teachers' classroom practices such as giving exercises, teaching time, maintenance of discipline, providing feedback, and supervision of students, and teachers' use of various instructional methods and processes. Data were also collected regarding the proportion of students benefiting from incentive schemes such as mid-day meals, free uniforms and books.

At the community-level, an attempt was made to assess the quality of the schools in the parents'/community members' perspectives, by asking questions from a sample of community members regarding the quality of students, teachers, equipment and teaching methods prevalent in the school. Care was taken while administering the questionnaires for their consistency with what is observed in the field.

Finally, the learning achievement of students was assessed by administering a common set of questions to students in various sample schools.

In summary, the following sources of data were tapped:

- A. School-level questionnaire to government and private schools in the selected districts
- B. Interview members of the concerned communities (teachers, community members, parents, and pupils in government and private schools)
- C. Assessment of learning achievement of students in government and private schools

Thus, it was possible to test the questions proposed in the research regarding demand-side and supply-side intervention and assess government and private schools in a realistic fashion.

Sampling

A sample of 54 government-run and 48 private (recognised and unrecognised) schools in random blocks of Deoria and Firozabad districts in the state (U.P.) was chosen expecting the schools to be varied within each group (government and private), through stratified random sampling strategy that removes bias and helps selection of just well-performing schools to give relatively realistic results. Within the blocks, the schools were chosen randomly either according to the alphabetical order in which they are listed with the State Education Department, or in order of their proximity to each other. Schools being within a single state (U.P.), all factors like fiscal resources, social and political culture that determine the quality of education across states were effectively controlled. Since government schools to be chosen in districts are under the DPEP II programme, they are somewhat comparable to private schools in terms of amenities.

In Deoria, schools are chosen in the following blocks: Baitalpur and Rampur Karkhana. The blocks chosen in Firozabad are: Shikohabad and Tundla.

Hypotheses and Implications

The proposed hypotheses pertaining to the differences across private and government schools that determine demand for them were:

- A. It is likely that the existing supply of infrastructure in private schools, rather than in government schools, meets the requirements of students and teachers.
- B. Supply-side and demand-side interventions are better in private when compared to government schools and hence affect enrolment favourably.
- C. The quality of training imparted in private schools is much better than that in government schools and hence is likely to affect learning achievement favourably.

The implication for educational policy planning and implementation is that private school standards could be emulated in government schools. An estimate of the gap between requirements and the existing infrastructure in government schools has implications for what needs to be done. In this manner, the better performance of private schools can be replicated in government schools also. The research can have far-reaching implications for government schools as well as for the DPEP programme.

Methodology

For comparing school-level data with respect to various inputs (demand and supply-side interventions) and outputs (performance indicators such as enrolment and student quality), in comparing quantitative and qualitative methods were used to test the robustness of results in government and private schools.

Since the goal of the research was to look at differences between government and private schools, it was an educational production function. In such a function, outputs such as enrolment and learning achievement of students depend on inputs that include demand-side and supply-side incentives. These inputs are teacher quality, instructional methods and processes, school-level infrastructure, costs of tuition, incentives for attendance, encouragement to diverse talent and economic characteristics of parents.

Two different regressions were performed to estimate the demand for government and private schools, by pooling the data for government and private schools. The coefficients for government and private schools being the same, it was assumed that the same factors determine school quality in government and private schools. This may be called a restricted model.

Then, separate regressions for government and private schools (in both the districts) were performed representing unrestricted models since the coefficients for government and private schools were not considered to be the same,

assuming that demand for private and government schools is driven by different factors and as such pooling the data is not justified.

The test of differences across the restricted and unrestricted models enables us to determine whether or not the same factors determine demand for government and private schools. The null hypothesis assumes that the same factors determine demand for both types of schools. Rejection of the null hypothesis based on the test means that demand for government and private schools is not determined by the same factors. If this were to be the case, it is likely that factors like income are more important in choice of government school (i.e., parents with low income send their children to government schools). On the other hand, factors such as teacher quality and school-level infrastructure could be more important in the choice of private schools.

The regression results were supplemented with qualitative analysis that relies on schools' perceptions and community perceptions of the demand for private schools.

Results from Estimation of Demand for Government and Private Schools

Since the basic objective underlying the research is to examine the factors that determine demand for government vis-a-vis private schools, a test was performed to evaluate whether we are justified in combining the model for government and private schools. Chow test² was used to examine if we can pool the two samples together in studying the demand for schools in general. Since this test indicated that the sample of government and private schools cannot be considered homogenous,³ separate estimations of indicators of performance for government and private schools were undertaken.

Table 1 reports the descriptive statistics for variables used in the estimation and describes and compares the data for government and private schools. The Table is consistent with expectations and hypotheses. As can be seen, government schools have, on an average, a higher share of the enrolment, being consistent with other data. With the exception of having their own building for the school, private schools have better infrastructure (number of teachers, classrooms) than government schools. Table 1 shows that fees and incomes of parents of children attending the school are substantially higher in private than in government schools. As expected, in the sample, a greater proportion of government schools has programmes providing free textbooks and scholarships to students. It may be noted that although government school teachers spend more time in school than their private counterparts, they are less likely to use questioning and reading as instructional methods than are private school teachers, who also enforce disciplinary action against student absenteeism. This explains why the learning scores (consisting of knowledge, word comprehension and mathematical skills) on average are higher for private than for government school students.

TABLE 1

Descriptive Statistics for Government and Private Schools		
<i>Variable used in estimation</i>	<i>Mean (Government Schools, N=52)</i>	<i>Mean (Private Schools, N=38)</i>
Enrolment	242.71	225.24
Number of teachers	3.75	5.71
Own building	0.94	0.76
Number of classrooms	2.77	4.79
Teacher attendance (Days per week)	5.30	5.32
Time (% of day) spent teaching	0.66	0.63
Fees	1.15	22.91
Time teachers spend in school (Minutes everyday)	199.87	192.63
Questioning	3.29	3.76
Reading	3.63	3.89
Free books	0.87	0.08
Scholarship	0.92	0.18
Income of parents of children attending school	2057.69	3618.42
Action against absenteeism (1=Yes, 0=No)	0.35	0.50
Student Learning Achievement Scores	17.49	19.80

Enrolment is estimated on the assumption that it is dependent on various supply-side factors (measures used are whether or not the school had own building, number of teachers and classrooms), teacher quality (indicated by the time teachers spent in school and teaching, and the use of questioning and reading as instructional methods), and demand-side factors such as fees, availability of free text books, scholarships, and policy regarding disciplinary action against absenteeism. Tables 2, 3 and 6 report the results from the estimations, based on two indicators of performance - enrolment for the most recent year (1999-2000) (including all primary classes) and learning achievement levels of students in the schools.

Table 2 shows the results from estimation of enrolment as determined by various supply-side and demand-side characteristics. It shows that the number of teachers has a statistically significant impact on enrolment in government as well as private schools. That is, the higher the number of teachers in a school, the higher the number of students that would demand the school. However, it should be noted that the number of teachers is endogenous because frequently teachers are recruited on the basis of the number of students enrolled. Therefore, we also estimate these demand functions through an instrumental variable procedure. One instrumental variable that is correlated with the number of teachers but is not determined by enrolment is number of classrooms. The number of classrooms in any given school is most likely to be decided by the school management and is

not changed by the number of students enrolling every year. Table 3 describes these estimation results in which enrolment is estimated as a function of the same variables excluding the number of teachers, using the number of classrooms as an instrumental variable in place of the endogenous variable (number of teachers).

TABLE 2
Estimation of Enrolment (All Classes)

	<i>Government Schools (N=52)</i>			<i>Private Schools (N=38)</i>		
	<i>Coefficient</i>	<i>Standard Error</i>	<i>t value</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t value</i>
Intercept	248.61	242.69	1.02	399.51	210.01	1.90
Teachers	19.78*	10.41	1.90	16.21**	8.11	2.00
Own building	-20.54	58.96	-0.35	33.15	46.45	0.71
Classrooms	25.98**	12.19	2.13	-10.36	8.70	-1.19
Teacher attendance	9.73	30.04	0.32	-47.95	35.39	-1.35
Time spent teaching	-76.76	156.78	-0.49	-119.41	338.20	-0.35
Fees	-93.57	62.76	-1.49	-2.68*	1.51	-1.77
Time teachers spend in school	0.42	0.54	0.79	0.97	1.04	0.92
Questioning	7.15	14.84	0.48	-30.24	28.22	-1.07
Reading	4.66	14.23	0.33	25.85	23.87	1.08
Free books	-57.27	38.41	-1.49	34.92	72.28	0.48
Scholarship	4.20	51.62	0.08	11.32	45.75	0.25
Income	-0.05	0.04	-1.11	0.00	0.01	-0.25
Action against absenteeism	-16.19	31.49	-0.51	-44.74	37.66	-1.19
R-	0.41			0.57		

*Statistically significant at 10 per cent level.

**Statistically significant at 5 per cent level.

Table 2 also shows that fees negatively determine enrolment in private schools which testifies to the fact that lower income groups are effectively excluded from private schools. Specifically, for every rupee increase in the monthly fees, there is roughly a reduction of 3 students enrolling in private schools. The intercept for private schools is significant showing that on an average about 467 students are enrolled in private schools even when none of supply-side or demand-side factors are taken into account. This most probably denotes the perception of private schools being a symbol of status in society. This is consistent with what is found from the community's perception of why parents choose private schools for their children (Table 7).

TABLE 3
Estimation of Enrolment, Excluding Number of Teachers

	<i>Government Schools (N=52)</i>			<i>Private Schools (N=38)</i>		
	<i>Coefficient</i>	<i>Standard Error</i>	<i>t value</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t value</i>
Intercept	327.04	247.02	1.32	423.68*	221.86	1.91
Own building	-41.54	59.81	-0.69	11.94	47.86	0.25
Classrooms	35.18***	11.55	3.05	-4.06	8.58	-0.47
Teacher attendance	12.74	30.98	0.41	-37.31	37.02	-1.01
Time spent on teaching	-91.46	161.74	-0.57	-95.22	357.64	-0.27
Fees	-108.51*	64.31	-1.69	-2.70*	1.60	-1.69
Time teachers spend in school	0.49	0.55	0.89	0.92	1.11	0.83
Questioning	2.30	15.10	0.15	-32.47	29.84	-1.09
Reading	9.56	14.46	0.66	23.64	25.24	0.94
Free books	-37.42	38.18	-0.98	115.89*	63.33	1.83
Scholarship	8.66	53.27	0.16	33.23	47.00	0.71
Income	-0.07	0.04	-1.54	0.00	0.01	-0.07
Action against absenteeism	-6.59	32.11	-0.21	-54.84	39.49	-1.39
R ²	0.35			0.50		

***Statistically significant at one per cent level.

*Statistically significant at 10 per cent level.

The estimation of enrolment excluding the number of teachers, reported in Table 3, shows similar results. The effect of the image of private schools in society remains and shows in the intercept. Fees have a negative impact on enrolment, as in the previous estimation. As before, the model continues to be a good explanation of changes in private school enrolment rather than that in government schools as seen in R². It may be noted that the instrument used vis-a-vis number of classrooms has a statistically significant impact on enrolment indicating that school infrastructure especially in the case of government schools is something that parents look for in their choice of schools. In the estimation, it may also be noted that the negative effect of the fees extends to the government school sample as well. This shows that government schools that charge higher fees (as donation for various purposes) have lower enrolment. This is supported by the negative effect that income has (but not statistically significant) on enrolment in government schools. This indicates that lower income classes prefer government schools (and higher income classes do not). Therefore, higher fees in government school discourage enrolment of the lower income classes. Finally, as

one would expect, the provision of free textbooks has a positive impact on enrolment in private schools. The intercept in the case of private schools is again significant indicating the importance of private schools even when we do not take into account any of the demand-side or supply-side factors of the model.

Learning Achievement

Learning achievement of children is an important indicator of school effectiveness but this variable has not attracted enough attention at primary level (NCERT, as quoted in World Bank, 1997). The available evidence, however, shows that primary level learning achievement is low. Children of class 5 have learned only less than half of the curriculum of previous grade.

Some studies (Govinda and Varghese, 1993) have reported that about 70% of grade 4 students and 60% of grade 5 students from schools in privileged urban zones of Madhya Pradesh had not mastered competencies in Hindi and Mathematics that would be expected from grade 2 students. In under-developed rural zones, it was found that no grade 4 and grade 5 student had mastered competencies of grade 2 students. A study (Shukla & others, 1994) reported, for a sample of 65,000 urban and rural grade 4 students, an average achievement of 46.4 % in basic skill tests of arithmetic, comprehension and spelling. A similar study (Saxena, Singh, and Gupta, 1995) studied 24,000 students on arithmetic and reading comprehension skills, and reported a low average achievement level.

In this study, we test class 5 students for class 4 level word meaning, reading comprehension, and arithmetic. The scores for each school were averaged to generate index of learning achievement in school. Data were compared across school types.

Table 4 suggests that average achievement is less than 50 per cent on all the dimensions - knowledge, comprehension, and mathematics - in government schools. As expected, private schools on an average scored higher than their government counterparts on each dimension.

TABLE 4

Learning Assessment by School Type

	<i>Knowledge</i>	<i>Word Comprehension</i>	<i>Mathematics</i>
Average Govt	6.87	4.51	5.10
Average Private	8.33	6.42	6.85
Average Pvt. recognized	8.72	6.85	7.38
Average Pvt. unrecognized	7.70	5.73	6.01
Average all	7.55	5.41	5.92

Table 5 shows the proportion of government and private school students that scored below and above average if the total learning achievement scores are taken into account. Valid responses for 94 schools (50 government and 44 private) were available. Table 5 shows that sixty-three per cent of government school students scored below average, while only 42% scored above average. Among private schools, 58% scored above average (with the share of private recognized schools being higher when compared with unrecognized schools), and only 35% below average. The results suggest that private recognized schools have quite a wide variation in terms of average learning achievement of their pupils of class 5. Overall, 46% of all schools (including government and private) scored above average while a majority (54%) of schools scored below the average. This is consistent with findings from earlier research.

TABLE 5
Student Performance by School Type

	<i>Above Average</i>	<i>Below Average</i>
Government	42% (18 out of 43 schools)	63% (32 out of 51 schools)
Private	58% (25 out of 43)	35% (18 out of 51)
Pvt. recognized	37% (16 out of 43 schools)	20% (10 out of 51 schools)
Pvt. unrecognized	21% (9 out of 43 schools)	16% (8 out of 51)
All	46% (43 out of 94)	54% (51 out of 94)

Table 6 shows the results from the estimation of student learning achievement as being dependent on the same factors⁴ as in the earlier models (in Tables 2 and 3). It may be noted that although the model is a fairly good explanation of variations in student achievement levels (as seen in the R^2), no single factor exerts a statistically significant effect on learning achievement at the accepted levels of confidence. However, if we were to examine significance in a looser sense (say at the 80% level), we find that instructional methods that rely on reading by students and the enforcement of disciplinary action against student absenteeism affect students' learning achievement positively. This is to be expected because where class attendance and learning are closely monitored, the learning achievement levels are likely to be higher. In the case of private schools, the estimation indicates that the number of classrooms has a positive effect on learning achievement. This is reasonable because the presence of a classroom implies learning undistracted by the vagaries of weather and other conditions that could prevail if classrooms were not there. Since private schools have better infrastructure including classrooms, it is reasonable to believe that on an average, learning achievement scores are higher for private than for government schools.

TABLE 6

Estimation of Student Learning Achievement Levels

	Government Schools (N=52)			Private Schools (N=38)		
	Coefficient	Standard Error	/ value	Coefficient	Standard Error	/ value
Intercept	33.94	40.75	0.83	-0.26	23.46	-0.01
Teachers	0.93	1.75	0.53	-0.19	0.91	-0.21
Own building	-3.26	9.90	-0.33	1.12	5.19	0.22
Classrooms	1.76	2.05	0.86	2.04**	0.97	2.10
Teacher attendance	-5.24	5.04	-1.04	2.07	3.95	0.52
Time spent on teaching	23.94	26.32	0.91	-1.39	37.78	-0.04
Fees	5.91	10.54	0.56	0.20	0.17	1.16
Time teachers spend in school	-0.06	0.09	-0.65	-0.04	0.12	-0.33
Questioning	2.24	2.49	0.90	-3.54	3.15	-1.12
Reading	0.02	2.39	0.01	3.38	2.67	1.27
Free books	-1.16	6.45	-0.18	-2.33	8.07	-0.29
Scholarship	3.86	8.67	0.45	1.76	5.11	0.34
Income	-0.01	0.01	-1.12	0.00	0.00	0.62
Action against absenteeism	6.42	5.29	1.21	3.38	4.21	0.80
R ²	0.25			0.42		

Factors Determining Demand for Private Schools: A Qualitative Analysis

Parents and community members, whose children are going to government schools, have been classified under government, whereas parents who sent their children to private schools, either recognized or unrecognized, have been classified as private. These parents were asked to respond to a structured interview. In addition, schools were also asked for their perception regarding the factors that determine the demand for private schools. Community perceptions are summarised in Table 7 and school perceptions in Table 8. The major factors suggested by government schools as determining demand for private schools were as follows:

- Private school children hail from good socio-economic background
- There are good facilities in the school
- Attention to child's personality development
- Education in the school is good
- Innovative methods are used for teaching

- Behaviour of teacher is good
- Teachers are good
- There is strict discipline in the school

TABLE 7
Perceptions of Community Regarding School by School Type (On a 5-Point Scale, 1=Never, 5=Very Often)

<i>Factor Influencing Choice of School</i>	<i>Government</i>	<i>All Private</i>	<i>Private Recognized</i>	<i>Private Unrecognised</i>	<i>All Schools</i>
Students' achievement	3.07	3.63	3.61	3.67	3.30
Morale of teachers	3.05	3.52	3.53	3.51	3.24
Teacher-student relationship	3.15	3.48	3.39	3.64	3.28
Teaching schedule	2.98	3.61	3.74	3.36	3.23
Students' self-evaluation	2.88	3.39	3.42	3.33	3.08
Students' general knowledge	2.89	3.35	3.35	3.36	3.08
Use of various teaching aids	3.02	3.20	3.23	3.16	3.09
Use of various evaluation techniques	2.83	3.25	3.21	3.32	3.00
Use of various teaching/pedagogical tools	3.01	3.64	3.34	4.18	3.26
Knowledge of teachers in various areas	3.12	3.92	3.65	4.41	3.44
Correction in student behaviour	3.05	3.42	3.41	3.44	3.20
Opportunities for in-service training	2.99	3.41	3.43	3.35	3.16
Student attendance	3.12	3.57	3.59	3.54	3.30
Interest of students in reading and learning	2.98	3.47	3.41	3.59	3.18
Discussions amongst teachers	3.03	3.46	3.37	3.63	3.21
Healthy relationship between teachers and students	2.93	3.38	3.39	3.36	3.12
Self-learning and self-discipline among students	2.87	3.39	3.41	3.34	3.08
Principal's leadership qualities	3.03	3.66	3.68	3.64	3.29
Teacher-parent relationship	3.07	3.50	3.53	3.46	3.25
Image of school in society	3.15	3.74	3.69	3.82	3.39

TABLE 8

Factors Motivating Parents' Choice of Private Schools: Schools' Perspective

	<i>Government</i>	<i>Private</i>	<i>Private Recognized</i>	<i>Private Unrecognised</i>	<i>All Schools</i>
Teachers are good	20.41%	52.27%	55.56%	47.06%	35.11%
Teachers come to school regularly	18.37%	50.00%	44.44%	58.82%	32.98%
Education in the school is good	38.78%	34.09%	40.74%	23.53%	37.23%
Children hail from good background	48.98%	20.45%	25.93%	11.76%	36.17%
There are good facilities in school	42.86%	36.36%	40.74%	29.41%	40.43%
There is scholarship provision in the school	2.04%	11.36%	11.11%	11.76%	6.38%
Children get midday meal in the school	2.04%	6.82%	3.70%	11.76%	4.26%
Children get free books/study material	0.00%	13.64%	11.11%	17.65%	6.38%
There is strict discipline in the school	20.41%	45.45%	44.44%	47.06%	31.91%
The behaviour of teachers is good	24.49%	54.55%	55.56%	52.94%	38.30%
Attention is given to children's personality development	38.78%	40.91%	44.44%	35.29%	39.36%
Innovative methods are used for studies in the school	30.61%	38.64%	37.04%	41.18%	34.04%
Others (English medium, Transfers, Satisfaction)	6.25%	6.82%	7.41%	5.88%	7.53%

There is nothing that government schools can do if privileged class parents are opting for private schools. But on other dimensions, government schools can improve, so that more students are attracted to government schools.

Parents sending their children to private schools, perceived the following reasons in order of priority:

- Behaviour of teachers is good
- Teachers are good
- Teachers come to school regularly
- There is strict discipline in the school
- Attention is paid to child's personality development
- Innovative methods of teaching

- Good facilities in the school
- Education in the school is good
- Children hail from good socio-economic background.

Quite consistent with this, the perceptions of the community regarding factors influencing choice of school were the knowledge of teachers in various areas, the image of school in society, and the principal's leadership qualities. These factors received higher rating for private schools when compared to government schools. On a negative note, factors that detracted community's choice of government schools were the lack of innovation in the use of various evaluation techniques, lack of self-learning and self-discipline among students and the level of knowledge of the students.

The image of private schools at large is of discipline, good teaching, punctual and well-behaved teachers, and good infrastructure. This may or may not be true as the schools in our sample did not score much higher on school infrastructure as compared to government schools, but they are better in terms of classroom facilities and teacher resources.

Summary of Conclusion

The regression analysis results suggest that demand for schools decreases as fee increases. None of the variables included affect learning achievement significantly in government schools. Fees and the use of reading as an instructional method significantly affect learning achievement levels in private schools. The use of reading as an instructional method is associated with higher learning achievement, which is reasonable for us to expect. Where parents are paying higher fee, they may also be supporting their children to do well apart from the attention that teachers give in the school. So we may imagine that government schools have low fees as well as impart lower quality education whereas private schools charge higher fees but impart higher quality education. So it is the decision of the parents to choose the desired combination of fees and quality of education. Combining the evidence found here, most parents appear to prefer the high fees-higher quality combination.

The message is very clear that if government schools want to survive they have to incorporate processes similar to private schools that include the following:

- Use a variety of pedagogical tools to generate students' interest and inculcate learning;
- Use innovative tools for evaluation; and
- Maintain discipline.

If the above are not emulated by government schools, it would be better to privatise even primary education. However, here the problem could be that the social objectives of education could be lost sight of. From this point of view, it seems all the more important for government schools to improve their all-round quality.

Notes

1. Assuming 225 working days according to governmental rules, one-third attendance by teachers implies that the actual number of working days could be as low as 68 days or so.
2. The Appendix contains a description of the test.
3. This means that the slope and intercept parameters would be different for variables used in the model for government and private schools.
4. Note that number of teachers included in these estimations is not endogenous with learning achievement levels of students. That is, while student enrolment determines the number of teachers, learning achievement of students does not determine number of teachers.

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Appendix

Tests involving the Equality of Coefficients of Different Regressions

Unrestricted Model (the assumption is data for government and private schools are separate and have to be estimated separately):

$$Y_i = \beta_0 + \beta_1 X_{1i} + \dots + \beta_k X_{ki} + \epsilon_i$$

$$i = 1, \dots, N$$

ESS_{UR} = ESS_y + ESS_p (ESS_{UR} refers to error sum of squares in the unrestricted model. ESS_y refers to error sum of squares of the model of government schools and ESS_p error sum of squares of the model for private schools.

Restricted Model (Assumption being that data for government and private schools can be pooled and estimated):

$$Y_i = \beta_0 + \beta_1 X_{1i} + \dots + \beta_k X_{ki} + \epsilon_i$$

$$i = 1, \dots, N + M$$

N: Number of government schools

M: Number of private schools

Null Hypothesis:

$\beta_1 = \beta_2 = \dots = \beta_k$ (Data for government and private schools can be pooled)

Test:

$$F = \frac{(ESS_R - ESS_{UR})/k}{ESS_{UR}/(N + M - 2k)}$$

When this test was performed, we found that the calculated value of F based on the restricted (pooled regression for all schools) and unrestricted models (separate regressions for government and private schools) was 4.4 which enabled us to easily reject the null hypothesis of pooling the data for government and private schools at the 1 per cent level of significance. Therefore, we have estimated separate models for government and private schools and have reported them separately.

BOOK REVIEWS

MUKHOPADHYAY, MARMAR: *Total Quality Management in Education*, National Institute of Educational Planning and Administration, New Delhi, 2001, pp.xviii+255, Price: Rs.350.

Quality has been one of the major concerns of education across all levels. With globalisation of economy, demand for quality in education has assumed much significance. Total quality management offers an opportunity to respond to this challenge. The book under notice covers the philosophical underpinnings of 'Total Quality Management' (TQM), its instrumentalities as well as methods of strategic planning and implementations in schools. It is a practical guide to management of quality through TQM.

Originally the credit for developing a comprehensive philosophy and strategy for TQM goes to W.E. Deming and J. Jurian. Its two features are: commitment to continuous improvement, and involvement of all members of the organization. The emphasis is on human resource development and capacity building. The structures and systems have a greater role to play than individual efforts and competencies in quality management. However, individuals should be used productively and not to hatch up basic design flaws. J. Jurian reinforced the contention of the system with 85/15 theory, that is, 85 per cent of the problem that an organization faces is due to system failure, and only about 10 to 15 per cent failures are problems due to individuals. Thus, improving quality is synonymous with improving management.

With the new world order, the challenge is not only the quantity, but also the quality, indeed the total quality in education. TQM offers an opportunity to improve educational quality in a holistic manner. In respect of higher education, E.F. Bosner points out that the move towards TQM is due to escalating number of students, the lack of consistent leadership style, the measuring accountability to the public and changing attitudes towards universities. These pressures demand peak performance in all areas of endeavour. This is primarily due to external and internal forces impinging on the institutions. TQM focuses on identification of propensities of each individual and nurturing such propensities for holistic development. Assessment of quality in education has to cater to the needs of students as well as the perceived needs of other constituents, parents' community, government and employers. In the context of schools, the emphasis is on *creating a culture of management leading to quality*.

In the education system, the raw material in the form of students' cognitive nature and affective qualities and other attributes are processed through instruction, co-curricular activities, student's assessment and other activities to develop an all-round personality of a student. Instructions also require teachers

and principals, textbooks and other infrastructure. From the TQM angle, the principal should look at a school as a total organism, and not as fragments of activities and structures. The purpose of education is optimization of students' physical, mental, emotional and moral potential. So education has to cater to the development of all these facets. Furthermore, the focus must be on all the four levels of the taxonomy of educatedness - living informed, cultured, emancipated and self-actualised. Besides students, another aspect is the development of teachers. They must also continue to be informed, cultured, emancipated and self-realized.

The purpose of institutional assessment is to understand the strengths and weaknesses for the sole purpose of development. Participative process is the cardinal principle of total quality management. The crucial point is to understand and acknowledge the perceptual differences, and make efforts to reduce the perceptual gaps. In this context, Mukhopadhyay's Institutional Profile Questionnaire (MIPQ) is quite helpful.

A good school-head who is capable of establishing effective teamwork and is seen as being competent and open-minded often achieves major achievements in the quality of his/her school. The challenge is in creating a sense of worthwhileness about teaching among teachers, giving them independence and encouragement, and monitoring leadership among colleagues. He has to adopt a philosophy of quality culture to develop a distinctive mission with a long-term plan, a set of quality policy, plans and strategies. One of the tasks of a quality management leader is driving out the fear that can be achieved by creating an environment of risk taking.

It is the quality of decisions that either makes, or breaks, the organization. Data and information are necessary for decision making for continuous quality improvement. The main problem is lack of vision and understanding of a perspective at the point of origin of a decision. It is made on facts with a rational understanding. In the context of teaching, the author has developed a classroom Teaching Competence Scale, which can generate data that can be used as a basis for decisions on staff development.

The theme of HRD for TQM is developing quality consciousness among people. This will require personal mastery over all functions. The goal of HRD in the beginning is to convert each one into an empowered door. From there, they must move to become continual thinkers that will make institutions look for continuous improvement, the intrinsic purpose of TQM. Strategic planning implies developing a long-term plan, with built-in medium and short-term plan to achieve organizational missions and goals. The author has proposed a model - a workable strategic plan - for the adoption of TQM in Indian schools. It indicates that vision needs the input of the concept of quality and understanding of TQM as a strategy. Similarly, in deciding quality policy, inputs are necessary from leadership concept and practices, human resource development and team work.

For the institutions, a strategic policy is to build general services that would distinguish an institution from others.

Implementation is the stage where innovation is actually adopted. It implies conversion of each of the planned item into action. The recording of experiences provides data and information for review and decision-making for mid-course correction and modification. The stage of evaluation is also included within this stage. Here an innovation is internationalised and it becomes a part and parcel of the organizational processes. This results in change in the process of working and in developing a new culture. On successful implementation of quality management strategies, the data on the targeted areas should be collected and compared with the base-line data. This difference will indicate the shift and a new base-line would be created. With this journey begins again the process of setting new targets, making new plans for implementation, revision of base-line and continuation. This makes an organization continuously searching for change and move forward.

In sum, the author has endeavoured to apply the concept of 'Total Quality Management' to the field of education. The scales and questionnaires provided in the appendices will be of immense help to school administrators and educational personnel to assess the institutions and staff for development. The book will be of help to a wide variety of readers interested in improving the quality of education.

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VAIDYANATHAN A. and P.R. GOPINATHAN NAIR (eds.): *Elementary Education in Rural India - A Grassroots View*, Strategies for Human Development in India-Volume 2, New Delhi: Sage Publications, 2001, pp. 574, Price: Rs. 695, (Hard Cover), ISBN 81-7036-919-3 (India-Hb)

This book consists of a collection of eleven articles that document the findings of studies on the performance of elementary education in nine major states. The studies were organized under a four-year National Research Project on various aspects of human development which began in 1992 and was funded by the United Nations Development Programme and the International Development Research Centre.

The excellent introduction emphasizes, that the principal motivation for the studies was to uncover the factors underlying differential educational progress in order to design more effective strategies and programmes for universalizing elementary education. A common framework and research design was adopted for all the states. The focus was on rural areas and on the position of girls, scheduled castes and scheduled tribes. Secondary data from the Census (1991

and 1981) and NSS (1986/87) were analysed in respect of all the states. For several states, multiple regressions were used to explore inter-regional variations in rural literacy and of enrolment status. In addition, primary data collection was undertaken to estimate the determinants of enrolment and probe the qualitative aspects of education. Village and household surveys were conducted in two districts in each state which were distinctly different in terms of the absolute rural literacy rate and the decadal change in rural literacy. Within each district, one or two blocks were selected, within which a few villages, that were at different stages of educational development, were chosen for detailed study. Approximately 1,000 households were enumerated in each selected block. The surveys collected data from households on participation in schooling, reasons for non-enrolment and discontinuance, the type of school attended and expenditure on schooling; they collected data from schools on physical facilities, educational aids, teacher characteristics, school expenditure and qualitative aspects of the functioning of schools. Group interviews were conducted to ascertain attitudes and perceptions.

The completion of all these studies following a common framework, and the collection and analysis of primary data on such a large scale, is undoubtedly a major achievement. The publication of the findings in one volume is also a great help to those associated with elementary education in India. The book is, however, difficult to digest, not because the subject matter is intrinsically difficult, but because the sheer volume of empirical quantitative data that is presented and analysed is overwhelming. All the eleven articles are replete with regression analysis of inter-district and intra-district variations in literacy rates and enrolment rates, tables covering almost all aspects of the survey and statistical analysis of the determinants of schooling. Empirical analysis on this scale has rarely been undertaken in India.

There is a wealth of qualitative information, on the functioning of schools, on the implementation of macro policies and state norms at the village level and the opinions and behaviours of households. The introduction acknowledges that the results of qualitative interviews were rather uneven and were not even reported adequately. Nevertheless, the qualitative observations of the contributors tremendously enriched the discussion of the quantitative analysis.

Due to the magnitude of the data sets and variety of quantitative analyses conducted for each state, each article deserves a critical review but it is impossible to do justice to any one of them in this review. Only a few key findings are highlighted here. One common result of the secondary data analysis is that intra-district variation in literacy rates is almost as high if not higher than inter-district variation. At the district level, male and female literacy rates are strongly correlated as are the literacy rates of SC/ST and the general population. The secondary data used for these analyses are, in general, grossly out-of-date - most use the 1981 Census literacy rates to investigate intra-state and intra-district

variations. Sarthi Acharya's study of heterogeneity in educational participation and outcomes in rural Maharashtra and Madhya Pradesh relies exclusively on the 1981 Census data and 1986/87 NSS data. No village surveys were conducted in these two states.

There are some common and not unsurprising results of the multivariate analyses of household-level data pooled across villages to estimate the determinants of enrolment or grade attainment. The key variables are caste, parents' education and occupation, poverty, sex of the child and distance to school. Certain studies have captured the impact of specific ecological, social and cultural factors. Variables such as the distance to drinking water and fuelwood sources and to grazing land have significant effects on enrolment rates, particularly of older girls (Anuradha Pande, UP Himalayas; Geetha Nambissan, Rajasthan). N. Krishnaji's analysis of survey data from Mahboobnagar and Adilabad shows that caste is not a significant variable in determining enrolment status after controlling for poverty, adult educational attainment, age, birth order and gender. In Tamil Nadu, Malathy Duraisamy shows that school characteristics are also important: the educational qualification of teachers affects the grade attainment of children in the 5-10 year age group, while teacher training influences grade attainment at the secondary level.

The article by Joseph Thomas presents, in addition to the analysis of quantitative data, a useful account of the effects of economic, social and political changes on the historical development of education in Malabar (Kerala), through case studies of four villages in the same region. He discusses the contrast between community-led initiatives that contributed to rapid educational progress in one village and individual-led initiatives in other villages that did not record similar progress, despite similarities in economic and social conditions.

There are some interesting insights regarding the education of children from SC/ST, OBC and minority backgrounds in various studies. Ravi Shrivastava's study of Rampur and Ballia districts in Uttar Pradesh reveals that non-enrolment is not highest among the scheduled castes, despite these groups being the poorest in the sample villages. This is attributed to the impact of job reservations on the perceived benefits of education. Another remarkable observation is the differentiation of public and private schools by caste: scheduled castes in both districts are enrolled mostly in government schools, while a higher proportion of children from other groups are enrolled in private schools. Anuradha Pande documents that two-thirds of the schools surveyed in Chamba and Bhimtal are located within or close to hamlets of upper caste communities and only 32 per cent are close to scheduled caste habitations. Manabi Majumdar's article compares the experiences of Tamil Nadu and Rajasthan and notes that SC/ST households in Kanyakumari (Tamil Nadu) performed better than backward caste households in sending children to school; by contrast, SC/ST children are definitely far behind other social groups in Rajasthan.

Three studies M.K. Jabbi and C. Rajyalkashmi (Bihar), Geetha Nambissan (Rajasthan) and Sailabala Debi (Orissa) identify problems specific to the education of tribal children. Among them, the incompatibility of the language of instruction with the tribal dialect is a common problem. The rigidity of school timings is also cited as a reason for irregular attendance and eventual dropping out of children. Jabbi and Rajyalakshmi's study specifically note the problems of residential schools for tribals in Bihar.

There were also certain common findings in the qualitative study of the functioning of schools. In government schools, the inadequacy of teachers, often caused by prolonged periods in which teachers are not appointed as well as teacher absenteeism, is found in almost all states. The lack of a stimulating learning environment was found to be an important reason for children dropping out of school. Geetha Nambissan also cites teachers' negative attitudes towards dalit and tribal children in contributing to the poor learning environment and discourages children from attending school. Manabi Majumdar shows that in Rajasthan, there are wide variations in the quality of government schools across villages as reflected in infrastructure and the level of teacher absenteeism and vacancies, with economically better off villages enjoying higher quality public schooling.

Will this enormous volume of empirical analysis help to define more effective strategies and programmes, as the designers of the research project hoped? Probably not, partly because the findings are too general and have a pan-Indian flavour despite the declarations in favour of contextuality. In general, the regressions are not theoretical specifications; statistically significant coefficients do not necessarily imply causality. In some cases, policy recommendations do not emanate from the empirical analysis that has been presented. In other cases, the recommendations are clearly economically infeasible - for instance, the recommendation to have a regular teacher for each class in small rural schools in order to improve quality, also endorsed in the introduction, albeit with some caveats, is clearly impossible for most states in the short run. A discussion of the policy alternatives to deal with the dilemma of raising quality within reasonable costs would have been worthwhile. The exclusion of urban areas from the purview of the study also prevents holistic assessment of the status of elementary education in each state.

The value of this book lies in the enormous amount of detailed information on individual states and districts. The research has generated a number of interesting hypotheses that await further investigation. Analysts wishing to pursue further work on these states will find invaluable reference material in this book.

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HERNANDO De SOTO: *The Mystery of Capital-Why Capitalism Triumphs in the West and Fails Everywhere Else* - Basic Books (Member of the Perseus Books Group), New York, USA, Price \$41.50

The theme of the book under review is very clear from its title. It addresses to the question of the success of capitalism in the Western countries and its failure elsewhere also, especially in the present day developing countries and the former communist countries. This is the "mystery" of capital, which the author has convincingly explored in the seven chapters of the book in a historical perspective.

Why has this question cropped up in his and his research team's mind? Why should capitalism triumph where it has failed? Will its triumph augur well for these countries? Will its success there, side by side its age-old success in the west, further strengthen capitalism in the world as a whole ushering in a new just economic and social order enabling developing and former communist countries to be equal partners in world development? Answers are contained in the book.

The present developed western countries in the past were more alike the developing countries of today - "teeming with blacks, pervasive mafias widespread poverty and flagrant disregard of the law." Before the creation of the key conversion or representational process some 150 years ago, their assets were simply dead capital. By developing a well-integrated legal property system, the Western nations unravelled the mystery of transforming dead assets into live capital, which is the lifeblood of capitalism. It made the evolution of the economic potential of assets easier, enhanced their exchange value, and in the process made capital more productive. People who were operating in the extra legal sector and the poor people, who had almost no access to formal property system, now became an integral part of this system. This briefly explains the success of capitalism in the west. The Third World countries are not only not assetless but even their poor have accumulated assets, the value of which is many times all the foreign aid and investment received since 1945 which are needed to make a successful transition to capitalism. Even then, capitalism has not made much headway there. Their assets are in defective forms. In that sense, the "rights are not adequately documented. And so assets cannot readily be turned into capital, cannot be traded outside of narrow local circles where people know and trust each other, cannot be used as collateral as a loan, and cannot be used as a share against an investment." This amounts to the lack of representational process very much needed to inject life into assets and make them generate capital.

The success of capitalism in the west has made it clear that capitalism cannot be built without capital. The creation of western type well-integrated legal property system and implementing it in these countries is a big legal and political challenge. They have to accept this challenge if they want to "globalize" capital within their own countries. Accepting a challenge depends on examining the issues involved in the evolution of this system in the west; how the system was made accessible to the poor; how to rope as many persons as possible in the formal legal system and apprising persons of the benefits of becoming a part of it.

In short, they have to start "capitalization process", i.e., movement from dead capital to live capital. They are under-capitalized not because of their lack of entrepreneurial spirit or market orientation or deficiencies in cultural or genetic heritage. The poor there are the solution, not the problem.

The author is advocating the replication of the western system in the countries where it has failed not because he is championing the cause of capitalism. On the contrary, he is more concerned about the two recent phenomena, which do not seem to be in the wider interests of these countries and also in the overall global interest. First, the building up of anti-capitalism and anti-globalization feeling; and second, implementation of the macro-economic reforms dealing with the aggregates and forgetting whether people possess the means to participate in an expanded market system. Here, the author reminds the readers of the inherent contradiction in the capitalist system foreseen by Karl Marx - "a capitalist and free market economy for the privileged few who can concretize their property rights, and relative poverty for a large undercapitalized sector incapable of leveraging its own assets. Further, he warns us that unless globalization is made more inclusive. "We have to face the prospect of a resurgence of the acute social confrontations of the past, magnified at the international level." His gospel is - let capitalism thrive in the developing and former communist countries for better mankind.

Has capitalism really triumphed in the west that is still struggling to solve its intrinsic problems of instability, growing inequality and a lumpen proletariat? The future of capitalism, where it has originated and elsewhere, depends upon how the countries are going to tackle " a new set of problems that flow from capitalism's growing dependence upon human capital and man-made brain-power industries'" in the 21st century, as argued by Lester Thurow in his book " The Future of Capitalism"! 1996].

The question arises: Is it a meaningful analysis for the Indian economy struggling to achieve its growth potential of 7 to 8% or even more? Assuming that its economic growth is constrained by the scarcity of capital, will the transition to capitalism as envisaged by the author lead to globalization of capital within the country and promote growth to our potential? What proportion of our assets represents dead capital and what is the share of the poor in it? Will its

conversion generate adequate amount of capital for the purpose? These are the questions for our think tank and policy makers.

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STIGLITZ, JOSEPH E. and YUSUF, SHAHID, (ed): *Rethinking the East Asian Miracle*, Washington, DC: The World Bank and New York: Oxford University Press, 2001, pp. 526, Price: \$45, (Paperback). ISBN 0-19-521600-8.

In many ways, the financial meltdown of 1997-98 in East Asia has given a jolt to the popular enthusiasm about the miracle and its applicability to economies elsewhere. The book under review, with the 13 essays re-examining the miracle, is thus welcome.

Most of East Asia's developing economies have been very much tied up with Japan both in terms of foreign direct investment inflows from and exports to Japan. Thus, by the mid-1990s, some of those economies began feeling the impact of slowing down of the Japanese economy. Added to the slowdown in export growth and overall economic growth, where the economies have weak financial institutions and the much touted about capital account liberalization, the scene was indeed ripe for a currency crisis, triggered by a sudden loss of confidence in the economy.

It is not as if a confidence crisis must lead at all times to a currency crisis and then on to financial, economic, social and political crises. Some like Hong Kong have avoided the currency crisis; others like Singapore have avoided the financial crisis and so on. [For a taxonomical expose on the economies, see Bhanaji Rao, *East Asian Economies: The Miracle, A Crisis and the Future*, Singapore: McGraw-Hill, 2000]. Similarly, the recovery from the recession of 1997-98 has also been at a pace distinct for each economy. One can see hardly any correlation between the growth rates of 1998, on the one hand, and those of 1990 and 2000, on the other.

Takatoshi Ito, in his essay on "Growth, Crisis, and the Future of Economic Recovery in East Asia", takes the reader on a guided tour of the past and the recent past of the regional economies. He argues that the economies have been generally characterized by the co-existence of strong manufacturing sectors and weak financial sectors. He thinks that once the financial sectors become strong, all will be well with the region. While the view is logically correct, the fact that growth rates in 2000 in most economies have begun to look up does not at all mean that the region is now on a strong footing. One cannot ignore the problems

that the continuing Japanese slowdown can create and also what competition from China and Vietnam can do to Indonesia and Thailand, for example.

The third essay (Technological Change and Growth in East Asia by Howard Pack) continues the theme of the first. He gives a high grade for the enormous progress, the economies have made in accumulating physical and human capital as well as assimilating international practices and techniques. Yet, the past can hardly be continued given the changes in comparative advantage bound to take place across the various economies. The economies that will continue to prosper will be those that make the transitions in economic structures, for instance, as in Hong Kong moving to services. Implicit in the Pack thesis is the likely vulnerability of economies that may not adjust quickly to the evolving changes.

The other papers in the volume deal with rural industrialization in China (by Lin and Yao), the East Asian dollar standard (McKinnon), industrial and financial policy in China (Perkins), government control and corporate governance in China (Qian), government and firm relations in Japan (Okajaki), reform of the corporate sector in Korea (Woo-Cumings), trade and growth in Japan and Korea (Lawrence and Weinstein), FDI — miracle at the millennium (Yusuf) and the conclusion — lessons (Stiglitz).

The volume is neither on themes with all economies covered nor economies with all themes covered. Yet, it is a useful one, in the large volume of literature on East Asia.

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WATSON KEITH (ed.) *Doing Comparative Education Research — Issues and Problems*, Symposium Books, P.O. Box. 65, Wallingford, Oxford, U.K., 2001, pp. 394, price not mentioned

The papers included in the book though presented at the conference of the British Association for International and Comparative Education (BAICE) held at Reading in September 1998 do not constitute its 'Proceedings'. The BAICE is the amalgamated form of the earlier British Comparative and International Education Society and the British Association of Teachers and Researchers in Overseas Education. The papers published here have in their modified form been carried in the journal *Compare*, Vo.29, Number3, Oct. 1999, (1).

Besides the *Introduction* and the *Postscript*, this book has four parts each with a title that describes the content of the chapters carried under each. For instance, Part 1 carries four papers and the broad theme is *Re-conceptualizing Comparative and International Education*. Part 2 is titled *Aspects of Research in*

Europe. This theme has five papers. Part 3 with the heading *Practical Issues and New Approaches* has six contributors. And Part 4 with *International Agencies, Data and Globalization* has three contributions only. In the end we have the overview and the status study with the title *Postscript*. This postscript also has a title - *Developing the Discipline* and the contributor is a well-known authority in the field -- J.H. Higginson.

The reason for the publication has been given in these words:

In the new emerging global economic order, governments and policy-makers are keen to seek ideas from other countries and recognize the importance of looking comparatively. This expansion of interest in comparative education brings new challenges for the discipline; research may be undertaken by non-specialists - by consultants and politicians or educationists from quite different backgrounds; the short life-span of democratically elected governments may lend attraction to 'quick-fix' solutions; statistics and data may be decontextualized. Added to these challenges, there are the worldwide proliferation of education providers outside state control and the transformation of teaching and learning brought about by the new information technology. This book rethinks the role of comparative education in the light of these changing circumstances and looks at the new opportunities they bring.

In the *Introduction* itself the entire scheme, meaning and even part summary of the book has been given.

The problems this Seminar attempted to address were:

- i) In the past, more than a decade or so, the fortunes of Comparative Education went down considerably everywhere except in the States. Why should this have happened when the comparative methodology has been adopted even by several non-professional organizations? Where did the Discipline falter to revive itself both in the academic and professional arena?
- ii) The focus of the Comparative Education has changed over time because as Stephen Heyneman says, "All countries are deeply concerned with difficult, controversial, educational reforms. This requires them to borrow from wherever insightful experience might emerge. In my opinion this spells the end of development education, as we know. It represents a new era in which all countries are borrowers and all are donors. This is a refreshing change." This statement forces the comparative educationists to change their strategies and review their concerns all over again. This is precisely what this book and its authors have attempted to do. It is because of this that six justifications have been listed. And they are: (a) the need to challenge wrong assumptions, (b) the need to stress the unique contribution of comparative educational research, (c) the need to understand the implications of globalization, (d)

the need to understand the economics of education, (e) the need to move beyond the economy and to analyze spiritual and philosophical values, and (f) the need to prepare for the future,

- iii) This book has also taken care to distinguish between the terms - comparative and international education - for the benefit of those who use them as synonyms. "My own understanding is that it is probably fair to say that Comparative Education is research-based whereas international education makes practical use of comparative data." This remark of Professor Watson, however, does not tell the complete story. Comparative research was born out of two requirements of the major colonial powers, one, they wanted to keep ahead of others; and two, they wanted their systems to plan educational provisions for those nations where their expertise and skills would sell in future. In the colonial game of trying to remain one jump ahead of others, a superior system with futuristic preparedness always counted for much. This is one reason why today the Western/American universities are leaving their own shores to explore fresh pastures abroad. A good university is one that meets national requirements before it plans another agenda. We must always remember that education is business and to add to its functions and boundaries is always possible. For these reasons, they have evolved several academic areas too. But things have changed in the recent years. Hence, the new goals and new needs.

On the whole, a useful publication for all and especially for those who teach it in India.

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GU MINGYUAN (with an Introduction by Ruth Hayhoe): *Education in China and Abroad: Perspectives from a Lifetime in Comparative Education*. Comparative Education Research Center, The University of Hong Kong, 2001, pp. 260, Price US \$29, Published under CERC Studies in Comparative Education. 9 Series No.9

The Comparative Education Research Centre (CERC) at the University of Hong Kong has been publishing series related to Comparative Education. This volume is the 9th in this series, stated to be part of CERC's mission as a bridge in the field between the West and the East. In 1998, CERC published the fifth volume in the series, *Doing Comparative Education: Three Decades of Comparison* by Harold J. Noah and Max A. Eckstein. Mark Bray in foreword to this volume says that

both Noah and Eckstein focused on their volume primarily of Western countries including USA as their research work was carried out within the ambit of the U.S. based Comparative and International Education Society (CIES) of which both Noah and Eckstein have been presidents. This volume treats the subjects in the context of China, Japan and further presents a comparative analysis of the Asia-Pacific Educational reform vis-a-vis United States, United Kingdom, France, Germany. Chapters 9 and 10 are devoted to Educational Development in the USSR. Major themes discussed in the volume are: Comparative Education and Educational Reform in China covering modern production and modern education (1980-81); the development of higher education in the modern world and higher education reform in China (1983); a shift in educational (ideology) (1986); some issues concerning teaching reforms in higher institutions (1987); a complete and accurate understanding of Mao Zedong; educational thought (1994); modernization and education in China's cultural traditions (1995); Basic educational reforms in the USSR (1982); the nature and educational development; a global analysis (1987); national cultural traditions and their transformation (1998); A response to the challenge of the new era: educational reform for the 21st Century (1994); Comparative Education Theory and Methods; Comparative Education: Retrospect and Prospect (1991); and The Internalization of Education and Comparative Education (1995).

While discussing modern education in relation to modern production, it is emphasized that modern education has demanded that the education enterprise integrates education and productive labour as well as develops all-round personnel. This is a general law and is equally applicable to both socialist and capitalist mode of production. In order to cater for the needs of modern production, the educational enterprise has to train workers with a good grasp of technical knowledge and skills, and labourers for different trades and industries in modern society. It requires a multi-dimensional education system instead of a unified general education alone. It implies different kinds of schools, institutions of higher education. It is no wonder that industrialized countries developed and expanded this multi-dimensional educational system so as to integrate this with large-scale production vis-a-vis economic development. They have trained personnel with advanced scientific and technological knowledge acquired for modern production. Gu challenges the China Comparative Education Community to make a profound understanding of China's educational development the starting point and theoretical ground for their comparative reflections. Gu also calls for comparative consideration of other developing countries, such as India, rather than limiting their studies to a small number of highly developed countries (p. 227). He, at the same time, points out the existing problems in China's comparative education research: the research is largely irrelevant to China's actual situation in education; comparative education lacks theoretical depth; and

we have not paid due attention to the construction of the discipline of comparative education, (p. 230-231.)

Another important theme of the book relates to the internationalization of education and comparative education. The authors analyse the achievement of educational internalization with regard to human as well as information resources.

This is quite an informative volume so far comparative education in Chinese Education System is concerned with a particular focus on her recent economic development.

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HEWARD CHRISTINE and SHEILA BUNWAREE (ed.), *Gender, Education and Development: Beyond Access to Empowerment*, Zed Books Ltd, London and New York, 1999, pp. 223, (Paperback).

SETH, MIRA, *Women and Development: The Indian Experience*, Sage Publications, New Delhi, 2001, pp.283, (Paperback). Priced: Rs.295.

The importance of female education has been revived around the globe in the recent decade by a number of world conferences on either women or education viz, the fourth World Conference on Women at Beijing (1995), World Conference on Education for All (EFA) at Jomtien (1990) and adoption of World Declaration in Education for All (EFA) by 2000 and its assessment at Dakar in 2000. As a follow-up of these summits, there have been lots of initiatives from the government, non-government and donor agencies. Even though there has been a lot of effort by different organisations at varying levels, still a lot more needs to be done concretely to ensure that the deprived female attain the minimum level of education and eventually attain gender equity in education. However, these initiatives by the government and donor agencies have not been properly coordinated in accordance with the specific contexts of the country and hence disproportionately evolved in a piecemeal fashion.

The edited volume of Christine and Bunwaree under review focuses on gender, education and development primarily in the countries of Africa, South Asia and few middle income countries. It runs into thirteen chapters with four varying backdrops, viz, changing political context in Papua New Guinea, South Africa and Peru (Amazon); changing family and household contexts in Ethiopia, Niger and Tanzania; middle income countries - facing a different situation that it is no more just closing the gender gap in education but the same in the labour

market and much beyond - the access to empowerment in Mauritius and Malaysia; and the lowest female participation in South Asian countries except Sri Lanka.

The first chapter by Christine provides a synthesis of various case studies with the genesis of new discourse of gender, education and development. It brings out the development of the discourse from women in regard to gender and development; gender occupying the mainstream; gender as a social relation analysis and closing the gender gap in education. It also argues against World Bank's view on girls' education as a mere contraception. Further, it also highlights that how gender development initiatives are integrated with anti-poverty programmes. Moving beyond the gender gap and empowerment of women in a much broader perspective is also put forth. The chapter ends with a number of important conclusions from the Case Study (p. 13), which will not only serve as guidelines for the donor agencies and the governments of the concerned countries but also for other developing countries as well.

The first part of the book brings out how education of women is marginalized in economic, cultural, social and political contexts. In the changing political context, the adverse impact of structural adjustment programme on education in Latin American and African countries is on women and girls' education. The gender relations in the countries are clearly spelt out: 'it is patriarchy, not the market that enables crucial production choices'. Despite their marginalized role in the societies, women could also mobilise resources. But the state's macro-economic and structural policies are the major impediments to changing gender relations.

The political context in Papua New Guinea is much different from Latin America. Female participation in education in this country is one of the lowest in the world. It is because of the culture of gendered subordination in the country. Added to this, there is a gap between government rhetoric and realities of societal and family values for women.

In South Africa, racism and apartheid law exacerbates gender discrimination. The disparity is the highest in labour market to the extent of discriminatory practices at work at the same level of education. This particular chapter is based on autobiographies of successful and empowered women in South Africa. It emerges from the biographies that patriarchal relations persist so viciously in the country, despite many decades of schooling for girls.

In Peru, (in Amazon), indigenous women of Arakmbut were jeopardised when educated. Education has been a weapon of oppression for many indigenous people through policies aimed at their cultural and linguistic eradication. It was suggested that Arakmbut women must play a strong part in their development to ensure that it safeguards their profound wisdom and knowledge, and their dynamic and integral place in society.

Part two of the book analyses gender, education and development on changing family and household contexts. In Ethiopia, it has brought out how the cultural factors affect schooling of girls. Yet, cost of schooling as well is a major impediment for girls' schooling in Ethiopia. In other words, interplay between economic inability and cultural unwillingness are mutually reinforcing. Hence, it is critical that both cultural and economic constraints are addressed simultaneously to ensure that girls attain schooling.

Niger is one of the poorest countries of the world, where girls' education was the lowest in the country mainly because of the subordinate role of women in the society. Though the donor community and World Bank focus on girls' education in Niger, they have been criticised for their failure to extend education effectively to women. The challenge to increasing girls' schooling is not just getting girls into school, but retaining them in schools. Almost a similar situation prevails in Tanzania. Further, the impact of SAP penalises girls' and women's education. It has been a subject of continuing review and research by the government, NGOs and academics.

Part three concentrates on the relationship between gender, education and the labour market in the middle income countries, viz. Mauritius and Malaysia. In Mauritius, it is warned that if the inequities of women and girls' education remain unaddressed, women will get further marginalized and the country will lose out its economic female potential. Gender inequality in Malaysia is a complex issue embedded in a larger political, economic and cultural context inseparable from its colonial past. Even in the middle income countries, there is discrimination of girls not going for science and engineering subjects. However, there is no simple relationship between education and/or development to empowerment of women. Access to empowerment of women is much more beyond. The horizons are yet to widen wherein multiplicity of factors operate.

Part four takes on the analysis of gender, education and development in some countries of South Asia - Sri Lanka, Nepal and Pakistan. The relationship between gender, education and development has several facets in the context of Sri Lanka's experience. Even though Sri Lanka has the highest literacy rates among South Asia, men and women with same level of education reach different levels in the occupational structure. The unequal gender division of labour within the household continues. Education, even higher education, does not appear to have motivated large numbers of women to challenge gender role assumptions and social practices in Sri Lanka.

It is an examination of a particular project on Secondary Education in Nepal. It attempts to ensure gender equity in all activities of Ministry of Education-owned programme that it attempts to move from women in development to gender and development. It is argued that cultural factors significantly influence girls' low participation in education than economic factors in Nepal. The analysis in Pakistan shows that wider educational issues of sustainability, quality and

effectiveness must be considered in a political, economic and cultural context. It reinforces the main conclusion of women's education and fertility debate, which requires effective reforms in girls' education.

The edited volume is a discourse on the education of women and girls in its economic, political, cultural and social contexts. It criticises World Bank's statement that investing in the education of girls would yield externalities in reduced fertility rates. Reduction in fertility rates is one of the externalities of girls' education. However, there are some points to be taken care of that many of the research findings are not new. Female education provides immense benefits and further perpetuates the benefits to future generations. The social rate of return of female education would be much more substantial than their counterparts. However, these issues were not addressed in any of the papers in the edited volume. Nevertheless, it is a rich collection of studies on gender, education and development in Africa, South Asia and few middle income countries. It will be a useful reading material for researchers, students and policy makers in education and gender development.

In the second title listed above, Seth provides a candid appraisal of government functioning by a government official herself. Her insight after years of experience provides highly interesting and comprehensive account of various programmes initiated by the government for the development of women in India. It runs into seven chapters. The first chapter traces the position of women historically from the period of early civilisation till the post-independence India. It covers a range of issues of women's development and programmes in various spheres such as health, education, employment, crime against women, etc. She argues that resource constraints are not the factors, which hinder in closing the gaps in education, but it is the lack of determination for diverting the resources. However, Seth has not provided a critical analysis of the programmes, which will facilitate in improving or changing the strategies for women's overall development and education in particular. There is overlapping in few chapters, especially the chapter on Policy and Planning and Girl Child overlaps with many of the aspects such as employment, health. In any case, it will be of interest to the gender and development planners and policy makers.

The strength and consistency of gender interventions in education and development depends to a greater extent on the extent to which national governments are able to clearly articulate their education and development and gender goals. Unless the concerned governments, individual parents and the community at large take concerted efforts in promoting girls' education, gender equity in education will only be a dream. Further, it is equally important to examine the issue of whether education changes the lives of women and gender roles and relations within the family. Education is an enabling factor in the development of capabilities, but it is not necessarily a facilitator unless women have control over resources. Though, there has been a shift in the attitude and

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perception towards girls' education, still the boy child gets the top-most priority when the resources are constrained. Hence, it is mandatory that governments should invest on education in general and on girls' education in particular, so as to ensure gender equity in education.

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JOSEPH BLASE and JO BLASE: *Empowering Teachers - What Successful Principals Do!*, Second Edition, SAGE Publications India Private Limited, New Delhi, 2001, Price US \$ 61.95 (Hardbound), US \$ 27.95 (Paper back), second edition, pp. xxi + 201.

This is the second edition of the book. The present publication has the inclusion of data and some insights from research, related literature and national reports. It also contains additional figures, models, tips along with emphasis on instructional leadership. Being research-oriented and whatever the matter included in the book speaks about empirical data and its analysis. Normally, writers speak from their vast experiences. In this book Blase and Blase speak about many things related effectiveness through their hard research work. Recent trend is adding empowerment with any topic, issue/personality. Really this publication is somewhat different from others as it has basis of research data. It says nothing against theoretical and conceptual matters relating to principals and their role. Being down to earth in its presentation it really touches the heart of the people/personnel at the helm of the affairs.

It contains 10 chapters including research method, procedures and references. The entire subject of the book has the central theme of 'sharing governance'.

In the first chapter, Sharing Governance, the authors deal in length about the concept of teacher empowerment. The second chapter deals with the 'trust' the Corner Stone is the making of empowered teachers. The essentials to build trust among teachers are: (a) encouraging openness, (b) facilitating effective communication, and (c) modeling understanding. It was found in the study that with de-emphasis on status differences, belief in equality among professionals and knowledge people flourish when they feel free. They are encouraged to build trust by personally modeling openness in all interactions with faculty and staff members. Principal-teacher relationships seem to improve as well. An environment of trust raises teacher's self-esteem, commitment and sense of ownership. All of these impacts describe the dimensions of teacher empowerment that is directly enhanced by shared governance principals. This

obviously needs effective trust-based communication between the staff and principals.

Transformation and changed vision of teaching requires orientation. These aspects are discussed in the 3rd chapter, *Creating Instruction-oriented Structures*. There is significant change from the traditional, bureaucratic, controlling ways of operating schools now a days, successful shared governance principals realize that increasing teachers access to decision-making is essential to empowering teachers and that cooperative decision making is the foundation of shared governance. Shared governance, however, does not happen unless the open-minded principal decides to involve people in those decision affecting them; it happens when a school is carefully and systematically structured to encourage authentic collaboration. Here the community as well office or board comes into the picture with liaisons of all the members of the school community, organized into small groups, who serve as communication links to assigned council representatives.

Teacher empowerment is associated with a greater sense of professionalism acquired from working with shared governance principals. Staff development can be a powerful tool for improvement in classroom institution. In the 4th chapter, *'Cornucopia of Supportive Resources'*, the authors stress the importance of supportive resources. Besides the great supply of resources, one of the best forums for instructional improvement is the collaboration or cooperative learning among groups of teachers. In this context, the principals' role is that of a facilitator who enables others to enter a reflective conversation about teaching and learning. Another one is that the social reconstructionist approach to teacher education programmes. This approach incorporates critical reflection, journalizing, and practical inquiry. In sum, dialogue and critical reflection promote the empowerment of teachers and democratic schools, the shared governance principal's role becomes one of communicating, coordinating, fostering mutual problem-solving and providing resources for effective work. Two more important areas like autonomy and innovation which ought to be encouraged by the principal for empowering teachers. These issues have been discussed elaborately in the 5th chapter, *'Autonomy and Innovation'*.

The 6th chapter is devoted to discuss school/classroom climate for ensuring quality instruction. There is a shift from traditional-hierarchical leadership styles to team-centered leadership styles. Effective principal's first and foremost charge is ensuring quality instruction. It also shapes the climate of the school. The essence of leadership is not to manage or change others; it is to manage and change oneself. The authors feel that the shared governance principals are eager to obtain feedback. A model shared governance principals should possess qualities like optimism, caring, honesty, friendliness and enthusiasm. At the same time, the teachers' responses are also embedded in self - esteem, confidence and satisfaction.

In the 7th chapter 'About Risk and Threat', the authors caution that though the teachers are sincere and committed, they tend to be risk takers. Without risk, there can be no improvement and good teachers know this intuitively. Successful shared governance principals support the need for experimentation and risk taking whereas ineffective principals are inclined to thwart teachers' efforts to try new and different things. Positive change and reflective thinking and motivation tend to support risk and lower threat when the principals: trust that teachers are learners who will take responsibility; become more of a facilitator; model behaviours, that spring from shared governance assumptions; consider that this can be a quite change; personify hope; cultivate grace; and tolerate ambiguity.

The 8th chapter is about valuing and rewarding good work. It seems the famous psychological principle of reward and punishment is applied and reinterpreted as reward and empowerment. The reward of an individual's job can be classified as extrinsic (salary working hours, status, and power) or intrinsic (psychic or subject rewards).

The concluding chapter deals with the facilitative and democratic leadership. Facilitative-democratic strategies for teachers, according to the study, associate with successful principal leadership in shared governance schools. For this, the authors identified three dimensions of teachers empowerment viz., affective dimension (uses of we), the classroom diminution (innovation), the school-wide dimension (efficacy) and they contain assumptions about the facilitative-democratic leadership in three forms:

- First, the role of principal becomes primarily that of facilitating collaborative efforts among mutual supportive, trusting professional.
- Second, the leader helps others recognize the complexities of schools as social organization set in myriad contexts.
- Final, in school the constricting forces must be minimized or eliminated.

Shared governance leaders must negotiate available solution to the problem to bureaucratic intrusion and they should become the community leaders. If they become community leaders taking up the social spirit, the school no longer dies, but becomes moving.

The authors have done an excellent job of identifying models and interpretations of the shared governance principals who can do better to the teachers. The concept of empowerment has been discussed in a multi-dimensional way. The conceptual framework and terms of reference are apt. Those concepts and models of teacher empowerment are very much useful for the teacher educators, principals and heads of the departments and heads of educational institutions. Had the authors discussed the concepts like the environment (type of management) and mentoring (preparing second line of

principals/leaders), the study would have much weight on the field of educational management.

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GUNTER, HELEN M: *Leaders and Leadership in Education*, London: Paul Chapman Publishing, A Sage Publications Company, (6 Bonhill Street, London EC2A 4PU), 2001, pp. 198, Price £16.99 (paperback), ISBN No 0-7619-5493-7

Though there are many studies on leadership particularly in education, Gunter is of the opinion that we know little about the realities and possibilities for leadership in education. She attempts to examine the research and theory about leadership and its relationship with education policy in England. She draws from research already done under educational management, school effectiveness and school improvement. The book is an excellent up-to-date review of research in the area of leaders and leadership in education with a 38-page bibliography that should cheer researchers in this area.

Conceptually, the background is leadership profile in the school system in England. In particular, the focus is on teachers and not on administrators per se. Gunter describes how teachers are selected and function as headteachers, heads of departments, thereby, playing leadership roles. The book is divided into 10 chapters and can, conveniently, be divided into two parts. The first five chapters deal with the theory of and research on leadership vis-a-vis the school. The latter five chapters deal with preparation and selection of headteachers, principals, mid-level leaders such as departmental heads, heads with independent charge like budget, evaluation etc., and the leadership role of teachers, the last chapter being on teachers as professionals.

In chapter 1, there is almost a cumbersome attempt at clarifying her competence, her plan of action and the position, she takes on leadership. For this, there are elaborate definitions of knowledge vis-a-vis leadership and power structure. Her model of leadership is transformational, how an appointed leader functions in an educational setting, thereby being users and producers of leadership knowledge.

In Chapters 2 and 3, the author examines leadership against the traditional lines of research, namely, the performance of a school and school effectiveness respectively. Researchers agree that leadership is important within effective schools and that leadership nearly always being provided by the headteacher. While tracing the development of leadership and management in England, the author highlights the transition from traditional schools based on strong control and discipline of authoritarianism to collective leadership based on the ideals and practice of democracy. It could be argued that what we now call leadership as

what we used to call "education management" and prior to that "educational administration".

What is the worth of leadership research? How are leaders and leadership in education being researched? Gunter feels that Research is too ideological and is politically biased; there are too many researchers with no coherent approach. Statistical and experiential data can become a major part of the strategies developed and used to answer research questions. Involvement by teachers is low; there is far too much irrelevant debate that does not serve the interests and needs of practitioners. Teachers are interested in what other teachers are doing successfully rather than on research findings. There is need to develop ways of investigating the real-time activities of leadership in practice through observation/case study/qualitative interviews. All these and more are discussed in Chapter 4.

Chapter 5 is devoted to theorizing about leadership with well-drawn out theoretical positions/categorization. The author believes that theory is not the concern of an elite caste who then hand it down to be applied but is integral to learning activity and professional interaction. One can theorize power as a trait (what is leadership positive effects?). The other approaches are: one can theorize within and close to empirical setting or use theory to distance themselves from empirical work or approach empirical work through theories.

Chapter 6 deals with how headteachers are chosen, the influences on them and how these headteachers affect school effectiveness. There is a growing body of work that theorizes and describes the career history of headteachers who apply for and are successful in their careers with varying responses to family life, attitude towards schooling and son on. However, we do not know enough about those who apply and give up or who do not apply at all.

However, being appointed to a particular post does not automatically confirm the person as a leader. The current research puts emphasis on leadership preparation through formal professional development and training. Therefore, what should form the basis for qualification to leadership - long-term academic studies or experiential learning? Research confirms that those who take on a leadership role find themselves travelling a difficult but worthwhile journey.

Chapter 7 deals with the work of headteachers and principals. The professional lives and work of principals and headteachers especially at the secondary level have been researched into. Headteachers, on the one hand, are answerable to higher authorities about the progress of the school while, on the other, they are the professional leaders of teachers. Are these roles compatible? There is a difference in the leadership between patterns from administrators to headteachers. Is there a uniform model for headteachers? How can there be an integration of the professional and humane roles of headteachers? Is the headteacher a leader of leaders? These are some of the issues that need to be researched further.

Middle managers, the team leaders, the heads of departments or subjects as well as heads of independent units like budget, evaluation etc. are seen to be important means to improvement and form an area of study under school effectiveness. Though their roles are not very specified, they monitor the work of others. Research is required to find the characteristics of effective departments and efficient pedagogic process. Chapter 8 discusses the above and examines the factors that make a successful head-deputy relationship as well as interpersonal relations among headteacher, deputies and senior managers pointing towards struggles within leadership.

Chapter 9 explores the relationship between teachers and students with a view to improve students' performance. Here, we have pedagogic leadership rather than bureaucratic. Teacher effectiveness is empowerment which could be a process or a struggle. A teacher moves from a bureaucratic or position-holding leadership to a more distributed leadership. The democratic way of functioning does not mean that teachers cannot engage in educative leadership in class and community.

The last chapter focuses on Professionalism which is linked to accountability which can be understood in a number of ways but there is dominance of organisational and market forms of accountability rather than the democratic form. Teachers do what they have been told to do, so where is professional judgement? Some have classified teachers as semi-professionals because they are compared and measured against parameters of professionalism of other professions. Should teachers struggle for parity or claim for distinctiveness? Professionalism is concerned with teachers' work, not status. Caring and altruism are more important than mere clocking in and off, as in factories. A performing school puts teacher-pupil relationship at the centre of learning.

Much is presented in the book as isolated views on leadership behaviour of headteachers and teachers. A concluding chapter summarizing the findings of the numerous researches quoted in book would have been useful for the practitioners in their effort at ushering in pedagogic leadership for achieving academic excellence. A sequel to this book would, perhaps, answer this need. Reviewing this book has not been easy for the simple reason that it is more of a review of research on leadership in education than a free flowing treatise on leadership in education. As the author mentions in the book, there is a "struggle with theory". The book is for deep study and not for a cursory reading. Then only would it be possible to forge a mental link that fits the parts, often seen as isolated, into the total picture.

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LEACH, FIONA E., and ANGELA W. LITTLE (eds.) *Education, Cultures and Economics: Dilemmas for Development*. New York and London: Falmer Press, Taylor & Francis Group, 1999, pp. 394 + index; Price: £ 40.00 (Hardbound) ISBN: 0-8153-2783-8.

Largely drawn from a conference held at the Institute of Education, University of London, in 1995, the book under review consists of twenty excellent articles on a variety of aspects relating to education and development, focusing on tensions between culture, and economics, in the overall background of education policies in developing countries, characterised by a situation where culture is treated as an obstacle to economic progress. Angela Little raises a few important issues and questions that attract the attention of many contributors to the volume. She states, "the analysis of the relationship between development and education in developing countries has been dominated over the past three decades by goals that are primarily economic in character. Alternative goals (e.g., human development, cultural development, and empowerment) have tended to remain at the level of description or advocacy and have rarely found their way into well-formulated educational policy, planning and practice." She also observes, "most formal analyses of the relationship between education and development in developing countries have been offered by 'outsiders' generated from contexts beyond those to which they were subsequently applied" (e.g., human capital theory and social reproduction theory)."

Many contributors to this volume seriously reflect on these issues in their analyses of various aspects on education and development. However, no one in the volume has provided a comprehensive critique of economic approaches to education, though some of the limitations of the economic approaches are known. What is implicitly stressed is not an anti-economic approach, but an inter-disciplinary analysis of the relationships between education and development. On the second aspect, many contributors to the volume include experts from developing countries, though some of them are those who are working in advanced countries. This attempt to get scholars from developing countries to provide 'insider's' analysis of education policies in developing countries is indeed an important strong feature of the book, though no one proposes an alternative theory to explain any education-development relationships in developing countries.

The twenty articles are organised into five major parts, including an introductory section consisting of four chapters. Part II asks the question: the economic and cultural goals of development; whose goals matter? The tensions between culture and economics form the principal focus of Part III, which is entitled 'the costs of culture and the culture of costs.' Policies relating to costs and financing of education form the content of many chapters in Part III. The six

chapters in Part IV present interesting accounts of cultures of knowledge and learning. The last two chapters that form Part V are concerned with the dynamics of international aid.

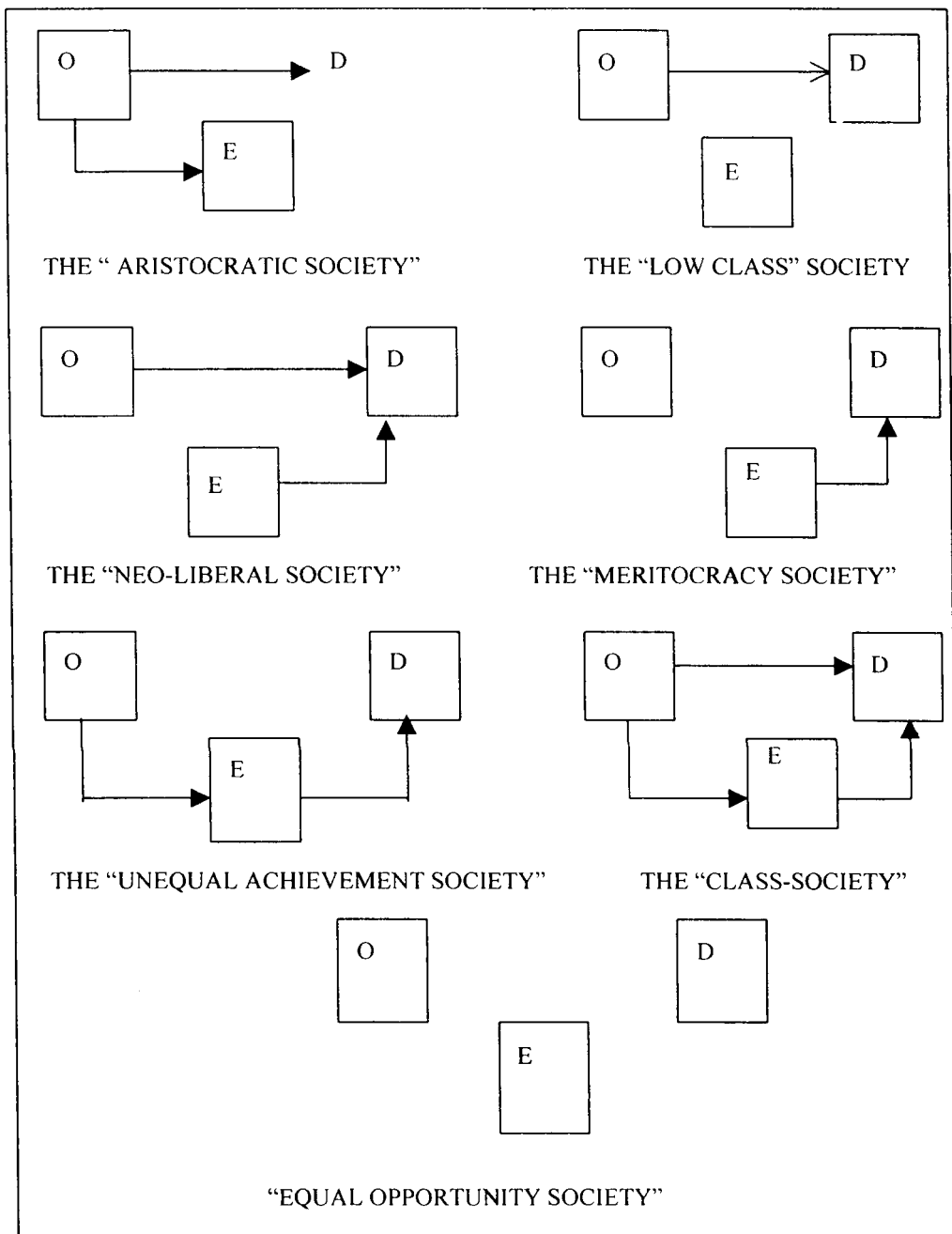
An interesting aspect of the book is: there are several case studies (e.g., Tonga, Palestine, Amazon, Africa, Ethiopia, Mauritius, Uganda, Cameroon, Pakistan, Australia-Pacific, Mozambique, Solomon islands, Kenya, Brazil). The issues covered also include a wide variety, such as literacy, indigenous education, language policies, financing education, costs of textbooks, education of girls, teachers, mathematics, labour markets, project management in international aid etc. Quite a few chapters are based on hard quantitative data (e.g., Keith Lewin, Mark Bray, Mercy Tembon, Terezinha Nunes and Antonio Roazzi); many base their analyses on rich evidence, though not quantitative; and most chapters do provide deep insights into various aspects. In all, the book provides many contrasting perspectives on policies and practices relating to education development in developing countries. Though there is a lot of heterogeneity in terms of focus of issues selected, which is unavoidable in any seminar/conference based volumes, there is an under-current, linking all the chapters, that is the question of culture. It is a serious stimulating collection of papers that would compel educational policy makers and planners in developing countries and also in developed countries and international organisations to have a serious second look, though not an altogether different look, at their own approaches and practices.

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ERRATA

Fig. 1 on p. 77 in the JOURNAL Vol. XVI No. 1 (January 2002) was not properly printed. The corrected one is given below:



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