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17-B, Sri Aurobindo Marg
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# CONTENTS

## BOOK REVIEWS

# School Accountability*

A.M. Nalla Gounden*

### Abstract

*Concepts of education like freedom, democracy and beauty bristle with difficulty; it is hard to define education. So, prefer to use schooling which represents particular functions of the educational establishment. Schools are rendering educational services; teachers teach and students learn. Schooling is a specialised activity. It aims at developing a person, morally and mentally, so that she/he is sensitive to individual and social choices and act on them. It also aims to fit her/him for a calling by systematic instruction. Schools may be viewed as firms that specialize in producing schooling that increases the future earnings of the students; and to an extent, it has the attributes of an investment which has private and social benefits.*

Schooling is not free; it is an economic activity and costs really matter. The resources that enter into schooling are not trivial, about 3 per cent of the national income of India enters into it. As an investment, it provides a framework for analysing costs and benefits. Hundreds of estimates of the rate of return to schooling have been done; in India, too, more than 20 studies have been conducted. These estimates of returns are private ones; a very few social rates of return have been estimated.

The outputs of schooling are multidimensional - cognitive, affective and psychomotor skills. There are reasonably good instruments for measuring knowledge and skills achieved by students. But we have essentially no capability when it comes to measuring the aspects of personal development, at least as found in large scale surveys of school outcome. Quality of schooling has been measured by the quantity and quality of inputs into schools; more and better inputs are equated with better schooling.

Coleman Report (1966) in the U.S.A., Plowden Report (1967) in U.K. as well as Jencks *et al*, "Inequality" (1972) found that the conventional resources were weakly related to student performance in achievement test scores. For example, differences in school facilities, in teacher education and training per student

expenditure and others were found having weak effect on student scores; the most powerful predictor was found to be the family socio-economic status (SES). Hanushek, among others, has published a series of papers on educational production functions using U.S. data. They lent support to Coleman and other's findings. The researchers focused on the causes for the pessimistic results: inappropriate statistical methods used, inefficient allocation of resources and weak link between school resources and student achievement. Another set of researchers developed different models - Hierarchical Linear Models. Over the years, educational technology has been fixed. Some experts focused on the absence of market for education and advocated competition, marketisation and privatization.

One important limitation of production function studies, *a la* Hanushek, as well as H L M, is lack of crucial explanatory variables; easily identified variables were included such as school facilities and teacher education and training. Facilities, qualifications and others do not teach, teacher should teach; if she/he teaches, then facilities, teaching aids, text books will have an effect on student performance; Production function researches have found weak effect on achievement; the estimates are the average of the sample schools. School effectiveness studies have shown that there are vast differences in achievement across schools, though the data sets are more or less the same. There are effective schools and there are poor schools. Merely adding facilities, aids and more money will not work towards bettering student learning.

Serious researchers on education have "proposed a dramatic shift, from a frame that gives propriety to research on conventional resources and as how they affect learning, to a frame that gives priority to designing coherent instructional regimes and ask how resources are used within them. Resources are means and they can work only in relation to ends. Teachers, who are effective on achievement, plan lessons carefully, select appropriate materials, make their goals clear to students, maintain a brisk pace in lessons, check student work regularly and teach materials again where students have trouble learning. They also make good use of the time they spend on instructional task, have coherent strategies for instruction; they believe that students could learn and they have large responsibility to help. In addition, the collective characteristics of school have a powerful effect on student performance. They share a vision of the purpose of instruction, agree to promote students learning, believe that they are responsible for helping students learn and all students have real capacity to learn, strong collegial relations, commitment to their students' academic success and obliged to help students learn are the real resources at the disposal of the school; knowledge of subject, skill in teaching and ability to manage the class are the aids only.

Schools have a distinctive pattern of social relationships that embody on 'ethic of caring'. This is reflected in the esteem which teachers hold for one another, and respect for colleagues. It is a habit of the heart and a collaborative organisational

process. The weak relations between resource inputs and resulting outcome should be attributed to these not-included real resources. Schools are professional communities that differ dramatically in their academic effectiveness, in part, because of differences in their professions' norms. Teacher's personality should differ from that of the carpenters. Skill in his job, will to work, given good quality wood, he can produce an excellent product. But teachers need, in addition to knowledge in the subject, skill in teaching and ability to communicate, a personality to motivate students, love for teaching and for students. His tasks extend beyond the classroom.

The educational policy should aim at developing ethic of caring in schools. How to do it? There may be more than one way of developing it. Privatizing, chartering and vouchering experimented in the U.S. These are assisted and modified. In India, there are government schools, aided schools and fee-charging private schools. But so far, no assessments of these types are made. DPEP has generated data from government and aided schools, but no assessment has been made, why unaided schools are not surveyed; there is no reason. But, it seems that fixing accountability is a way of raising the students' achievement. The concept of accountability is not a fad; it is controversial, yet the darling of policy makers. Fortyeight states in the U.S. have already begun using students' test scores as measure of school/class performance. Twenty states went a step further to attach explicit monetary rewards or sanctions to school test performance. There are reasons for the appeal of assessment: tests and assessments are relatively inexpensive, can be easily, externally mandated, changes can be rapidly implemented and the results are visible. The outcome-based accountability should be applied to all sectors in the economy.

## School Accountability System

Governments try to hold schools accountable by regulating inputs: hours of instruction, teacher-student ratio, number of working days a year. School inspectors are implementing the regulations. New laws and regulations over the years have been passed. In spite of the inputs and regulations, we have never had any way of insuring that students were reaching their potentials. Schools are accountable for compliance with rules but not results; educators' job security does not depend on students' performance improvement. School boards do not take responsibility for the academically poor performance of school; they are allowed to continue and seldom replaced.

Accountability is a relationship between two persons or organisations in which one acknowledges an obligation to perform some task or function and the other expects that the task or function will be reperformed. To be accountable is to be answerable for. Thus, a school is accountable when it is answerable to some other party(ies) for accomplishing some definite goods.

The accountability model has three major components: (a) primary emphasis on measured student-performance as the basis for school accountability; (b) the creation of complex systems of standards by which the data on student performance are compared by schools, local bodies and districts; and (c) the creation of systems of rewards and sanctions and intervention strategies to introduce incentives for improvement. Improving student performance is the central idea of the model; it is the sole purpose of it. Academically bankrupt schools are not tolerated. The coordinated changes in instructional framework, curriculum and assessment have come to be called "systemic reform". Such a system would send a message. Complementary conditions should be satisfied. Teachers' knowledge in the subject and expository skills, teaching aids and other facilities would accelerate the reform. The intellectually ambitious instruction is a reasonable goal for India to catch up the levels of developed countries, particularly in the context of globalisation. It is also required that inequality in educational achievement among students, particularly disadvantaged, should be reduced and improvement made across the board. I repeat "systemic reform" is nothing if not ambitious. The achievement-oriented policy envisions creation of strong and consistent standards, coherent guidance for instruction, strong consensus about goals and much greater equality in educational achievement. It is a system of high stakes, testing and achievement.

## School Performance

The achievement-based reforms depend on what parents and society want; if parents place high priority on academics, then schools should do well to have high scores in achievement. If parents want their children to learn disciplined habit of work, then schools should develop the work habit. If parents want sports and games, they should be given the top priority, and the prime goal of school would be to succeed in sports. I have no idea of any survey of Indian parents. There is a survey of what U.S. parents look for in school. Catherine Hoxby (Harvard Economist) has summarised the findings. "When surveyed, parents overwhelmingly say that their first priority is learning, especially in core areas: mathematics, language, science and history. Parents also say they want schools to uphold standards of hard work, honesty, courtesy and responsibility. Although parents do not ignore extra-curricular activities such as sports, they give them little weight compared to academics and standards of behaviour". I have no reason to think Indian parents differ from the U.S. parents with respect to priority. It appears that the academics and hard work are contradictory, but in fact they are complementary, and one supports the other. When parents have a choice, government should provide maximum possible, correct information, not only about inputs, but also outcomes, for example, SAT scores of each student and mean across district and state.

Student achievement is defined in terms of test performance in mathematics, language and science and also participation in schooling. These elements are direct indicators of student achievement. Non-cognitive elements are: student attendance rate, graduation rate, drop-out rate and completion rate in a level, say primary. Student and teacher attendance rates are equally valuable. Frequent absence of student/teacher pulls down performance. It is acknowledged that these outcomes do not measure important aspects of schools' education missions; good work habits, team work, perseverance, honesty, self-reliance and consideration for others are needed for success in adult life. Social engineering is as important as academics.

The U.S. states have developed assessment systems to measure student progress. National level tests have also been developed. Norm-referenced tests measure the knowledge and skills of students across the country. Such tests are designed to sample performance within broad domains yet to be independent of particular approaches to curriculum and instruction. They were not designed to be useful to instructions but to monitor relative performance i.e. ranking in large population. Criterion-referenced tests measure knowledge and skills that are specific to a state. These tests are designed to cover specific coverage than to the distribution of responses. They are intended to be useful to instruction; they report on how much of a given curriculum of the objectives, particular students have cleared. It is used by individual states for the purpose of determining class-to-class promotion or graduation. In U.S.A., 17 states use criterion-referenced assessment, 2 states use norm-referenced tests, while 29 states use both norm and criterion referenced assessments. Policy makers, parents and public want a way of comparing the performance of their students to students outside the states. Cost of developing state level criterion-referenced test may be a reason for using norm-referenced tests only. Thirtynine states reported attendance rate, 37 reported drop-out rates, 38 enrollment, 27 promotion and/or retention rate and even student mobility 1.

## Measuring Performance

Assessment and accountability systems are intended to drive the schools to improve; but they are still in their formative stage. They are not perfect and they sometimes have unintended consequences about which parents and teachers are concerned. There is more to learn about how best to design and implement. Educational measurement by itself would not improve education. Without it, however, we cannot know how far we have come or how far we have to go to give our children the education they deserve. The reader is referred to "Measuring What Matters" (CED).

i Achievement Testing in U.S. schools by G.J. Cizek is worth studying

Standardised tests are frequently used as a way to measure performance. Decisions are to be made about state or locally developed tests, national tests. Similarly, the grade level to be included is an issue. It is difficult to administer standardized tests at lower grade level, say up to 3; DPEP gave tests to children in grade 2. Another consideration is whether to measure the entire grade level or a specific cohort of individual students. Again, the frequency with which a performance element is measured must be determined, every year? or once in, say, 3 years?. In the U.S. there is a great variation in the complexity, frequency and number of grade levels tested. For example, North Carolina uses state developed tests in reading, writing and mathematics for grades 3-8, along with six tests at high school level.

There are various tests to assess and measure academic performance: (i) standardized norm-referenced tests tend to focus on factors and skills - such tests would encourage, it is argued, didactic instruction which focus on mindless memorization; (ii) performance assessments tend to encourage students to make sense of serious practical and intellectual problem and to demonstrate the method of reaching answers - such assessments would encourage more complex and thoughtful performances; (iii) portfolio assessment could be drawn on an even greater range of performance; some assessments would encourage intellectually deeper and more adventurous class work. Standardized norm-referenced tests are the most popular. This is a sophisticated field of research; it is left to experts.

As usual, testing critics make noise. Their criticism may be grouped into - test score inflation (rotten apple as an economist calls); curriculum narrowing; emphasis on lower order thinking unfair to disadvantaged group; and tests are too costly2.

### Measuring School Performance

Measuring school performance is useful to the state and district for diagnosing the strength and weakness of school and it is also useful to parents/children as they make choice among school and for checking if accountability is fair. The target is to make the teachers teach, so it should be fair. If it is unfair, the incentive will be distorted. It should be fair for its own sake and also because of how it affects decisions of teachers to respond to incentives. There are stylized approaches to measuring changes/school effectiveness: (i) school's average test scores; (ii) its rate of improvement relative to its school specific targets; and (iii) its value-added (=gain in scores) scores. Students' performance standards are set by the authority and tests are-developed and administered by an independent authority.

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2 For an effective defence of testing see Richard P. Phelps's paper" Why Testing Experts Hate Testing Kohn's "The Case Against Standardized Testing" is also worth studying

The test scores (average) are compared to the standards achieved by other , schools; or the mean test scores of school and other schools are ranked. Performance relative to standard is examined. If the average scores are above the standards, the school has done a good job, otherwise schools are "advised". If there is a gap between standard and school average, school authority should fix the time to reach or exceed the standard. Since it is a dynamic process, standards also may change. Such a measure does not take into account the variations in student intake characteristics across schools. The target may appear unattainable. School scores are very likely to fluctuate across years. Proficiency levels are: advanced proficient, partially proficient and unsatisfactory. Minnesota grades are: (i) little evidence of knowledge and skills; (ii) partial knowledge and skills; (iii) solid academic performances; and (iv) superior performance. They are similar to our fail, pass, third class, etc.

It is only fair to hold school/teacher accountable for the contribution to gross scores, not raw scores. So researchers have developed a "value added" model; late Nuttal, London University and Meyers have done pioneering work. Value-added model demands time series, preferably, cohort survey data. Value-added element may be defined as the amount of student learning during the year that is attributable to the school. Does the school include the resources available to schools? Does it include the effect of the composition of the student body (= peer effects)? Thus, the value-added approach may have some intuitive appeal to teachers. Student achievement at the end of previous year is taken into account. All students count the same, as there is less incentive to concentrate on moving the performance of those who are near the standards and to ignore those who are far below the standards. All students in/across should be included for survey. There are limitations associated with value-added model. Testing must be frequent preferably, each year. The statistical and measurement technicalities involved in estimating value-added component may make it hard for many stake-holders to understand. Kane and Staiger developed a technique - Empirical Bays Model - to decompose the variance in school level test scores; they removed the influence of family, peer and also volatility of scores. They concluded, "one must be cautious in using gain scores in an accountability framework. There is much less signal variation and relatively more variation due to non-persistent factors in gain scores than in test score levels. One should not evaluate a school, based on gains, in any particular grade level. The usefulness of value-added factor by school will be quite limited without filtering the scores. The problem is that data required to estimate such "value-added" measure is that data are not available; special survey like DPEP is to be taken. Even when data are available, in India researchers are not allowed to use the data, nor the government officers use the data for estimating value-added. Even no scientific impact analysis is done of a project which invests Rs. 40 crores in a district over a period of 7 years.

»     **When rewards are paid to individual teachers, very likely, antagonism among teachers affects the effectiveness of the teaching; lack of cordial relationship will pull down school effectiveness. Already, many schools are suffering from hatred due to caste, religion and other difference. So, it is suggested that school should be the unit of accountability; school-based incentive rewards provide for all school personnel to work co-operatively. Schools, once given more management authority, have more mechanisms for increasing student-performance; •school is likely to be changed such that students learn better. School incentive would bring education increasingly rely on team work. That the teachers would react to school-based rewards is to be investigated.**

    **The free-rider problems are the disadvantages in school-as-a-unit. In a school deemed to effective, individual teachers receive rewards regardless of their contributions to the total schools, productive teachers may resent inefficient teachers also getting rewards. It is a ticklish problem. 1 tend to support school as a unit for awards, because with more autonomy, head teacher can exercise authority on teachers and check free-rider problem.**

    **Rewards and penalties would not work in isolation. Incentives should be aimed at the target results and designed to encourage same sorts of academic behaviour both of teachers and students. But incentives might be different between teachers and students. Further, rewards and punishments should not only encourage teachers and students to boost student performance, but should also encourage teachers to learn what they should need to know in order to do so. Student achievement or teacher efficiency should be considered for rewards. That is the big question.**

    **Students are the beneficiaries. If they are not serious in learning, what would teachers do? Teachers may teach effectively, but students may not be serious. It is suggested that students need to be held more accountable through the use of external examination. In the U.S., they call it exist-exam to receive diploma. When end-of-grade test is more rigorous and indispensable to continue further education, students may be serious. Independent authority should examine the students. When the teachers are deeply interested in students' growth and believe in** *"Pygmalian-in-the-classroom"* **effect, it is easier to make students seriously interested in education. Committee for Economic Development in the U.S. has been doing valuable research on education. Such organisations are found in more than ten developed countries. Industry-education nexus is strong.**

    **School accountability is a complex subject. It is beyond the capacity of a single individual. As a result, the readers may have a good number of queries to pose. This small piece should stimulate a number of researchers and more, if the government constitutes an expert committee, not confined to old "educational" managers to prepare accountability scheme.**

Error in measurements, the impact of sampling variance, heterogeneity of teaching process and other issues cry for attention. At present, at least three econometric techniques by three different authors are used: (a) Sanders, (b) Bryk and Raudenbus and (c) Ladd. There may be other techniques. They attempt to estimate value-added/gain in scores; software are commercially available.

Over the last two years. I tried my best to get DPEP data sets (Baseline, Mid-term and Terminal) covering 2 or 3 states. I failed to get the data sets, in spite of Prof. A.L. Nagar's excellent comment on my "School Efficiency" estimates. I tried to experiment with data for school accountability as I did School Efficiency; but no data. I feel like the child who said, "The Emperor is Naked".

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# State of Universal Education in India

J. P. Singh*

## Abstract

*The government of India, against the backdrop of its constitutional obligations to provide free and compulsory education to all children until they complete the age of 14 by 1960, formulated and executed several programmes and policies for the realisation of education for all in the country. The targets fixed so far, in this connection, however, have proved to be a largely wishful thinking on the part of the government. Why the state, as the main provider of education, despite its unequivocal commitments made, time and again, has not been able to translate its own programmes and policies into a reality during the last five decades remains a big question.*

## Introduction

**Article 45 of the Constitution of India relating to the Directive Principles of the State Policy envisages, "The State shall endeavour to provide, within a period of 10 years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of 14 years" (Bakshi, 1996: 73). Accordingly, the constitutional promise under Article 45 should have been fulfilled by 1960. But, at the time of 1961 census, mere 28 per cent of the total population of India could be recorded as literate (for population aged 5 and above). About 48 million children in the age group 6-14, which comprised around 60 per cent of the population in that age group, could not have even primary education. Under the situation, the Government of India did not like to stop there to ascertain the reasons for such a colossal failure of its solemn constitutional promise; rather, it planned to make another big pledge, of providing "Education For All", in December 1993. Tall targets of achieving 'Universal Primary Education' by 2000 and 'Universal Literacy' by 2005 AD were set. In order to accomplish 'education for all' the most recent target set in 2000 was to achieve 75 per cent literacy by 2005. The harsh truth about all these targets is that they have so far proved to be a fiasco. This is clearly obvious from the current census statistics of 2001 (Table 1). The paper attempts to offer a brief**

* Professor of Sociology at the Postgraduate Department of Sociology, Patna University, Patna-800 005. E-mail: profjpsingh2000@sify.com

discussion on the important reasons for failures. In the past, Naik (1975) sought to deal with the subject quite extensively, but since then enormous changes have occurred in the old scenario of universal education in the country, recording some successes, failures and fresh challenges, too.

TABLE 1

Literacy Rates in India (1951-2001)

| Census year | Persons | Males | Females | Differential | Female/Male literacy ratio |
|---|---|---|---|---|---|
| Based on population aged 5 and above | | | | | |
| 1951 | 18.3 | 27.2 | 9.0 | 18.3 | 33 |
| 1961 | 28.3 | 40.4 | 15.4 | 25.1 | 38 |
| 1971 | 34.5 | 46.0 | 22.0 | 24.0 | 48 |
| Based on population aged 7 and above | | | | | |
| 1981 | 43.6 | 56.4 | 29.7 | 26.7 | 53 |
| 1991 | 52.2 | 64.1 | 39.3 | 24.8 | 61 |
| 2001 | 65.4 | 75.9 | 54.2 | 21.7 | 71 |

Note: The table should be read with caution, as literacy rates from 1951 to 1971 are not strictly comparable to those from 1981 to 2001 because of change in the computational procedure. In comparison to the former period (1951-71), the latter one tends to present a bit more inflated picture.

Source: Census of India 2001, *Provisional Population Totals,* Series-1, India, Paper-1 of 2001. New Delhi: Registrar General and Census Commissioner, India.

**Current Scenario**

Despite dismal performance in the field of education, it is worth recording that during 1991-2001, literacy rates improved remarkably from 52 per cent in 1991 to 65 per cent in 2001, showing an improvement of more than 13 percentage points. The female literacy rate also increased significantly from 39.4 per cent to 54.2 per cent during this period. The progress in literacy during the previous decade looks impressive because, during the last four decades, it moved at a relatively slower pace. Spurt in literacy rates makes the Census of India, 2001, somewhat different from all other previous censuses of post-independent India. More than three-fourths of the male population and a little more than half of the female population were recorded literate. Micro level sociological studies and surveys have clearly indicated that people are gradually becoming more and more sensitive to the value of education in their life than ever before. Parents are often found to be quite worried about the education of their children. The role of government in providing free primary education has, however, also been a

significant factor in the spread of mass education. Despite all these changes, India has to go a long way to achieve the goal of universal literacy.

At the turn of the twentyfirst century, India is known as one of the least literate countries in the world. About 50 per cent of the total illiterate people in the world live in India. Every third illiterate in the world is an Indian. India's seemingly large pool of technically educated and English-speaking manpower is deceptive and gives a misleading impression about the level of education or literacy in the country. There were all together 328 million illiterates in the country as per the 1991 census, marking an addition of about 22 million in a decade. According to the 2001 census, of 296 million illiterates in the country, 253 million (excluding population aged 0-6) lived in rural areas, which is greater than the total population of any country in the world, except for China and the USA. However, it is really gratifying to record that at the 2001 census, the absolute number of illiterates recorded a decline, for the first time, in the history of Indian census. The absolute number of illiterates declined from 328 million in 1991 to 296 million in 2001 (Census of India, 2001: 105-106).

It is true that the current level of literacy is quite low; the progress made during the post-independent period in the field of universal education is somewhat satisfying, nevertheless. In 1881, the literacy rate in India for persons aged 10 and above was six per cent and it increased to nine per cent at the 1931 census. During 1951-1971, the literacy rate for persons aged 5 and above increased from 18 per cent to 35 per cent; and the literacy rates for persons aged 7 and above rose from 44 per cent in 1981 to 65 per cent in 2001. This, however, does not give any room for complacency, since India, still has to go quite a long way to achieve education for all. The remaining part of the road of progress seems to be tougher still.

## Inter-state Variations in Literacy

At the state level, there exist considerable variations with respect to the level of literacy. At the 1991 census, the States of Andhra Pradesh, Arunachal Pradesh, Bihar, Orissa, Madhya Pradesh, Rajasthan, Meghalaya and Uttar Pradesh tended to show a lower level of literacy than the national average of about 52 per cent. On the other hand, the States of Goa, Gujarat, Himachal Pradesh, Kerala, Maharashtra, Manipur, Mizoram, Nagaland, Punjab, Sikkim, Tamil Nadu and Tripura recorded a much higher level of literacy than the national average. The other states, which need not be listed, were those that were placed somewhere near the national average of literacy. Among the union territories, Dadra and Nagar Haveli attained a level of literacy lower than the national average and all other union territories had recorded levels of literacy above 70 per cent (Census of India, 1971 and 1991). The Census of India, 2001, recorded marked

improvements in this scenario. Some states made better progress than others in the field of literacy campaign (Table 2).

TABLE 2

Level of Literacy in India Classified by Sex, 2001

| States/Union Territories | Persons | Male | Female |
|---|---|---|---|
| India | 65.4 | 76.0 | 54.2 |
| Andhra Pradesh | 61.1 | 70.9 | 51.2 |
| Arunachal Pradesh | 54.7 | 64.1 | 44.2 |
| Assam | 64.3 | 71.9 | 56.0 |
| Bihar | 47.5 | 60.3 | 33.6 |
| Chhatisgarh | 65.2 | 77.9 | 52.4 |
| Delhi | 81.8 | 87.4 | 75.0 |
| Goa | 82.3 | 88.9 | 75.5 |
| Gujarat | 70.0 | 80.5 | 58.6 |
| Haryana | 68.6 | 79.3 | 56.3 |
| Himachal Pradesh | 77.1 | 86.0 | 68.1 |
| Jammu & Kashmir | 54.5 | 65.8 | 41.8 |
| Jharkhand | 54.1 | 67.9 | 39.4 |
| Karnataka | 67.0 | 76.3 | 57.5 |
| Kerala | 90.9 | 94.2 | 87.9 |
| Madhya Pradesh | 64.1 | 76.8 | 50.3 |
| Maharashtra | 77.3 | 86.3 | 67.5 |
| Manipur | 68.9 | 77.9 | 59.7 |
| Meghalaya | 63.3 | 66.1 | 60.4 |
| Mizoram | 88.5 | 90.7 | 86.1 |
| Nagaland | 67.1 | 71.8 | 61.9 |
| Orissa | 63.6 | 76.0 | 51.0 |
| Punjab | 70.0 | 75.6 | 63.6 |
| Rajasthan | 61.0 | 76.5 | 44.3 |
| Sikkim | 69.7 | 76.7 | 61.5 |
| Tamil Nadu | 73.5 | 82.3 | 64.6 |
| Tripura | 73.7 | 81.5 | 65.4 |
| Uttaranchal | 72.3 | 84.0 | 60.3 |
| Uttar Pradesh | 57.4 | 70.2 | 43.0 |
| West Bengal | 69.2 | 77.6 | 60.2 |
| Union Territories | | | |
| Andaman & Nicobar Islands | 81.2 | 86.1 | 75.3 |
| Dadraand Nagar Haveli | 60.0 | 73.3 | 43.0 |
| Daman & Diu | 81.1 | 88.4 | 70.4 |
| Chandigarh | 81.8 | 85.7 | 76.7 |
| Lakshadweep | 87.5 | 93.2 | 81.6 |
| Pondicherry | 81.5 | 88.9 | 74.1 |

Note: For the purpose of census, a person, aged seven and above, who can both read and write with understanding in any language, is treated as literate.

Source: Census of India, 2001, *Provisional Population Totals,* Series-1, India, Paper 1 of 2001, pp.117-125.

Of all the states, the State of Rajasthan (22.5 per cent) recorded the fastest pace of improvement in literacy rate, followed by Dadra & Nagar Haveli (19.3 per cent), Madhya Pradesh (19.9 per cent), Andhra Pradesh (17.0 per cent) and Meghalaya (14.2 per cent) during 1991-2001. The improvement in literacy rates in case of Rajasthan, Madhya Pradesh and Andhra Pradesh is noteworthy indeed, for these states have remained educationally disadvantaged for a fairly long time. However, the male/female differential, especially in the case of Madhya Pradesh (26.5 per cent) and Rajasthan (32.2 per cent), is still very high and these states, along with a few more, do not hold much hope of achieving the goal of universal literacy in near future (Table 2). Rise in the level of literacy during 1991-2001 was lowest in the case of Kerala (1.1 per cent), followed by Chandigarh (4.0 per cent) and Nagaland (5.5 per cent). The obvious reason for a slower momentum of improvement in literacy was the fact that these states and union territories had already achieved a high level of literacy at the 1991 census. Obviously, for a similar reason, Mizoram (88.4 per cent), Lakshadweep (87.5 per cent), Goa (82.5 per cent), Delhi (81.8 per cent), Dadra and Nagar Haveli (81.1 per cent), etc. also recorded a slower pace of improvement in literacy rates during 1991-2001. On the other hand, more than half of the total population of the State of Bihar is still illiterate. The state is known for the lowest level of literacy (47.5 per cent) in the country. Bihar is closely followed by newly carved State of Jharkhand (54.1 per cent), Jammu & Kashmir (54.5 per cent), Arunachal Pradesh (54.7 per cent) and Uttar Pradesh (57.4 per cent).

Many people tend to believe and argue that states, which have recorded a higher level of literacy, are better administrated than those with a lower level of literacy. There may be some truth in it, but, at the same time, one should not ignore the fact that states with better performance in the field of education or health had incurred higher per capita public expenditure in the past than those characterised by low level of education now. The governments of relatively more developed states had accorded a higher priority to social sectors in the past. Even now some of these states incur higher expenses on primary education than others. However, the role of other factors such as bad governance, corruption in public offices, lack of adequate people's awareness and poverty is also important in differential levels of literacy across the states (Singh, 2000a; 2000b).

Some social scientists, suffering from a kind of regional chauvinism, have sought to offer a culturally biased analysis of the patterns of literacy (and also of population growth) in the country in terms of north and south India or BIMARU and non-BIMARU states, and have made some sweeping generalizations with a view to imposing themselves as men with novel or pedantic ideas. Such an analysis is grossly pejorative of the people of those states, which are typified by

low levels of literacy, as the catchy acronym 'BIMARU' simply means 'sick' in Hindi. Such an approach merely camouflages truth at the micro levels. These grand theoreticians, suffering from regional bias, have created some unnecessary myths in the mind of common people. They should, in fact, take trouble to examine the district level literacy data or see some cartographic work based both on 1991 and 2001 census to make out whether any clear-cut regional pattern really emerges in the country on the line of their conception. The only fact, which is clearly noticeable, is that the districts of the Western Ghat (including those with a high degree of urbanization) tend to demonstrate a higher level of literacy than all other regions or sub-regions. Relatively greater exposure to the western culture, during the colonial period, in those areas, has been one of the most plausible reasons for this pattern.

### Gender Differentials in Literacy

There are high gender disparities in literacy levels in India, same as in other parts of South Asian countries (MHHDC, 2000: 104-116). The available statistics provide adequate evidence to argue that there continues to be a considerable gap in literacy by sex in India. Men are much more likely than women to know how to read and write — 76 per cent of men were enumerated literate in 2001. However, there is much to be praised in India's efforts to tackle the problem of high female illiteracy. National female literacy has risen steadily from mere eight per cent in 1951 to 54 per cent in 2001. An encouraging fact, however, is that the gender disparity in the level of literacy has been steadily declining over the years at the national level, same as in other parts of the developing world (World Bank, 1990). This has been clearly substantiated by the recent census counts of 2001. The census of India, 2001, has recorded considerable improvement in female literacy rate; the female literacy rate increased by about 15 per cent, which is more than the increase in the male literacy rate (literacy rate for male increased by about 12 per cent during 1991-2001). However, the differential in male/female literacy rate is still substantial (i.e., 22.2 percentage points) according to the 2001 census.

At the level of state, variations in the level of literacy by sex are quite enormous except for Kerala, Meghalaya, Mizoram and Nagaland where sex-wise variations are somewhere between 8 and 13 per cent (Table 2). Literacy rates both for men and women are lower among the poor and the landless, and also among the scheduled castes and scheduled tribes. Several studies have shown that the gender gap in literacy varies quite appreciably by religion, region, caste, education and place of residence. The national statistics disguise all these variations.

Female education is not encouraged so much, more particularly in the countryside, because many a parent often believe that education would make a girl less attentive to household chores and less willing to obey both her parents and her husband. These doubts are institutionalised in familial value system more across North India, where parents of educated girls must offer a high amount of dowry in order to attract better-educated or well-placed men. Since the Indian society is highly patriarchal and patrilineal, the societal value of female has been quite low since time immemorial. Females are so undervalued in society that their education obviously gets neglected (Singh 2002). Because of its being of poor economic value, most people need not spend their hard-earned money on females' education. Parents, rarely expect any return from their daughters. This is the important reason why the drop-out rates at primary and middle school levels are greater for females. Girls are expected to mind their younger siblings and help mothers in household chores as far as possible (Weiner, 1991; MHHDC, 2000).

If the government wants to arrest the rapid rise in population, it must move fast enough on the road of rural literacy programme, especially in the sphere of female literacy, where a lot of spadework is required. The fact that a positive relationship exists between female education and social development is evident from the situation as it prevails in southern Indian states. A remarkable social transformation has occurred in Kerala where women enjoy a high level of literacy and, consequently, have a greater say in the decision-making process including child-bearing. About the importance of female education, it is rightly believed that to educate a boy is to educate an individual but to educate a girl is to educate a family. If we want to get out of the vicious circle of rapid increase in population and poverty, the highest priority should be accorded to education of girls and women for preparing them to work outside their households (Singh, 1996: 56-70).

### Reasons for Low Literacy

Poverty has been one of the most potential hindrances to the success of the programme of universal education in the country. It is because of poverty that the drop-out rates have been very high and varied from 30 per cent to 60 per cent during 1990-94. Of 141 million eligible children up to ages 14, about 10 million are actually enrolled in schools, of which 3.5 million tend to drop out. A large number of them leave school without the literacy, numeracy and life skills that are the foundation for learning throughout life. Of all the drop-outs, about 70 per cent of them are females (Chauhan, 1997; Shariff and Ghosh, 2000). A significant proportion of them belong to the socially and economically vulnerable sections of society such as Scheduled Castes, Scheduled Tribes and

the Other Backward Classes. About the rural areas, the 42"d round of the National Sample Survey data revealed that nearly 69 per cent of the girls and 43 per cent of boys aged 6-10 were never admitted to any school (NSS, 1986-87: 16-18).

In addition to the fact that abject poverty acts as an impediment to schooling, there is almost no teaching worth the name in most government schools. Those who can afford to send their wards to public schools, that have mushroomed over the years, also remain sceptical about their kids getting a sound grounding, given the standard of teaching in these so-called public schools. So far as the standard of education is concerned, it leaves much to be desired. They pay more attention to pomp and show, while the quality of education remains largely ignored.

The level of literacy also hinges on the availability of infrastructure. Motivation for education alone is not enough. Rural areas have reflected a much lower level of literacy than urban areas also because the available infrastructure in rural areas of most states is quite inadequate. Primary schools, that are indisputably most essential for promoting education at the grassroot level, are available in merely 73 per cent of the villages. The villages with middle and secondary schools comprise 40 per cent and 10 per cent respectively (the 2001 census statistics on infrastructure by place of residence are neither available nor are likely to be released in near future Singh, 2000b: 8-21). In other words, the students, who are interested in pursuing middle and secondary level education, are expected to go to neighbouring distant villages or nearby towns everyday, which is, in fact, not feasible for everybody.

One of the most serious problems with primary and middle education is that a good proportion of such schools are being run either in dilapidated buildings or under the open sky. The Fifth All India Education Survey revealed that of the total primary schools, only 54 per cent of them were run in brick-built structures and about nine per cent of them in the open areas. There are hundreds of government primary and middle schools in North India, particularly in Bihar and Uttar Pradesh, where the condition of school buildings is quite deplorable. They bear ample testimony to the gross apathy of the government towards education, in general, and educational institutions, in particular. The teachers of the government schools often rue the lack of means and funds to run their schools. Not only there is dearth of teaching materials and scientific instruments, but also most of the schools have no building of their own. Moreover, those who possess it are no better either. The children take their lessons under the shades of a tree or in the *veranda* of some local people's house. At the same time, no less serious is the problem of general absence of teachers from usual duty.

Budgetary allocations to education under different plans have been quite inadequate to meet the massive task of spreading universal education in the

country (Shariff and Ghosh, 2000: 1396-1404). Since the adoption of recommendations of the Kothari Commission (1966) in the National Policy on Education of 1968 (further incorporated in the National Education Policy 1986 also), the Government of India has always envisaged to allocate 6 per cent of the GDP to education from the public expenditure. But the government has never tried to translate its plan into concrete practice so far. Currently, the government spends merely 3.06 per cent of the total GDP on education. But the government never concedes the fact that it has reneged on its commitment; rather, it maintains that the goal has actually been achieved. In order to defend its position the government has adopted its own way of computing expenditure on education. It is stated that an expenditure of 6 per cent should consist not only of public expenditure but also of private expenditure, including household expenditure incurred by the common people as well as the private sector (Tilak, 2000: 134).

### Elementary Education

Since both the Central and the State governments, under the National Policy on Education, are committed to the cause of free and compulsory education for all children up to the age of 14, about 90 per cent of country's rural population has been provided primary schools within one kilometre and about 80 per cent have upper primary schools within three kilometres. This has resulted in: (i) increase in enrolment of children of 6-14 years of age in primary and upper primary schools to 87 and 50 per cent respectively since Independence; and (ii) increase in number of primary and upper primary schools from 2.23 lakh in 1950-51 to 7.75 lakh in 1996-97. Accordingly, the number of teachers in primary and upper primary schools has also gone up from 6.24 lakh to 29.86 lakh during this period (Government of India 1999: 67-90). Despite all these, there has been gradual decline in gross enrolment ratio in primary and upper primary education during 90's. It is a matter of concern for the government that the gross enrolment ratio in primary education declined from 100 in 1990-91 to 92 in 1998-99 (Tilak, 2000: 133).

Obviously, India has taken some important measures to break the lingering of being one of the poorest performers, among developing nations, in promoting elementary education. In 2000, the Ministry of Human Resources Development planned to launch a new campaign called *'Sarva Shiksha Abhiyan* (henceforth SSA) as an effort towards universal education. The SSA plans to cover the entire population with a special focus on the educational needs of girls, scheduled castes and scheduled tribes. The major thrust, under the SSA, directed at children of the age group 6-14 (nearly 70 per cent of these children are now attending school), is to bring them to schools, Education Guarantee Scheme Centres (EGSC) and bridge courses by 2003. The aim is to enable them to complete their

five-year primary education by 2007 and to facilitate their completion of eight years of schooling by 2010.

As the Central Government looks at the SSA, the concretisation of the political will to make elementary education a Fundamental Right through a constitutional amendment, making it mandatory for urban local bodies and *Panchayati Raj* institutions to promote it by mobilising resources, enacting a central legislation for free and compulsory elementary education and demanding 6 per cent of the GDP as public investment for the education sector as a whole, are among the elements that make the SSA a multi-pronged endeavour towards the realisation of universal education in India. But these goals may not be realised so readily because of the continuing financial constraints and bureaucratic inefficiency. In addition to this, recommendations to the high-powered Saikia Committee by a Group of Experts submitted in 1999 to allocate a public expenditure of 6 per cent of the GDP is still unattended. Universalization of elementary education seems to be a very costly affair for the government. Rapid rise in population is yet another important factor that makes this task amazingly difficult.

Currently, elementary education is largely based on externally funded programmes. Among the several externally aided projects, District Primary Education Programme. (DPEP) is one of the most important ones in terms of money involved in it. Other externally aided projects are *Mahila Samakhya* (funded by the Netherlands Government) and *Shiksha Karmi* and *Lok Jumbish* (both financed by the SIDA). Externally aided programmes formed about 30 per cent of the total plan outlay for elementary education in India during 2000-01. In order to give special attention or focus to the programme of elementary education in the country, the Department of Education in the Ministry of Human Resources Development has been split into the Department of Elementary Education and Literacy out of the Department of Secondary Education and Higher Education. But we all keep our fingers crossed whether this effort would really help the government to accomplish the goal of universal literacy by 2005.

Under the current plan period, the Total Literacy Campaign (TLC) is the principal strategy of the National Literacy Mission (NLM) for eradication of illiteracy in the age group of 15-35 in the country. It was launched with the objective of making 100 million people literate by 1998-99. Since the inception of NLM in 1988, 68.57 million persons have been made literate under all Adult Education Schemes. About 60 per cent learners are female, 22.4 per cent belong to SCs and 13.2 per cent belong to STs. The Total Literacy Campaign (TLC) programme is active in 215 districts, Post Literacy Campaign (PLC) programme in 173 districts and Continuing Education (CE) programme in 59 districts. A total of 58 *Shramik Vidyapeeths* in 16 states and one union territory offers around

225 different vocational training programmes. During 1997-98, around 5 lakh beneficiaries have been covered, of whom around 65 per cent are women.

To be more realistic, the Government of India in a recent meeting of the World Education Forum (WEF) in May 2000, at the Senegalese capital (Dakar) announced an ambitious plan to achieve 75 per cent literacy by 2005 to reach the goal of "Education For All" (EFA). But the tempo with which literacy has really moved up so far, it seems that the government has to redefine the time-bound targets of achieving universal education still a few more times, same as it used to do in the past. The Total Literacy Campaign (TLC) appears to be set to achieve a distant dream in India.

The government rightly believes that universal education will be the best way to promote social justice. It is the poorest of the poor, belonging to scheduled caste and scheduled tribe communities in the most resource-poor regions, who stand to benefit most by universal basic education. However, the moot problem is that the quality of education provided in India so far leaves much to be desired. For example, most people educated up to the primary level tend to revert to illiteracy soon after they drop out of school. Hence, the sustained efforts should also be made to improve the quality of education, besides increasing overall levels of literacy.

## Conclusion

The diffusion of education in the present time is feasible only when all the rural settlements are provided with a well-knit institutional set-up imparting education at different levels. This is all the more significant in the present context, especially when a little more than one third of the total population is not able to read and write with understanding in the country. It is very difficult, if not impossible, for a poor country like India to cater to the educational needs of rapidly growing population having a demographic base of 1.03 billion now. As the matter now stands, the current plan to accomplish 75 per cent literacy by 2005 is merely a populist plan. The enormity of the problem can be understood from the fact that during 1961-91, about 10 to 16 million illiterate people were added to India's population every year as a consequence of rise in population, making the task of universalization of education increasingly arduous with the lapse of time. During 1991-2001, the number of illiterates, however, declined from 328 million to 296 million. Hopefully, this trend is set to continue in future as well, as there is no conspicuous reason for its reversal.

Rapid rise in population, wide-spread poverty, use of child labour, neglect of female education, bad governance, lack of adequate infrastructural facilities for primary education and lack of enough political will on the part of the governments and to execute the policy of compulsory primary education on the

part of people are the most important reasons for such a low level of literacy in the country. In order to expedite the process of universal education, a higher expenditure, greater bureaucratic efficiency, and sincerity and integrity on the part of the public servants to the cause of education are very important conditions.

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# Evolution of Earnings and Rates of Returns to Education in Mexico"

Gladys Lopez-Acevedo*

## Abstract

*Highlighting the factors and mechanisms that have been driving inequality, this paper finds that educational inequality accounts for, by far the largest share of Mexico's variation in earnings inequality. The contribution of inequality of education to inequality of earnings in Mexico is the second highest in Latin America, after Brazil, and the significance of education has been increasing over time. Moreover, the income effect is always prevalent, and the distribution of education is highly significant even after controlling for changes in other relevant variables such as age, economic sector, region and labour market status. The increase in earnings inequality, however, does not appear to be the result of a worsening in the distribution of education, although the income profile, which is related to the returns to schooling, has become much steeper. This means that the shift in demand toward high-skilled labour has not been matched by an increase in supply. The probable reason is that the Mexican economy's increased openness facilitated the transmission of skill-biased technological change.*

## Introduction

Achieving sustainable economic growth with a more egalitarian distribution of income is at the core of Mexico's development challenge. Yet the country does not perform well in terms of equity when compared with other Latin American countries. According to a recent study developed by the Inter-American Development Bank (IDB, 1998-1999), Mexico has the sixth most unequal distribution of overall household income in Latin America (and the third worst in urban areas). In the broader international context, Mexico's ratio of income share

accruing to the top 10 per cent of the population to the share accruing to the bottom 40 per cent is higher than what is observed both for the high-income countries and for the vast majority of low-income countries.

The second half of the 1980s and the 1990s was an especially meaningful period for the Mexican economy, which sought to move from a protected economy driven by the public sector to a globally integrated economy driven by the private sector. This structural change resulted in sizable economic growth, but Mexico's income distribution became increasingly unequal and failed to respond either to economic growth or to public policy.

Most remarkable, the level, deterioration and resistance to policy of Mexico's inequality over the past decade coexisted with very rapid progress in educational attainment, both in terms of coverage and distribution of schooling (De la Torre 1997). This phenomenon, which has been observed in other developing countries as well as developed ones, is somewhat surprising, given the powerful equalizing properties generally attributed to education.

This paper reviews the factors and mechanisms driving inequality in Mexico, more specifically, the expansion in earnings inequality with emphasis on the role of education,[1] establishes an analytical framework that permits analysis of the interaction between education and the labour market, and examines the evolution of earnings inequality in light of the macro-economic and educational policies followed in the 1980s and 1990s.

Organized into seven Sections, the paper describes the evolution of total current income inequality, using information contained in the National Household Income and Expenditures Survey (ENIGH) and using household income per capita as the unit of analysis; focuses on the evolution of individual earnings inequality, using information in the National Urban Employment Survey (ENEU); investigates how much of Mexico's earnings inequality can be explained by educational inequality, as well as other control variables, both in gross and marginal terms;[2] analyzes the evolution of educational attainment; relates changes in the distribution of education to changes in earnings inequality; examines the evolution and structure of the rates of returns to education by means of ordinary least squares and quantile regressions; and lastly offers concluding remarks.

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1. Wages are related directly to individual characteristics and do not depend on family structure. Besides, the distribution of wages explains much of the distribution of welfare in society.

2. Educational attainment has an impact not only on income but also on other outcomes that are important for an individual's well-being but are not necessarily measured in monetary terms. This study, however, does not consider the non-monetary impacts of education.

**The Evolution of Total Income Inequality**

The evaluation of income inequality in Mexico is based on information available in the E N I G H survey that captures total current income of households, including non-monetary income, earnings, and other sources of monetary income. The unit of analysis is the household, and the concept of income is household income per capita.[3]

TABLE 1
**Lorenz Curves for Total Current Income, 1984-96**

| Population share | 1984 | 1989 | 1992 | 1994 | 1996 |
|---|---|---|---|---|---|
| | | | **(Accumulated income share: percent)** | | |
| 10 | 1.66 | 1.39 | 1.32 | 1.39 | 1.39 |
| 20 | 4.47 | 3.88 | 3.68 | 3.76 | 3.89 |
| 30 | 8.19 | 7.29 | 6.92 | 6.98 | 7.29 |
| 40 | 12.85 | 11.65 | 11.09 | 11.08 | 11.63 |
| 50 | 18.76 | 17.05 | 16.26 | 16.28 | 17.08 |
| 60 | 26.15 | 23.78 | 22.83 | 22.79 | 23.86 |
| 70 | 35.51 | 32.25 | 31.13 | 31.10 | 32.39 |
| 80 | 47.64 | 43.12 | 42.14 | 41.93 | 43.44 |
| 90 | 64.53 | 58.75 | 58.32 | 57.68 | 59.33 |
| 92 | 68.79 | 63.06 | 62.81 | 62.03 | 63.61 |
| 94 | 73.73 | 68.03 | 68.03 | 67.26 | 68.68 |
| 96 | 79.38 | 73.82 | 74.47 | 73.70 | 74.95 |
| 98 | 86.68 | 81.60 | 82.81 | 82.49 | 83.32 |
| 100 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Bottom 20 per cent | 4.5 | 3.9 | 3.7 | 3.8 | 3.9 |
| Middle 40 per cent | 21.7 | 19.9 | 19.2 | 19.0 | 20.0 |
| Middle-high 30 per cent | 38.4 | 35.0 | 35.5 | 34.9 | 35.5 |
| Top 10 per cent | 35.5 | 41.3 | 41.7 | 42.3 | 40.7 |
| Gini coefficient | 0.473 | 0.519 | 0.529 | 0.530 | 0.515 |
| Theil T index | 0.411 | 0.566 | 0.550 | 0.558 | 0.524 |

*Note:* **Total current income is based on household income per capita.**
*Source:* **Author's calculations based on ENIGH.**

The main results of this evaluation are shown in Table 1, which indicates a sizable deterioration in income distribution during the period under review. While the poorest 20 per cent of the population lost almost one-seventh of their

3. Total current income of the household divided by the number of household members. That is, we are considering the household as a unit characterized by a flow of income transfers and disregarding aspects related to equivalence scale.

income share (0.6 percentage points), the richest 10 per cent increased theirs by something close to one-seventh (5.2 percentage points). Moreover, the richest group was the only one to gain over that period, as not only the poorest but also those in the middle lost in relative terms.

Mexico, in the period from 1984 to 1996, was marked by a series of regressive income transfers from almost the entire spectrum of the population to the richest stratum. Accordingly, the most commonly used inequality index points to a worsening in income inequality over this span of time. The Gini coefficient, which is especially sensitive to changes in the middle of the distribution, rose from 0.473 in 1984 to 0.515 in 1996. The Theil T index, which is extremely sensitive to changes in the upper and lower tails, rose from 0.411 in 1984 to 0.524 in 1996.

The worsening of income distribution is indisputable, but two points must be stressed. The first one is, that, according to the ENIGH survey, most of the deterioration occurred in the middle to late 1980s (1984-89). There was little variation in earnings inequality in the early 1990s, except for a slight trend toward deterioration. From 1989 to 1994, the income share accruing to the 20 per cent poorest decreased slightly (from 3.9 to 3.8 per cent), whereas the share accruing to the richest 10 per cent increased (by 1 percentage point); those in the middle also experienced losses.

The second fact is surprising and hard to explain: income distribution improved between 1994 and 1996, an interval of time in which the Mexican economy experienced a severe financial crisis.⁴ Usually one would expect inequality to rise during times of recession, because the rich have more ways of protecting their assets than the poor. This is especially true of labour, which is basically the only asset of the poor (the labour-hoarding hypothesis). Nevertheless, during this time, the 10 per cent richest experienced relative losses (their income share dropped 1.6 percentage points), and inequality declined. The Gini coefficient dropped from 0.534 0.530 in 1994 to 0.515 in 1996, while the Theil T index dropped from 0.558 to 0.524. It could be argued that the richest experienced severe capital losses that affected their total income more than the poor, but this hypothesis is not supported by the data presented in Table 2: monetary income other than wages and salaries as well as financial income increased as a share of total income in that time period, particularly in urban areas. Therefore, the fall in inequality remains somewhat puzzling.

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4. In 1994, the current account deficit was $30 billion, about 7 per cent of gross domestic product (GDP). The main effects of the financial crisis were (a) GDP and domestic demand fell 6.2 and 14 per cent, respectively; (b) the unemployment rate rose from 3.7 per cent in 1994 to 6.2 per cent in 1995; and (c) GDP per capita decreased 7.8 per cent and workers experienced a significant reduction in their real wages, nearly 17 per cent in 1995.

**TABLE 2**
**Share of Total Income by Source and Geographic Location, 1994 and 1996**

|  | | | | | | (per cent) |
|---|---|---|---|---|---|---|
| *Source* | | *1994* | | | *1996* | |
|  | *Total* | *Urban* | *Rural* | *Total* | *Urban* | *Rural* |
| **Monetary current income** | | | | | | |
| **Total labour earnings** | *AIM* | **49.01** | **32.07** | **44.51** | **46.08** | **33.75** |
| **Property (business) income** | **16.96** | **16.23** | **22.75** | **17.74** | **17.11** | **22.07** |
| **Property income and rents** | **1.10** | **1.13** | **0.87** | **1.35** | **1.47** | **0.51** |
| **Income from cooperative firms** | **0.22** | **0.24** | **0.12** | **0.06** | **0.03** | **0.32** |
| **Monetary transfers** | **5.44** | **4.72** | **11.23** | **6.55** | **5.89** | **11.11** |
| **Other current income** | **0.64** | **0.67** | **0.36** | **0.69** | **0.66** | **0.91** |
| **No monetary current income** | | | | | | |
| **Self-consumption** | **1.44** | **0.81** | **6.46** | **1.20** | **0.69** | **4.72** |
| **Non-monetary payment** | **1.55** | **1.58** | **1.28** | **2.25** | **2.32** | **1.82** |
| **Gifts** | **5.04** | **4.73** | **7.57** | **6.07** | **5.86** | **7.55** |
| **Housing imputed rent** | **16.02** | **16.60** | **11.39** | **13.76** | **14.28** | **10.20** |
| **Financial income** | **4.46** | **4.28** | **5.91** | **5.80** | **5.62** | **7.04** |

*Source:* **Author's calculations based on ENIGH.**

**Table 3 displays the Gini coefficient and Theil T index for urban and rural areas using total current income. For both indexes, inequality was lower in rural areas than in urban areas and was remarkably stable until 1992. After a small decrease in 1994, rural inequality increased in 1996, contrary to the aggregate result. In light of these outcomes, the behaviour of current income distribution in Mexico seems to be driven by the tends in urban areas.**

**TABLE 3**
**Inequality Measures for Total Current Income, 1984-96**

| *Year* | *Gini  Coefficient* | | | *Theil  T Index* | | |
|---|---|---|---|---|---|---|
|  | *National* | *Urban* | *Rural* | *National* | *Urban* | *Rural* |
| **1984** | **0.473** | **0.442** | **0.448** | **0.411** | **0.356** | **0.375** |
| **1989** | **0.519** | **0.498** | **0.444** | **0.566** | **0.526** | **0.361** |
| **1992** | **0.529** | **0.498** | **0.434** | **0.550** | **0.483** | **0.353** |
| **1994** | **0.534** | **0.508** | **0.419** | **0.558** | **0.499** | **0.325** |
| **1996** | **0.519** | **0.493** | **0.452** | **0.524** | **0.470** | **0.390** |

*Source:* **Author's calculations based on ENIGH.**

### The Evolution of Earnings Inequality

How much of total income inequality is due to earnings inequality? Table 4 presents the results of total current income inequality for each of its components: earnings,[5] monetary income excluding earnings, and non-monetary income by urban and rural areas[6] Earnings contribute to most of the overall inequality, being responsible for almost half of inequality at the national level. These figures may be clearly affected by the under-reporting of capital gains, but understanding the mechanisms that produce earnings inequality represents a large step toward understanding the behaviour of total inequality. As long as labour is the main, if not the only, asset of the poor, a better knowledge of earnings inequality is a valuable input for the assessment of poverty and welfare issues.

**TABLE 4**

**Decomposition of Total Current Income, 1984-96**

| | | | (Percentage share in overall Gini) | |
|---|---|---|---|---|
| *Region and Year* | *Earnings* | *Monetary Income Excluding Earnings* | *Non-monetary Current Income* | *Total* |
| *National* | | | | |
| 1984 | 46.0 | 32.9 | 21.0 | 100.0 |
| 1989 | 41.0 | 36.0 | 23.0 | 100.0 |
| 1992 | 42.9 | 31.9 | 25.2 | 100.0 |
| 1994 | 50.2 | 25.9 | 23.9 | 100.0 |
| 1996 | 46.7 | 29.4 | 23.9 | 100.0 |
| *Urban* | | | | |
| 1984 | 45.6 | 32.2 | 22.2 | 100.0 |
| 1989 | 38.6 | 37.3 | 24.1 | 100.0 |
| 1992 | 41.4 | 33.1 | 25.5 | 100.0 |
| 1994 | 50.0 | 26.0 | 24.0 | 100.0 |
| 1996 | 46.1 | 29.8 | 24.1 | 100.0 |
| *Rural* | | | | |
| 1984 | 30.7 | 49.5 | 19.8 | 100.0 |
| 1989 | 35.7 | 43.5 | 20.8 | 100.0 |
| 1992 | 29.6 | 42.2 | 28.2 | 100.0 |
| 1994 | 31.9 | 43.8 | 24.2 | 100.0 |
| 1996 | 35.7 | 41.2 | 23.1 | 100.0 |
| 1996 | 35.7 | 41.2 | 23.1 | 100.0 |

*Source:* **Author's calculations based on ENIGH.**

5. Earnings as defined in the ENIGH survey include salaries and wages, paid over-time, tips, contract workers' earnings, Christmas or New Year bonuses and other gifts, and other monetary compensations (non-regular earnings). Earnings as defined in the ENEU survey include salaries and wages, self-employed workers' earnings, contract workers' earnings, and implicit salaries of firm owners, as well as non-monetary earnings.
6. Although the results are shown for the Gini coefficient, these also could have been obtained for the Theil T index, as both of them satisfy the six propositions listed in Shorrocks (1980 and 1984) as well as Shorrocks and Mookherjee (1982).

We use the ENEU household survey to examine the behaviour of earnings inequality because it is extremely rich in household characteristics (annex 2).[7] Table 5 shows that the distribution of earnings has become more unequal in recent times. The Gini coefficient jumped from 0.395 in 1988 to 0.442 in 1997, after reaching a peak of 0.464 in 1996. Similarly, the Theil T index increased from 0.327 in 1988 to 0.372 in 1997, with 0.474 in 1996. Another index, the. $R_{10/20}$, which is the ratio of the income share accruing to the richest 10 per cent to that accruing to the poorest 20 per cent, increased from 4.48 to 6.04 over the period, reaching a maximum of 6.74 in 1996.

TABLE 5

**Inequality Indexes for the Distribution of Earnings, 1988-97**

|  |  |  |  |  |  |  |  |  |  | (per cent) |
|---|---|---|---|---|---|---|---|---|---|---|
| *Population Share* | *1988* | *1989* | **7990** | **7997** | **7992** | **7995** | *1994* | *1995* | *1996* | **7997** |
| **Bottom 20 per cent** | 7.54 | 7.62 | 7.19 | 6.84 | 6.47 | 6.13 | 5.98 | 5.91 | 5.72 | 5.95 |
| **Middle 40 per cent** | 25.23 | 24.45 | 23.86 | 23.41 | 23.37 | 22.86 | 22.36 | 22.59 | 22.09 | 23.01 |
| **Middle-high 30 per cent** | 33.44 | 34.15 | 33.96 | 33.77 | 33.52 | 33.37 | 32.94 | 33.42 | 33.61 | 35.13 |
| **Top 10 per cent** | 33.78 | 33.78 | 34.98 | 35.98 | 36.64 | 37.63 | 38.72 | 38.08 | 38.58 | 35.91 |
| **Gini coefficient** | 0.395 | 0.398 | 0.414 | 0.426 | 0.434 | 0.447 | 0.458 | 0.455 | 0.464 | 0.442 |
| **Theil T index** | 0.327 | 0.328 | 0.350 | 0.380 | 0.396 | 0.414 | 0.470 | 0.427 | 0.474 | 0.372 |
| **R10/20** | 4.48 | 4.43 | 4.87 | 5.26 | 5.66 | 6.14 | 6.47 | 6.44 | 6.74 | 6.04 |

*Source:* **Author's calculations based on ENEU (third quarter).**

There are two main differences in the pattern shown by the distribution of earnings and total current income. First, the gains were not limited to the richest 10 per cent. Those in the seven-, eight-, and nine-tenths of the distribution also improved their relative earnings over the period by almost 2 percentage points; the biggest losers were the middle 40 per cent, who lost more than 2 percentage points of their income share. Second, the earnings distribution clearly worsened

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7. In order to reduce the heterogeneity of the sample and also aspects related to self-selection, the population under analysis includes individuals living in urban areas, between 16 and 65 years old, and working 20 hours a week or more. It does not include seasonal workers. Also the two highest observations were dropped from the sample given the clear evidence of outliers in some years.

in the 1990s up through 1996, although the inequality associated with total current income was moderately stable in the 1990s and even improved in 1996.

The behaviour of total current income inequality and earnings inequality from 1994 to 1996 supports the idea that the poor, who rely mostly on labour as a source of income, are the least able to protect themselves during a recession. However, the substantial drop in earnings inequality from 1996 to 1997 is, once more, a surprising finding. For example, the RIO/20 index declined from 6.74 in 1996 to 6.04 in 1997. It is true that the Mexican economy as a whole had a strong and impressive performance in 1997. The aggregate growth rate was around 7 per cent, real investment grew 24 per cent, exports grew 17 per cent, industrial production increased 9.7 per cent, and the civil construction sector, which is highly intensive in less-skilled labour, grew close to 11 per cent. Under such a scenario, an improvement in the distribution of earnings is not unlikely, but the magnitude and quickness of the recovery call for a detailed inspection of the mechanisms responsible for it.

Three broad hypotheses frequently are advanced to explain the earnings inequality experienced in Mexico and other countries.[8] These link the increase in earnings inequality to (a) increased openness of the economy, (b) institutional changes in the labour market, and (c) skill-biased technological change.

The first of these hypotheses argues that as trade barriers are reduced, an economy is placed under heightened competitive pressure to specialize along its lines of comparative advantage. A developed country with a relatively abundant supply of high-skilled workers, like the United States, will be induced to specialize'in activities that require a high level of skill or education as its low-skilled industries come under increased competitive pressure from countries with an abundant supply of low-skilled, low-wage workers.

Hanson and Harrison (1995) examine the impact of Mexican trade reform on the structure of wages using information at the firm level. They test whether trade reform shifted employment toward industries that are relatively intensive in the use of skilled labour (the Stolper-Samuelson-Type [SST] effect). They conclude that the wage gap was associated with changes within industries and firms, which cannot be explained by the SST effect. Thus, the increase in wage inequality was due to other factors.[9] Hanson (1997) examines a trade theory based on increasing returns, which has important implications for regional economies, and concludes that employment and wage patterns are consistent with the idea that access to markets is important for the location of industry.

This first hypothesis has several problems when applied to the United States and becomes even less persuasive when applied to Mexico, as Mexico greatly liberalized its trade regime after 1984. However, the reduction of its trade

8. See, for example, the "Symposium on Wage Inequality" (1997) and the "Symposium on How International Exchange, Technology, and Institutions Affect Workers" (1997).
9. The Stolper-Samuelson effect also is examined under NAFTA in Burfisher and others (1993).

barriers was mostly with respect to imports from the developed countries, notably the United States and Canada, whose share of total Mexican merchandise imports increased from 68 per cent in 1985 to 73 per cent in 1993, and to almost 78 per cent in 1996. Since Mexico has an abundant supply of low-skilled labour compared with its northern neighbours, the liberalization of trade could be expected to induce a pattern of specialization that would raise the relative demand (and hence wages) of the lesser-educated members of the labour force. This did not happen. Instead, the increase in earnings inequality observed in Mexico followed the same pattern as that observed in the United States: less-educated workers experienced real wage declines, while highly educated workers experienced real wage improvements. The trade-based explanation may still be relevant, however, to the extent that greater openness facilitates the transfer of ideas and technology. This is a more persuasive explanation of the increase in earnings inequality. A variant of the globalization-technology nexus advanced by Feenstra and Hanson (1996) involves outsourcing in which multinational enterprises in the developed country relocate their less skill-intensive activities to the less skill-abundant developed countries. However, what is referred to as a low-skill activity in the United States may be a high-skill activity in Mexico, which could explain the similarity in the evolution of earnings inequality in both countries.

The second explanation revolves around institutional changes such as reductions in the minimum wage, the weakening of trade unions, and the decline of state-owned enterprises. The existence of a binding minimum wage, for example, truncates the lower end of the wage distribution. As the minimum wage is allowed to erode — say, through inflation — it becomes less binding by moving farther down the low end of the wage distribution, with the result that, *ceteris paribus,* a higher share of wages will lie below the previous minimum-wage level. This translates into an increased dispersion in wages and earnings. Institutional developments have not exerted a significant influence on the earnings distribution since the early 1980s (see Hernandez, Garro, and Llamas 1997). The distribution of real wages, for example, does not reveal any significant distortions around the minimum wage, which suggests that it is not a binding constraint. The fact that this minimum wage has continued to erode in real value, therefore, seems to be irrelevant. Similarly, the distribution of union wages is not significantly different from the distribution of non-union wages, once differences in educational levels are taken into account. This also renders any erosion of union power irrelevant for the distribution of earnings. In conclusion, although the influence of institutional factors cannot be rejected entirely, it does not appear to be the principal cause of the increase in earnings inequality.

A persuasive explanation, both for the United States and for Mexico, seems to be one that links earnings inequality to skill-biased technological changes that

raise the relative demand for higher-skilled labour. **Figure 1 suggests that factors other than the supply of new workers with a basic education drove earnings differentials by level of schooling.**

### FIGURE 1
### Conditional Median Real Hourly Earnings by Educational Level, 1988-97



**1988 = 100**
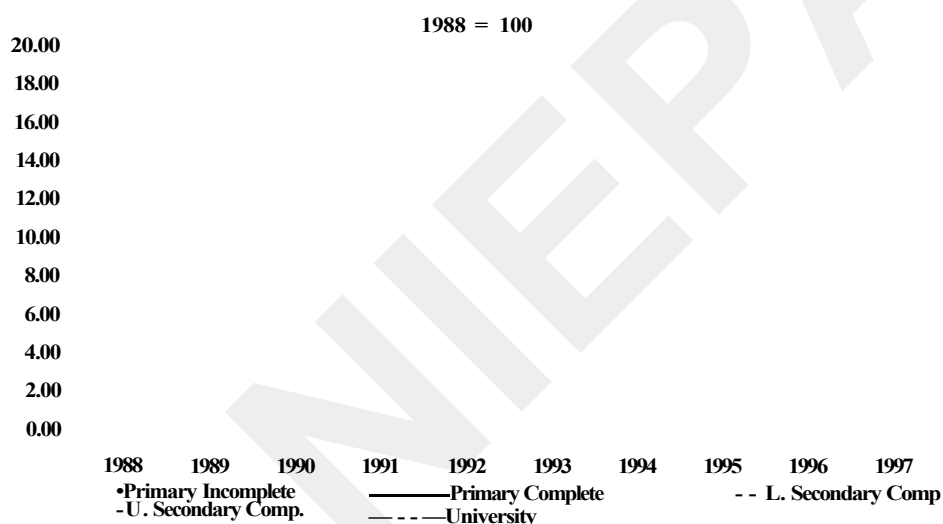
*Note:* **Medians were calculated conditional on experience, experience squared, gender, economic sector, labour market status, and region.**
*Source:* **Author's estimations based on E N E U survey.**

**In sum, demand and supply, interacting within a context of economic modernization and globalization, generate the trend toward greater wage disparity. However, none of these explanations deals explicitly with changes in the distribution of education or with the interaction between the educational policies that induced them and the workings of the labour market.**

### Static Decomposition

**This section evaluates the contribution to earnings inequality in Mexico of a set of variables, related either to individual attributes such as schooling and age, or to form of participation in the labour market such as number of hours worked or status, for selected years from 1988 to 1997. The idea is to measure the inequality that is left unexplained after taking into account the differences in average earnings among workers in different groups. When the exercise is conducted for**

a single variable, this reduction is said to be the gross contribution of the variable to overall wage inequality. When a variable is added to a model that contains all the remaining variables, the change in the gross contribution of these two models is called the marginal contribution of the added variable. In other words, the gross contribution is the uncontrolled explanatory power of a given variable, and the marginal contribution is its explanatory power controlled by a set of other seemingly relevant variables.

*Short Review*

Before proceeding to the decomposition exercise, it is worth reviewing the conclusions of other recent studies on the evolution of earnings inequality and some variables that are important in the process of earnings formation.

Cragg and Epelbaum (1996) show that both average wage and education skill premium defined as the percentage increase in wages over those of the group with primary schooling have increased substantially for workers with more education. In other words, the higher the level of education, the larger is the increase in average wages, which, in turn, leads to an increase in inequality. They also examine whether the high demand for skilled labour is industry-specific, task-specific or simply the result of general education. In order to assess the marginal contribution of other factors that are not related to education, these factors are controlled by a set of dummy variables that describe the industry- and task-specific effects. The authors conclude that the industry-specific effect is small and that the task-specific effect (occupation variable) explains half of the growth in wage dispersion from 1987 to 1993. This conclusion may not be correct, however, as occupation might be considered an endogenous variable, which is determined by education. As shown in Table 1A.1 (Annex I), educational level and occupation variables are highly correlated. In contrast, the correlation between education and other variables is low. Hence, the occupation variable should be handled carefully in any kind of analysis.

*Methodology*

The approach in this study uses inequality measures known as "generalized entrOopy indexes." Bourguinon (1979), Cowell (1980), and Shorrocks (1980, 1984) have shown that such measures alone satisfy all the desirable properties for any inequality measure and are additive decomposable.

Assume that the population is divided into $g$ groups (according to education, for instance). Then a measure of inequality is said to be additive decomposable (see Shorrocks 1980) when it can be written as:

(1)    $7 = /(/3_{,}, \mathbf{a}_{,,}/_{.}) = /_{B}(\ ^\wedge, \mathbf{a}_{,}) + \mathbf{X}\mathbf{v}\mathbf{K}^\wedge, \text{«},)/,$
                        s

where  $/3_R$  is the fraction of the labour force employed in group $g$,  $a_g$  is its relative mean income, and  $I_g$ represents the wage dispersion within this group as measured by the index $I$.

The term  $I_g$  on the right side of equation 1 corresponds to the inequality *between* groups (that is, the amount of inequality that would be observed in the case of an earnings redistribution within each group, in such a way that, at the end, all workers in a group would receive the same earnings). The second term in the right-hand side ( $I_w$ ) reflects the inequality *within* groups; that is, the share of overall inequality associated with factors other than those involved in the particular partition under study. It represents the degree of inequality that would be observed if all groups had the same average earnings. Notice that $I_w$ is a weighted average of the internal inequalities, the weights,  $w(/?_R, a_g)$ , being a function of the population share and average earnings of each group.

One thus can estimate the contribution of a given variable(s) to the overall earnings inequality at a given point in time as the fraction of this inequality that would be eliminated if the average wage of all groups formed by that (those) variable(s) were equalized, while keeping the internal dispersions unchanged. The *rationale* behind this exercise is that the effect of this (these) variable(s) is (are) captured by differences in average earnings at the group level.

Among the most commonly used inequality indexes, the Theil T is one of the few that is additive decomposable.[10] The general statistics needed for the decomposition by age, sector, level of schooling, hours worked, and status from 1988 to 1997 are shown in Table 6.

*Results*

The results for the exercise of static decomposition are shown on Table 7.[11] Education (the result of the interaction between demand and supply) is the variable that accounts for, by far the largest share of earnings inequality in Mexico, in terms of both gross and marginal contributions. The gross contribution — that is, the variable's explanatory power when it is considered alone — amounted to one-fifth of total inequality in 1988 and one-third in 1997.[12] The marginal contribution — that is, the increase in the explanatory

10. for the decomposition of the Theil T, see Ramos (1990) and Annex 2.

11. Since this exercise is very intensive in the number of observations (which constitutes its main handicap), the variable "hours worked" was dropped in order to avoid the problem of having cells with too few observations. The decision was made through the comparison among different combinations of variables, where hours worked ended up being the least relevant.

12. In most earnings equations for any country, the set of measurable observable variables explains at most 60 per cent of the total variance. In the United States, education accounts for 10 per cent of the total variance.

power when the variable is added to a model that already has the other variables — was remarkably stable and meaningful, staying around 21 per cent throughout the period. The difference between the two contributions has been growing over time, indicating that the degree of correlation with other variables has been increasing. This means that the "indirect" effects are becoming more important.

**T A B L E  6**

**General Statistics for the Static Decomposition, 1988-97**

| | *1988* | | | *1992* | | | *1996* | | | *1997* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Variable* | *Beta* | *Alfa* | *Theil* | *Beta* | *Alfa* | *Theil* | *Beta* | *Alfa* | *Theil* | *Beta* | *Alfa* | *Theil* |
| **Schooling** | | | | | | | | | | | | |
| **Primary incomplete** | 0.185 | 0.70 | 0.220 | 0.147 | 0.65 | 0.234 | 0.129 | 0.57 | 0.283 | 0.127 | 0.57 | 0.207 |
| **Primary complete** | 0.277 | 0.81 | 0.257 | 0.259 | 0.72 | 0.207 | 0.244 | 0.65 | 0.270 | 0.237 | 0.67 | 0.207 |
| **Lower sec. complete** | 0.241 | 0.88 | 0.228 | 0.264 | 0.80 | 0.281 | 0.257 | 0.74 | 0.264 | 0.263 | 0.76 | 0.229 |
| **Upper sec. complete** | 0.189 | 1.09 | 0.234 | 0.205 | 1.07 | 0.300 | 0.216 | 1.04 | 0.278 | 0.221 | 1.05 | 0.259 |
| **University complete** | 0.107 | 2.10 | 0.343 | 0.124 | 2.32 | 0.359 | 0.154 | 2.30 | 0.430 | 0.151 | 2.22 | 0.289 |
| **Total** | | | 0.327 | | | 0.395 | | | 0.464 | | | 0.372 |
| **Age** | | | | | | | | | | | | |
| **16-25** | 0.320 | 0.74 | 0.202 | 0.323 | 0.68 | 0.201 | 0.280 | 0.64 | 0.239 | 0.282 | 0.66 | 0.217 |
| **26-34** | 0.278 | 1.07 | 0.259 | 0.276 | 1.07 | 0.334 | 0.279 | 1.02 | 0.332 | 0.274 | 1.05 | 0.320 |
| **35-49** | 0.282 | 1.17 | 0.364 | 0.293 | 1.24 | 0.441 | 0.323 | 1.26 | 0.541 | 0.327 | 1.21 | 0.374 |
| **50-65** | 0.119 | 1.13 | 0.475 | 0.108 | 1.14 | 0.521 | 0.119 | 1.08 | 0.589 | 0.117 | 1.13 | 0.496 |
| **Total** | | | 0.327 | | | 0.395 | | | 0.464 | | | 0.372 |
| **Sector** | | | | | | | | | | | | |
| **Primary sector** | 0.019 | 0.99 | 0.508 | 0.016 | 0.99 | 0.667 | 0.014 | 1.20 | 0.976 | 0.012 | 1.20 | 0.621 |
| **Manufacturing industry** | 0.274 | 0.97 | 0.323 | 0.242 | 0.96 | 0.379 | 0.221 | 0.94 | 0.559 | 0.227 | 0.92 | 0.371 |
| **Non-manufacturing industry** | 0.058 | 0.91 | 0.224 | 0.064 | 1.06 | 0.409 | 0.060 | 0.91 | 0.382 | 0.057 | 0.88 | 0.331 |
| **Commerce** | 0.178 | 1.01 | 0.415 | 0.196 | 0.92 | 0.415 | 0.188 | 0.90 | 0.484 | 0.180 | 0.89 | 0.407 |
| **Finance services or rent** | 0.030 | 1.39 | 0.230 | 0.027 | 1.77 | 0.384 | 0.024 | 1.90 | 0.407 | 0.027 | 1.79 | 0.332 |
| **Transportation or communications** | 0.066 | 1.12 | 0.191 | 0.069 | 1.12 | 0.310 | 0.064 | 1.03 | 0.344 | 0.068 | 1.06 | 0.255 |

**Contd...**

| Variable | 1988 | | | 1992 | | | 1996 | | | 1997 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Beta* | *Alfa* | *Theil* | *Beta* | *Alfa* | *Theil* | *Beta* | *Alfa* | *Theil* | *Beta* | *Alfa* | *Theil* |
| **Social services** | **0.253** | **1.10** | **0.280** | **0.261** | **1.12** | **0.380** | **0.294** | **1.23** | **0.373** | **0.293** | **1.25** | **0.317** |
| **Other services** | **0.122** | **0.73** | **0.385** | **0.125** | **0.70** | **0.291** | **0.136** | **0.58** | **0.274** | **0.136** | **0.58** | **0.269** |
| **Total** | | | **0.327** | | | **0.395** | | | **0.464** | | | **0.372** |
| ***Hours worked*** | | | | | | | | | | | | |
| **20-39** | **0.201** | **0.89** | **0.278** | **0.174** | **0.87** | **0.391** | **0.174** | **0.84** | **0.399** | **0.172** | **0.86** | **0.333** |
| **40-48** | **0.581** | **0.96** | **0.280** | **0.566** | **0.95** | **0.332** | **0.525** | **0.96** | **0.421** | **0.540** | **0.98** | **0.331** |
| **49+** | **0.218** | **1.20** | **0.438** | **0.260** | **1.20** | **0.483** | **0.301** | **1.16** | **0.535** | **0.288** | **1.13** | **0.444** |
| **Total** | | | **0.327** | | | **0.395** | | | **0.464** | | | **0.372** |
| ***Status*** | | | | | | | | | | | | |
| **Employer** | **0.046** | **2.32** | **0.549** | **0.048** | **2.44** | **0.463** | **0.048** | **2.18** | **0.561** | **0.046** | **2.15** | **0.428** |
| **Self-employed** | **0.158** | **0.97** | **0.338** | **0.149** | **0.89** | **0.354** | **0.174** | **0.75** | **0.377** | **0.167** | **0.79** | **0.340** |
| **Informal salaried** | **0.122** | **0.58** | **0.210** | **0.140** | **0.54** | **0.158** | **0.147** | **0.47** | **0.174** | **0.150** | **0.48** | **0.175** |
| **Formal salaried** | **0.609** | **0.99** | **0.240** | **0.602** | **1.03** | **0.342** | **0.558** | **1.14** | **0.412** | **0.567** | **1.13** | **0.311** |
| **Contract** | **0.064** | **0.98** | **0.230** | **0.062** | **0.96** | **0.297** | **0.072** | **0.77** | **0.302** | **0.070** | **0.79** | **0.268** |
| **Total** | | | **0.327** | | | **0.395** | | | **0.464** | | | **0.372** |

*Note:* **The sample includes only those who reported information on level of education, age, economic sector, and labor market status simultaneously.**
*Source:* **Author's calculations based on the ENEU (third quarter).**

## T A B L E   7

**Contribution to the Explanation of Earnings Inequality, 1988-97**

| | | | | | | | | **(per cent)** |
|---|---|---|---|---|---|---|---|---|
| *Variable* | 1988 | | 1992 | | 1996 | | 1997 | |
| | *Gross* | *Marginal* | *Gross* | *Marginal* | *Gross* | *Marginal* | *Gross* | *Marginal* |
| **Education** | **20.2** | **20.8** | **26.9** | **21.6** | **29.3** | **21.2** | **32.6** | **21.2** |
| **Age** | **5.4** | **8.3** | **7.2** | **6.1** | **6.6** | **6.2** | **7.3** | **5.4** |
| **Economic sector** | **2.3** | **8.1** | **4.0** | **5.2** | **6.8** | **5.2** | **8.6** | **4.4** |
| **Status** | **12.8** | **11.2** | **13.7** | **8.9** | **13.7** | **7.4** | **15.6** | **7.5** |

*Source:* **Author's calculations based on ENEU.**

The other variables considered seem to be much less important. All three of them — but particularly economic sector and status in the labour market — display an upward trend in their gross contribution and a declining trend in their marginal contribution. This can be interpreted as evidence that the interaction between these variables and education has become more intense. That is, the workers' skills are becoming increasingly more relevant to the determination of their type

of participation in the labour market as well as to their position across different economic segments of the economy. The same pattern holds when number of hours worked instead of sector is considered (see Table 8).

**TABLE 8**

**Contribution to the Explanation of Earnings Inequality, 1988-97**

|  |  |  |  |  |  |  |  | (percent) |
|---|---|---|---|---|---|---|---|---|
|  | *1988* | | *1992* | | *1996* | | *1997* | |
| *Variable* | *Gross* | *Marginal* | *Gross* | *Marginal* | *Gross* | *Marginal* | *Gross* | *Marginal* |
| **Education** | **20.2** | **20.2** | **26.9** | **22.3** | **29.3** | **22.6** | **32.6** | **24.5** |
| **Age** | **5.4** | **5.4** | **7.2** | **4.8** | **6.6** | **4.6** | **7.3** | **4.5** |
| **Hours worked** | **1.7** | **3.8** | **1.9** | **3.3** | **1.3** | **4.0** | **1.2** | **3.5** |
| **Status** | **12.8** | **7.6** | **13.7** | **7.1** | **13.7** | **6.0** | **15.6** | **6.5** |

*Source:* **Author's calculations based on the ENEU (third quarter).**

The analysis of these results leads to the conclusion that educational inequality is a key variable for understanding earnings inequality in Mexico.[13] Though remarkable to some extent, this finding comes as no surprise in the Latin American context. The results for some countries in the region, where similar exercises have been conducted, are reported in Table 9. Mexico stays in the average range for Latin American countries and displays a situation close to that observed in Colombia and Peru. However, education seems to be more important for inequality in Brazil and much less important in Argentina and Uruguay. This is a comparison in relative terms. Given that in Colombia and Peru, where education has a similar explanatory power, there is a lower degree of inequality than in Mexico, the absolute contribution of education is higher in Mexico.

In absolute terms, the contribution of education to inequality in Mexico is the second highest in Latin America, after Brazil. Moreover, what seems to be particularly interesting in the Mexican experience is the fact that the significance of education has been increasing over time. Therefore, the evolution of educational distribution and the income profile associated with it, as well as the link between changes in this distribution and changes in earnings inequality, are addressed in the next section.

13. Additional evidence is that the explanatory power of the complete model was 42.5 per cent in 1988, 45.0 per cent in 1992, 45.5 in 1996, and 48.3 per cent in 1997. This means that the marginal contribution of education was almost equal to the joint contribution of age, economic sector, and status in the labor market. Szekely (1995) applies the static decomposition of the Theil to the ENIGH for the years 1984. 1989, and 1992, using education, occupation, region, economic sector, and job status as control variables. The main finding is that this set of variables explains 55, 58, and 64 per cent of income dispersion, respectively, for each year, with education and job status being the relevant variables.

TABLE 9
Contribution of Education to Earnings Inequality:
International Comparison

| Country | Author(s) and Reference | Period | Gross Contribution (period) |
|---|---|---|---|
| Latin America | Altimirand Pinera (1982) | 1966-74 | 17-38 |
| Argentina | Fiszbein(1991) | 1974-88 | 16-24 |
| Brazil | Ramos and Trindade (1991) | 1977-89 | 30-36 |
| | Vieira(1998) | 1992-96 | 30-35 |
| Colombia | Reyes (1988) | 1976-86 | 29-35 |
| | Moreno (1989) | 1976-88 | 26-35 |
| Costa Rica | Psacharapoulos and others (1992) | 1981-89 | 23-26 |
| Peru | Rodriguez (1991) | 1970-84 | 21-34 |
| Uruguay | Psacharapoulos and others (1992) | 1981-89 | 10-13 |
| Venezuela | Psacharapoulos and others (1992) | 1981-89 | 23-26 |

## The Evolution of Educational Attainment

Levels of educational attainment have increased rapidly in most developing countries since the 1950s (Schultz 1988). Although Mexico also partook of that development, there was a significant lag in its educational indicators. Londono (1996), for example, points to an "education deficit," according to which Latin American countries, in general, and Mexico, in particular, have approximately two years less education than would be expected for their level of development. Elias (1992) finds that education was the most important source of improvement in the quality of labour in Latin America between 1950 and 1970, although such improvements did not take place to the same extent in Mexico as in other countries in the region. This changed dramatically in the 1980s. Figure 2 shows that, although Mexico's educational attainment increased steadily after the 1970s, it remained below the international trend line.[14] In the 1980s, however, the growth of educational attainment in Mexico accelerated, permitting it to catch up with international standards by 1990, where its placement in figure 2 is slightly above the trend line.

14. The scatter diagram is based on 317 observations from five years. The trend line represents the least squares regression line given by

$5 = -13.17 + 2.28$ *Ln(GDPcap)*                     Adjusted $R^2 = 0.68$.
     (-18.7)  (26.0)                                          *r*values in parentheses

The application of Ramsey's RESET test to this regression equation failed to detect a specification error; unlike with the alternative specification of the following type: $S = a + bX + cX2.$

**FIGURE 2**
**Cross-Country Relation Between Educational Attainment and GDP,**
**1960-90**
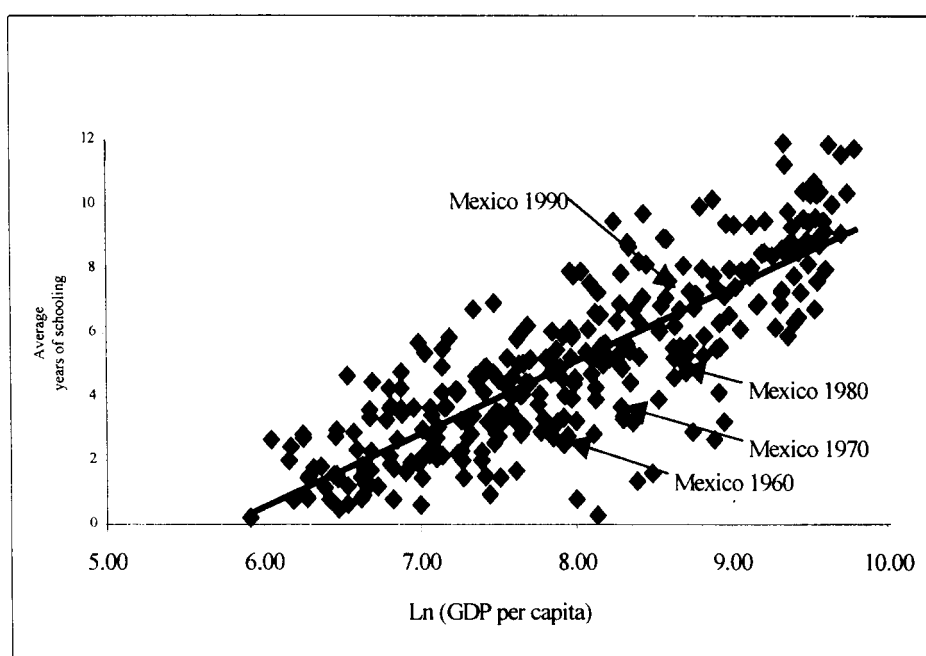


The closure of Mexico's education gap vis-a-vis the rest of the world was hastened in part by the country's economic stagnation. Mexico's real GDP per capita in the mid-1990s was roughly the same as it had been in the first half of the 1980s. Nevertheless, this should not detract from the remarkable increase in schooling that occurred during the 1980s. While the level of average schooling in Mexico increased roughly by a year per decade during 1960-80 (from 2.76 to 4.77 years), it increased by two years in the decade of the 1980s. This acceleration in schooling was the product of concerted efforts to increase the coverage of basic education, combined with advances made in the reduction of primary school repetition and drop-out rates.

The observations pertaining to Mexico, ordered by date, are shown in Table 10.

With respect to changes in the distribution of schooling by socio-economic groups, there are several aspects to be considered. In particular, three are examined here: the changes in this distribution that are related to gender, economic sector, and age.

**TABLE 10**

**Years of Schooling and Gross Domestic Product per Capita in Mexico, 1960-90**

| Year | Average schooling (years) | Ln (GDP per capita in 1980 U.S. dollars) |
|------|---------------------------|-------------------------------------------|
| 1960 | 2.76 | 7.95 |
| 1970 | 3.68 | 8.29 |
| 1980 | 4.77 | 8.71 |
| 1985 | 5.20 | 8.63 |
| 1990 | 6.72 | 8.67 |

*Source:* **Author's calculations based on Barro and Lee data set. The World Bank**

Table 11 shows the distribution of schooling by gender from 1988 to 1997. Even though there were clear improvements both for males and females, which signify an upgrade of educational attainment, women achieved a better performance during that period, especially at the top of the distribution. Improvements for males, in contrast, were spread more evenly over the entire distribution. Nevertheless, in 1997, women were undoubtedly more educated than men, as their cumulative distribution dominated that of men (Figure 3).[15]

**TABLE 11**

**Educational Distribution by Gender, 1988 and 1997**

| | | | | | (per cent) |
|---|---|---|---|---|---|
| Educational Group | Primary Incomplete | Primary Complete | Lower Secondary Complete | Upper Secondary Complete | University Complete |
| *1988* | | | | | |
| Male | 19.0 | 30.1 | 24.5 | 14.6 | 11.8 |
| Female | 17.3 | 22.2 | 23.2 | 29.1 | 8.2 |
| Total | 18.5 | 27.7 | 24.1 | 18.9 | 10.7 |
| *1997* | | | | | |
| Male | 13.0 | 25.7 | 28.4 | 18.0 | 14.9 |
| Female | 12.2 | 20.0 | 22.3 | 30.1 | 15.5 |
| Total | 12.7 | 23.7 | 26.3 | 22.1 | 15.1 |

*Source:* **Author's calculations based on the ENEU survey (third quarter).**

15. This is true for the overall distribution in 1997 relative to that in 1988.

**FIGURE 3**

**Cumulative Educational Distribution by Gender, 1997**



| University | Upper Sec | Lower Sec | Prim Com | Prim Incom |

**Educational Level**

. . . . .Male————Female
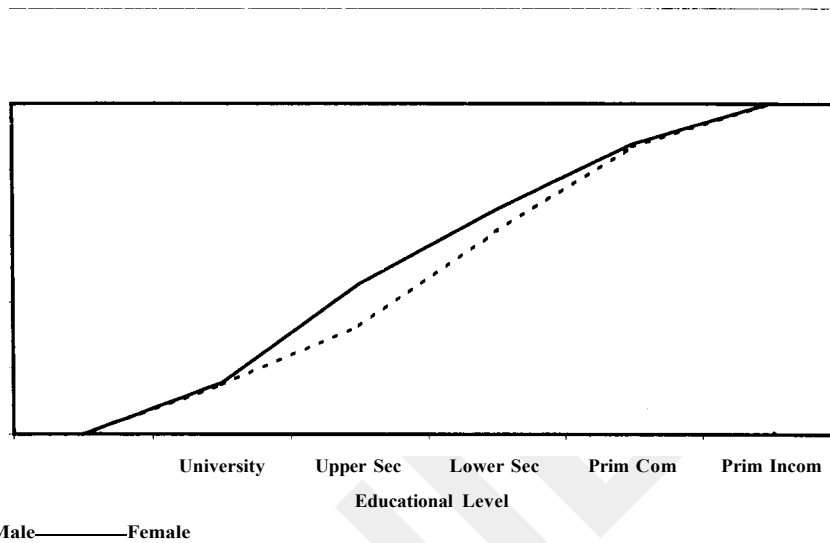
*Source:* **Author's calculations based on E N E U data.**

With respect to the distribution of schooling by economic sector, Table 12 shows a significant upgrade from 1988 to 1997. Three points, none-the-less, deserve to be stressed. First, financial and social services industries became relatively more intensive in the use of high-skilled labour. Second, the primary sector, together with non-manufacturing industry and other services were characterized by more intensive use of low-skilled labour. Third, in a surprising way, the manufacturing industry, in contrast to the common wisdom, cannot be characterized as a sector that intensively uses high-skilled labour.

Another relevant observation is that educational attainment by age group also improved, as the distribution by educational level was higher in 1997 than it was in 1988 (Table 13). In an attempt to reach a better understanding of this event, it is interesting to contrast the time and cohort effects.[16] In order to do this, one can look at the first age groups, 16-25 and 26-34, like synthetic cohorts. Namely, the 26-34 age group in 1997 can be compared directly to the 16-25 age group in 1988, and, to a lesser extent, the 35-49 age group in 1997 can be compared to the 26-34 age group in 1988. From 1988 to 1997, the percentage of persons in the category of incomplete primary schooling decreased, and this decline was higher than that experienced by the 16-25 age group (who were in the 26-34 age group in 1997). The opposite took place for the highest level of instruction. In other

16. The time effect refers to the comparison of the same age group in two different points of time.

words, improvements throughout the educational process in Mexico were significant, both for those entering the system (higher coverage) and for those already in it (higher efficiency).

### TABLE 12
### Educational Distribution by Economic Sector, 1988 and 1997

| | | | | | (per cent) |
|---|---|---|---|---|---|
| *Educational Group and Year* | *Primary Incomplete* | *Primary Complete* | *Lower Secondary Complete* | *Upper Secondary Complete* | *University Complete* |
| *1988* | | | | | |
| **Primary sector** | **41.1** | **21.0** | **13.3** | **14.3** | **10.3** |
| **Manufacturing industry** | **16.2** | **33.3** | **27.8** | **14.7** | **8.0** |
| **Non-manufacturing industry** | **36.6** | **28.5** | **14.7** | **9.0** | **11.2** |
| **Commerce** | **18.0** | **28.7** | **28.8** | **18.7** | **5.8** |
| **Finance services or rent** | **4.8** | **6.1** | **19.5** | **47.1** | **22.5** |
| **Transportation or communication** | **14.4** | **35.7** | **26.0** | **18.9** | **5.0** |
| **Social services** | **11.3** | **17.6** | **21.7** | **28.2** | **21.2** |
| **Other services** | **32.8** | **36.6** | **20.2** | **8.1** | **2.3** |
| **Total** | **18.5** | **27.7** | **24.1** | **18.9** | **10.7** |
| *1997* | | | | | |
| **Primary sector** | **28.1** | **27.4** | **17.7** | **10.9** | **15.9** |
| **Manufacturing industry** | **11.0** | **29.5** | **32.7** | **18.2** | **8.7** |
| **Non-manufacturing industry** | **28.6** | **31.7** | **18.4** | **10.0** | **11.4** |
| **Commerce** | **12.4** | **23.4** | **30.6** | **24.1** | **9.5** |
| **Finance services or rent** | **2.7** | **5.4** | **16.1** | **40.3** | **35.6** |
| **Transportation or communication** | **9.1** | **26.8** | **32.2** | **23.9** | **8.0** |
| **Social services** | **6.0** | **13.2** | **21.1** | **29.6** | **30.0** |
| **Other services** | **26.2** | **35.7** | **24.6** | **11.1** | **2.4** |
| **Total** | **12.7** | **23.7** | **26.3** | **22.1** | **15.1** |

*Source:* Author's calculations based on the E N E U (third quarter).

Also concerning the interaction between age and education, one can argue that developments in the educational system have more impact on the new generations than on the elderly. To investigate this, it is necessary to contrast the behaviour of inequality between different age groups to that of inequality within synthetic cohorts and in relation to education. As seen, the younger cohorts are, in fact, better educated than the older ones. At the same time, the "within" income dispersion for the youngest cohorts seems to increase over time, compared with the internal Theil in 1997 and 1988 (Table 6). Thus, it becomes easier to understand why the gross contribution of age to inequality has been rising, while its marginal contribution has been decreasing. In other words, differences both in educational attainment and distribution among cohorts have

become pronounced in recent times, leading to a higher (negative) correlation between education and age.

## TABLE 13
### Educational Distribution by Age Group, 1988 and 1997

|  |  |  |  |  | (per cent) |
|---|---|---|---|---|---|
| *Age Group* | *Primary Incomplete* | *Primary Complete* | *Lower Secondary Complete* | *Upper Secondary Complete* | *University Complete* |
| *1988* |  |  |  |  |  |
| 16-25 | 8.5 | 26.5 | 36.7 | 23.7 | 4.6 |
| 26-34 | 12.6 | 23.7 | 23.1 | 22.5 | 18.2 |
| 35-49 | 24.0 | 33.3 | 16.8 | 14.3 | 11.6 |
| 50-65 | 46.1 | 27.2 | 9.9 | 9.0 | 7.8 |
| Total | 18.5 | 27.7 | 24.1 | 18.9 | 10.7 |
| *7997* |  |  |  |  |  |
| 16-25 | 5.8 | 23.8 | 38.7 | 25.5 | 6.2 |
| 26-34 | 6.9 | 19.5 | 28.1 | 27.0 | 18.5 |
| 35-49 | 14.8 | 25.8 | 19.5 | 19.1 | 20.7 |
| 50-65 | 37.3 | 27.6 | 11.5 | 10.6 | 13.0 |
| Total | 12.7 | 23.7 | 26.3 | 22.1 | 15.1 |

*Source:* **Author's calculations based on the ENEU (third quarter).**

## The Dynamic Decomposition

In order to address the relationship between education (the result of the interaction between supply and demand) and earnings inequality, it is necessary to explain how the labour market determines the earnings differentials among workers with different educational attributes. This relationship can be viewed as determined by two elements: (a) the distribution of education itself; and (b) the way the labour market rewards educational attainment. The first element reflects a pre-existing social stratification that already entails some inequality due to reasons other than the workings of the labour market itself. The second is associated with the degree to which this pre-existing inequality grows into earnings inequality due to the performance of the labour market (that is, demand behaviour).

Figure 4 shows the distribution of education in the horizontal axis *(m,* is an indicator of the average schooling of the labour force, and *i,* represents its dispersion), while the vertical axis presents the distribution of earnings. The first quadrant depicts the interaction between the pre-existing conditions (the distribution of education) and the workings of the labour market, through the steepness *s,* of the income profile related to education. Therefore, at a point in time, (a) the higher *m,* is, the larger are the average earnings; (b) the lower *l,* is, the smaller is the earnings inequality; and (c) the higher *s,* is, the higher is the growth of pre-

existing disparities, and, accordingly, the higher is the earnings inequality. As these indicators change over time, they will induce changes in the income distribution: changes in *i,,* assuming *s,* constant, will change earnings inequality due to changes in the composition of the labour force (the so-called allocation-population effect), whereas changes in *s,* will alter the earnings differentials (the income effect).

<p style="text-align:center">FIGURE 4</p>
<p style="text-align:center">A Stylized View of Education and Labour Market Interaction</p>
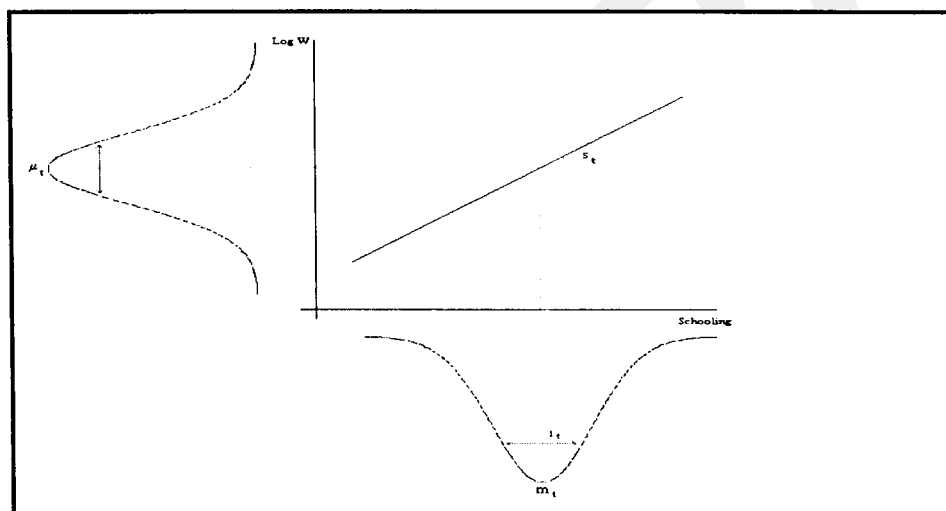


Barros and Reis (1991) develop three synthetic measures for the indicators *m,* (average schooling), i, (schooling inequality), and *s,* (income profile), based directly on the definition of the Theil T index (Annex 2). The figures for Mexico from 1988 to 1997 are presented in Table 14. Average schooling improved somewhat, but the inequality of the distribution of education deteriorated, whereas the income profile, which is related to the returns to schooling, became much steeper. This means that there was a shift in demand toward highly skilled labour that was not met by an increase in supply. This probably occurred as a result of the accelerated pace of skill-biased technological change facilitated by the increased openness of the Mexican economy. The same pattern observed for the overall sample holds for the 16-25 age group: the *m,* rose from 0.561 in 1988 to 0.574 in 1997; the *i,* increased from 0.0196 to 0.0218, whereas the *s,* doubled, rising from 0.0196 to 0.0383.

**TABLE 14**

**Synthetic Indicators of Schooling Distribution and Income Profile, 1988-97**

| Year | 1988 | 1992 | 7996 | 7997 |
|------|------|------|------|------|
| *m,* | 0.476 | 0.491 | 0.511 | 0.510 |
| *it* | 0.066 | 0.069 | 0.076 | 0.075 |
| *s,* | 0.066 | 0.102 | 0.122 | 0.111 |

*Source:* **Author's calculations based on the ENEU survey (third quarter).**

*Methodology*

**The dynamic decomposition analysis is a suitable tool for translating this stylized view in quantitative results, giving one a better understanding of the socio-economic transformations responsible for changes in the earnings distribution. Besides permitting identification of the relevant individual variables, it also helps in understanding the nature of the contribution of each variable to the evolution of earnings inequality over time.**

**Ramos (1990), following Shorrocks (1980), shows that it is possible to break down the change in inequality between two points in time. This is done according to whether the change can be attributed to changes in the socio-economic groups relative to incomes, to group sizes, or to internal inequalities, through use of the Theil T index. In generic terms, as shown before in a slightly different way, for a given partition of the population, the inequality indexes of this class can be written as:**

(2)        *I = Ifotg, fig, I,)*

**where *a,,* is the ratio between the average income of group *g* and the average income of the whole population, *fa* is the proportion of the population in group *g*, and *$I_k$* is the internal dispersion of incomes in group g.**

**Of course, the as are related to the indicator *s,* in the previous picture, and the ps refer to *m,* and *i,*. In this context, the *population* or *allocation effect* corresponds to the variation induced in the inequality index *I* by modifications in the allocation of the population among the groups (changes in the p,), with no direct changes in the group's relative incomes (as).[17] The *income effect* corresponds to the changes in *I* induced by changes in group incomes (as), without changing the groups' shares of the population (ps), and the internal effect is the change in the inequality caused only by modifications in dispersions at the**

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17. **The difference between this and what Knight and Sabot (1983), called the "compression" effect is that in the present exercise we are including the indirect change induced in *I* through the variation in the weights of the 7gs. Of course, the individual's as change as the Ps change, since the overall average income is altered. This indirect impact is also computed in the composition effect (see annex 2).**

group level (the 4s).[18] The expressions corresponding to the Theil T index are derived in annex 2.

*Results*

The results of the decomposition of the variations in the Theil T index for different intervals of time are shown in Table 15. First, when the variables are considered alone, education made the highest gross contribution to the changes in earnings distribution. Second, both the allocation and the income effect were positive in all periods. This means that changes in the distribution of education and in the relative earnings among educational groups were always in phase with alterations in the earnings distribution. Namely, when the income profile related to education became steeper and the inequality of education grew, the earnings distribution worsened (as in the 1988-92, 1992-96, and 1988-97 periods) and vice versa (as in the 1996-97 period).

**T A B L E  15**
**Results of the Dynamic Decomposition, 1988-97**

| Time Period and Variable | Allocation | Income | Gross | Marginal |
|---|---|---|---|---|
| *1988-92* | | | | |
| Education | 11.4 | 58.8 | 70.2 | 30.5 |
| Age | -1.8 | 21.9 | 20.2 | -5.2 |
| Economic sector | -0.6 | 7.8 | 7.1 | -17.7 |
| Status | 3.9 | 15.1 | 19.0 | -7.4 |
| *1992-96* | | | | |
| Education | 23.9 | 32.8 | 56.7 | 27.6 |
| Age | 11.1 | 10.5 | 21.6 | 10.5 |
| Economic sector | -5.4 | 25.4 | 20.0 | 10.5 |
| Status | 1.2 | 12.4 | 13.6 | -4.2 |
| *1996-97* | | | | |
| Education | 2.2 | 15.5 | 17.7 | 24.2 |
| Age | -0.4 | 5.9 | 5.5 | 12.5 |
| Economic sector | 0.4 | 1.0 | 1.4 | 18.4 |
| Status | 1.4 | 6.1 | 7.5 | 7.8 |
| *1988-97* | | | | |
| Education | 35.8 | 108.4 | 144.1 | 33.7 |
| Age | 7.4 | 32.7 | 40.1 | -19.9 |
| Economic sector | -6.6 | 43.2 | 36.6 | -40.6 |
| Status | 9.0 | 20.2 | 29.2 | -35.6 |

*Source:* **Author's calculations based on the E N E U (third quarter).**

18. **The methodology applied by Fields (1996) and Bouillon, Legovini, and Lustig (1998) makes important assumptions. In contrast, Szekely (1995), in order to explain the changes in inequality between two points in time, applies a methodology that differs drastically from the dynamic decomposition since he does not control for the effects that arise from changes in the population distribution and from changes in the relative earnings of income groups considered in the partition of the population.**

**Third, the income effect is always prevalent.** If one considers, for instance, the 1988-97 period, changes in the relative earnings among educational groups alone would have generated a larger deterioration in the earnings distribution than the one observed. To a lesser extent, the same holds true for the other periods.[19] Even the decrease in inequality observed between 1996 and 1997 is partially explained by the changes in relative earnings (the income profile related to education became less steep in this period, as shown in Table 15). Therefore, it seems reasonable to conclude that the income effect is the leading force behind the increase in inequality, and this, in turn, suggests that the working of the labour market, and its interaction with educational policies, should be thoroughly examined.

**Fourth, the significance of changes in the distribution of education remains high** even when one controls for changes in other relevant variables.[20] As a matter of fact, with the exception of the 1996-97 transitional period, the marginal contribution of age, economic sector, and status in the labour market is usually negative. This means that changes in these variables reduced the effects induced by changes related to education, as most of the time they reduced inequality after the influence of education is taken into account.

The last period, from 1996 to 1997, deserves special comment. First, inequality was substantially reduced. Second, once more, alterations were associated with education, now working in the other direction, and such alterations appear to be the main factor responsible for the reduction in inequality. As can be seen from the synthetic indicators, there was a small improvement in the distribution of schooling during the period and a sizable decrease in the steepness of the income profile related to education. All other variables, as observed for other periods, also contributed to an improvement in earnings inequality.

Table 16 shows the results of the same kind of decomposition for Brazil, Argentina and Peru. The significance of education as an explanation of changes in inequality seems to be a common pattern in Latin American countries. Moreover, the relevance of the income effect over the allocation (population)

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19. Of course, the explanation for such a phenomenon is that changes in the other variables accentuated the changes in the rewards to education.

20. Szekely (1995) concludes that, for the 1984-89 period, the variables that contributed significantly to explaining inequality were education and economic sector, while education and job status were significant in the 1984-92 period. The selected variables were education, occupation, region, economic sector, and job status. Bouillon, Legovini, and Lustig (1998), applying Bourguignon's methodology to the ENIGH, find that the return effect to the household characteristics (age/gender, education/age, assets) explained 49 percent of the increase in the Gini between 1984 and 1994, education being the most important explanatory variable. The region effect (urban/rural) was 9 per cent, the south effect was 15 per cent, and the population effect was 23 per cent.

effect is also shared by all countries where a similar analysis was carried out. In the Mexican case, however, the figures are higher than those for other countries (and in a shorter period of time). This means that changes in the structure of supply and demand for labour, which are greatly affected by the educational and macro-economic policies followed by the country or by their interaction with the workings of the labour market, were particularly relevant for the earnings distribution.

**T A B L E   16**

**Education and Inequality Variation in Brazil, Argentina and Peru**

| Country | Study | Time period | Explanatory power (percent)" | Income effect (per cent) |
|---------|-------|-------------|------------------------------|--------------------------|
| Brazil | Ramos and Trindade (1991) | 1977-89 | 6-20 | 10-17 |
| Argentina | Fiszbein(1991) | 1974-88 | 54-56 | 38^16 |
| Peru | Rodriguez (1991) | 1970-84 | 32-47 | 34^13 |

a. The income effect plus the allocation-population effect.

**The Evolution and Structure of the Rates of Returns to Education: An Application of Quantile Regression**

The increase in earnings inequality is not the result of a worsening in the distribution of education, whereas the income profile, which is related to the returns to schooling, is much steeper. In light of this evidence, this section analyzes the structure and evolution of the rate of returns to education. Although this is a common procedure, this is an important caveat, as the international comparison becomes cumbersome because the structure of the educational process in Mexico is different than that of other countries.

*Quantile   Analysis*

Before estimating the rate of returns to education, it is necessary to take a preliminary look at the relationship between the distribution of earnings and educational attainment in Mexico. For this purpose, real hourly earnings by quantile (0.10, 0.25, 0.50, 0.75, and 0.90) and the mean are computed.[21]

As can be seen from Figures 5 through 7, the curves do not cross each other for all educational categories or for all periods. This suggests that there is a strict dominance of the education variable throughout the earnings distribution. In other words, there is a positive relation between educational level and hourly earnings throughout the distribution. Those figures also show that the difference

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21. The third quarter of the E N E U data for 1988, 1992, and 1996 is used. The sample is described in the appendix.

among quantiles (that is, from the tenth to the twenty-fifth percentile, from the twenty-fifth to fiftieth percentile, and so forth) changes throughout educational levels (the greater is the level of education, the larger is the difference among quantiles of hourly earnings). In addition, the difference between quantiles also changes through time. These patterns may provide empirical evidence that there are differences in the increase in real hourly earnings throughout educational distribution and time. The quantile analysis provides a complete assessment of the impact of many variables (education, age, gender, economic sector, labour market status, region, and so forth) throughout the earnings distribution. Finally, for all educational categories, real average hourly earnings are greater than the median, and the distribution of hourly earnings is always right-skewed.

**FIGURE 5**

**Real Hourly Earnings by Quantile
and Educational Level, 1988**



*Source:* **Author's calculations based on ENEU.**

**FIGURE 6**

### Real Hourly Earnings by Quantile and Educational Level, 1992



*Source:* Author's calculations based on ENEU.

**FIGURE 7**

### Real Hourly Earnings by Quantile and Educational Level, 1997



*Source:* Author's calculations based on ENEU.
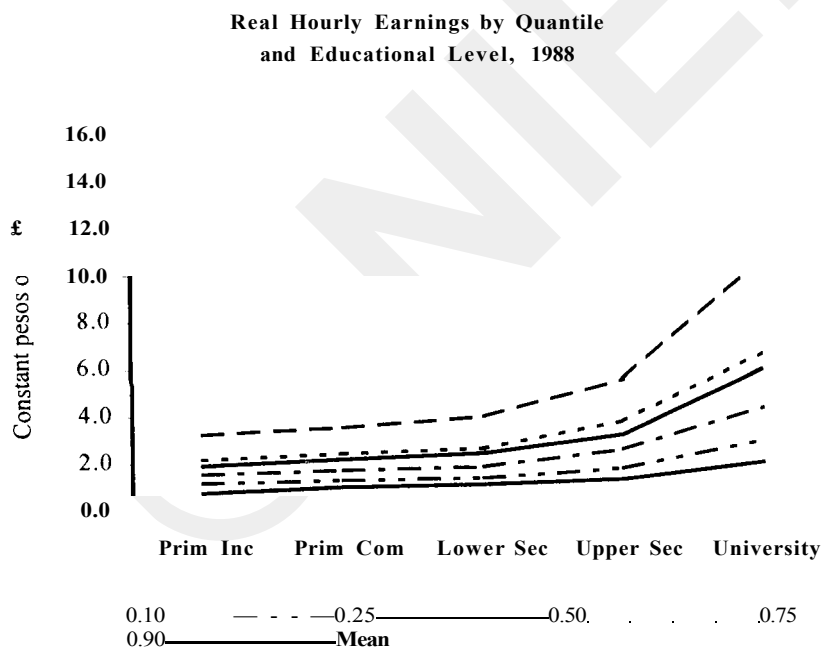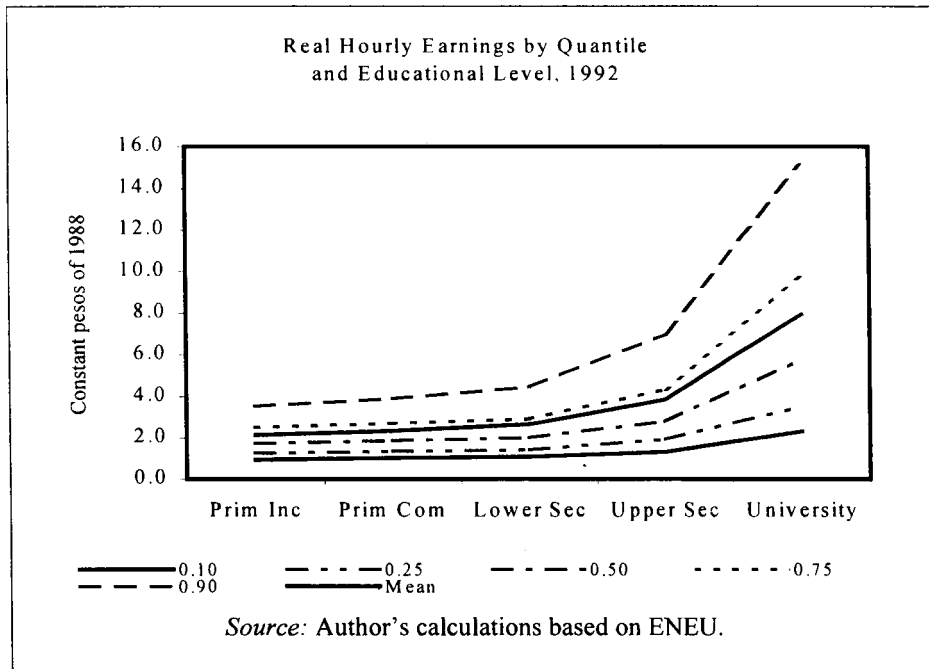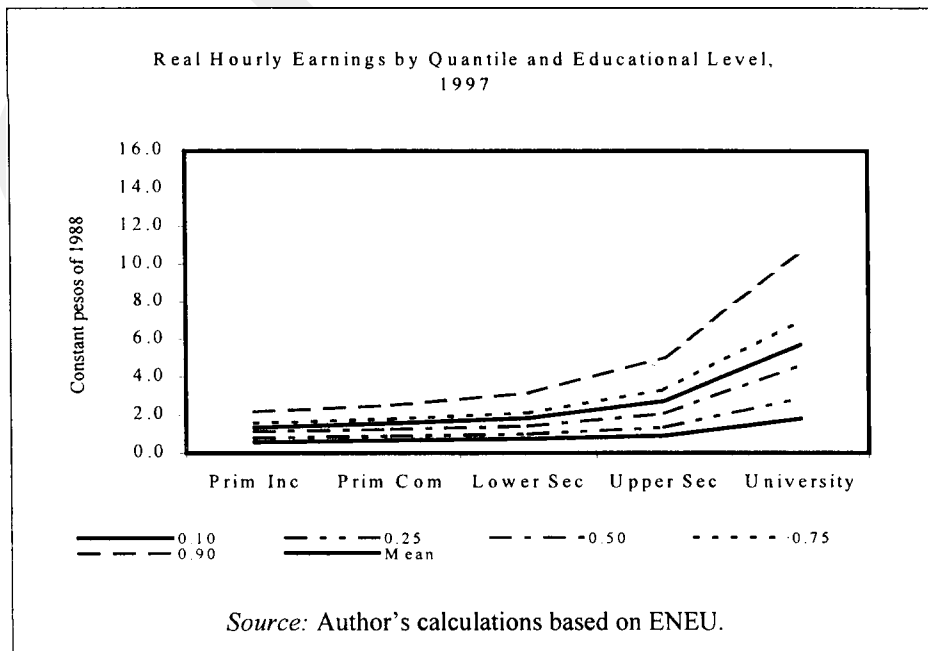
In sum, these results suggest that a quantile method of estimation is needed to provide a better understanding of the rate of returns to education.

*Methodology*

One way to estimate the returns to schooling is by using the conventional Mincerian earnings equations based on the human capital paradigm, with controls for other characteristics (individual attributes or labour market traits) that might influence the differentials. This approach allows one to disentangle the association between individual earnings and levels of education from the joint influence of other variables on earnings.

In this study, an ad hoc, yet usual, specification is used, with control variables for age (used as a rough proxy for experience), labour market status, economic sector allocation, and geographic region.[22] Then the earnings function can be described as follows:

(3)       $\log \ Y, \ =a, \ +S,b, \ +X,c, \ +u,,$      $/ =$ **1988, 1992, 1996,** *and* **1997**

where

$Y,$       **Vector of individual hourly earnings in time** $t$

$a,$       **Logarithm of the mean real hourly earnings of the reference group in**
**time** $t$

$b,$       **Earnings differential associated with education in time** $t$

$c,$       **Vector of earnings differentials related to the control variables in time** $t$

$S,$       **Vector of educational attainment in time** $/$

$X,$       **Matrix of control variables for time** $/$

$u,$       **Vector of residual terms for time** $t[E(u,) \ = \ 0 \ $ **and** $ \ E(u,u,'.) \ = \ 0 \ ].$[24]

These earnings functions can be fitted using least squares estimation. However, a new technique of estimation has been developed recently: quantile regression. This technique usually has been applied to analyze the determinants of wage

22. All of these variables are categorical, with the exception of age. Therefore, it is necessary to leave one category (reference group) per variable out of the regression in order to avoid perfect collinearity. Primary incomplete (education), formal salaried workers (labour market status), manufacturing (economic sector), and Mexico City (region) were left out.

23. As this is a categorical variable, one has. in fact, a vector *(b»)* of earnings differentials, with each of its components representing the earnings differential between the ith educational group and the reference group (primary incomplete) in time /.

24. In addition, one has to assume that the residual term is not correlated with the unobserved determinants of individual earnings (family background, natural ability, and so forth).

structure as well as the rate of returns to investment in education throughout the earnings distribution. Buchinsky (1994, 1995, 1998) applies this technique to the U.S. labour market in order to assess the wage structure and its changes. Other authors also used quantile regression to study the pattern of U.S. wage differentials between state and local government employees and their private counterparts. The quantile regression analysis also has been applied in other countries: Shultz (1998) and Muller (1998) in Canada, Abadie (1997) in Spain, and Montenegro (1998) in Chile. This methodology has never been applied in Mexico. This paper follows closely the methodology proposed by Buchinsky (1994, 1995, 1998, 2001). For an extensive review of the quantile method see Buchinsky (1998 and 2001). Buchinsky (2001) and Montenegro (1998) argue that the quantile method is robust even in the presence of possible self-selection.

By using the regression coefficients, one can compute the differentials and marginal value related to each level of education. According to the specification of the earnings functions, for least squares as well as for quantile regression, the exponential of the differential associated with the $y$th category of the *ith* variable, $\exp(c_{ij})$, corresponds to an estimate of how much higher, on average, the earnings of an individual in that category are relative to the earnings of an individual in the reference group for that variable, all other attributes being identical.[25] The marginal value of some educational level $j$ in time $I$ ($MVf$) can be interpreted as the earnings differential for this level relative to the previous one, as follows:[26]

$$(4) \qquad MVf^{k} = b_{ji} \; I \; b_{LMj}, \qquad \text{for } j > 1 \text{ and}$$

$$MVf''^{L} = b_{it} \quad \text{for } j = 1$$

*Empirical    Results*

Both ordinary least squares and quantile regression models are estimated.[27] However, before analyzing the rate of returns to education, it is worth investigating the role of each explanatory variable in the determination of earnings. For this purpose, several regressions are fitted adding the explanatory variables one at a time. This exercise has two advantages: (a) it allows us to assess the marginal contribution of each explanatory variable, and (b) it shows the explanatory power of each variable throughout the conditional earnings

---

25. If the differential is close to zero, then it can be interpreted as being approximately equal to the average percentage increase in earnings associated with a movement from the' reference group to yth category, ceteris paribus.
26. Similarly, the definition applies to the results of the quantile regression approach. The only difference is that in this situation one needs an additional subscript *(0)* to assign the quartile.
27. The 0s parameters in the quantile regression were 0.1. 0.25. 0.5. 0.75. and 0.9, following a common procedure in the literature.

distribution. Cragg and Epelbaum (1996) perform a similar exercise as other authors such as Meza (1999) and Rojas (2000). Nevertheless, the occupation variable was left out of this study, since, as structured in E N E U - I N E G I questionnaires, it is highly correlated to the individual's level of education. As shown in Table 1A.1 (Annex I), educational level and occupation are highly correlated, while education and the rest of the explanatory variables are weakly correlated.

Education is the most important variable in the explanation of earnings inequality. However, we can assess the importance of other explanatory variables using the estimates of differentials in educational level. If the changes in such differentials, in a given period of time, have been smoothened by some other explanatory variable, then that variable is a measure of some specific skill. For doing such an assessment, we compute the relative change in the differentials by educational level in 1988-92 and 1992-97 periods.

Table 17 shows that earnings differentials were reduced by introduction of the economic sector variable in the regression for the 1992-97 period, particularly for tertiary education, while the reduction was very small for the 1988-92 period (see Cragg and Epelbaum 1996). Labour market status seems to have the same reduction effect on earnings differentials as the economic sector variable. These results suggest that the degree of correlation between education and economic sector, as well as labour market status, increased through time. Table 17 also shows that region had an almost insignificant effect on earnings differentials.

## T A B L E 17
### Change in Differentials Controlling for Economic Sector, Labour Market, Status, and Region, 1988-97

| Education level | Controlling for None | | Economic Sector | | Status | | Economic Sector and Status | | Economic Sector, Region and Status | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1988-92 | 1992-97 | 1988-92 | 1992-97 | 1988-92 | 1992-97 | 1988-92 | 1992-97 | 1988-92 | 1992-97 |
| Primary complete | -0.03 | 0.05 | -0.01 | 0.02 | -0.04 | 0.03 | -0.02 | 0.02 | -0.02 | 0.01 |
| Lower sec. complete | -0.06 | 0.08 | -0.05 | 0.03 | -0.06 | 0.03 | -0.03 | 0.00 | -0.03 | 0.00 |
| Upper sec. complete | -0.02 | 0.11 | 0.02 | 0.04 | -0.02 | 0.04 | 0.01 | 0.00 | 0.01 | 0.00 |
| University complete | 0.14 | 0.18 | 0.15 | 0.08 | 0.12 | 0.09 | 0.15 | 0.04 | 0.15 | 0.04 |

*Note:* **Least squares estimates. The reference group is primary incomplete**
*Source:* **Author's calculations based on E N E U (third quarter).**

At this point, one tentative conclusion emerges: the reduction effect on earnings differentials of both economic sector and labour market status variables was significantly larger in 1992-97 than in 1988-92 (before the trade agreement). This means that the relationship between education and the types of specific skills acquired through such variables changed in the labour market. Thus, a worker's insertion into the labour market and economic sector variables were a consequence of skills differentials, and attributed not solely to education. In order to have a precise assessment of the marginal value to educational level, the analysis must incorporate this, based on the earnings regression conditioned on economic sector, labour market status, region as well as age, age squared and gender.

### T A B L E  18
### Marginal Value of Education by Level of Education and Quantile, 1988-97

| Year and Level of Education | 0.10 | 0.25 | 0.50 | 0.75 | ~0~J0 | OLS~ |
|---|---|---|---|---|---|---|
| *1988* | | | | | | |
| Primary complete | 1.15 | 1.15 | 1.16 | 1.18 | 1.19 | 1.19 |
| Lower secondary complete | 1.11 | 1.11 | 1.14 | 1.17 | 1.20 | 1.17 |
| Upper secondary complete | 1.13 | 1.18 | 1.23 | 1.26 | 1.26 | 1.27 |
| University complete | 1.34 | 1.39 | 1.44 | 1.46 | 1.52 | 1.49 |
| *1992* | | | | | | |
| Primary complete | 1.12 | 1.13 | 1.13 | 1.14 | 1.16 | 1.16 |
| Lower secondary complete | 1.10 | 1.12 | 1.15 | 1.18 | 1.21 | 1.15 |
| Upper secondary complete | 1.20 | 1.25 | 1.30 | 1.35 | 1.39 | 1.32 |
| University complete | 1.46 | 1.54 | 1.66 | 1.70 | 1.69 | 1.69 |
| *1996* | | | | | | |
| Primary complete | 1.14 | 1.14 | 1.15 | 1.17 | 1.20 | 1.15 |
| Lower secondary complete | 1.12 | 1.13 | 1.15 | 1.18 | 1.20 | 1.16 |
| Upper secondary complete | 1.21 | 1.25 | 1.31 | 1.40 | 1.48 | 1.34 |
| University complete | 1.60 | 1.71 | 1.80 | 1.78 | 1.70 | 1.74 |
| **7997** | | | | | | |
| Primary complete | 1.15 | 1.16 | 1.17 | 1.18 | 1.18 | 1.18 |
| Lower secondary complete | 1.11 | 1.12 | 1.14 | 1.18 | 1.22 | 1.14 |
| Upper secondary complete | 1.20 | 1.25 | 1.31 | 1.39 | 1.47 | 1.32 |
| University complete | 1.63 | 1.76 | 1.80 | 1.77 | 1.70 | 1.75 |

*Note:* **The marginal value is with respect to the previous educational level. The asympt covariance matrix of the estimated coefficient vector in quantile regression is computed using the bootstrap method. All the coefficients are statistically significant at 5 percent and are conditioned to age, age squared, gender, status in the labour market, economic sector, and region (north, center, south, and Mexico City).**

*Source:* **Author's calculations based on ENEU (third quarter).**

Table 18 presents the marginal value of education by level. In the regression estimates, all the coefficients for education were significant at the 5 per cent level, and the results for the marginal value of each educational level are reported in Table 18.

In general, the Ordinary Least Squares (OLS) estimates are quite similar to the ones obtained by the Quantile Regression approach for *6* = 0.5, 0.75. It is true, nevertheless, that the estimates through the quantile regression technique tend to increase as one moves from the right to the left of the conditional earnings distribution, particularly for the upper levels of education. In summary, the results have three strong implications: (a) education does play a crucial role in the process of earnings formation; (b) its effect is not the same throughout the conditional earnings distribution; and (c) the marginal value of education has not changed significantly in basic education.

Specifically, one can say that the rewards to education display a log-convexity for all years investigated. This log-convexity, however, became pronounced in the 1988-96 period, as the marginal value for the higher levels increased relatively more. This trend reversed in 1997, basically due to the gains associated with complete primary education and losses associated with upper secondary, though in a slight way.

The accumulated changes in the marginal value of education by level are not significant for the levels of complete primary and lower secondary instruction, along with the conditional earnings distribution for OLS estimates (Table 19). This does not apply for upper secondary education, as the changes were substantial and very progressive across quantiles (8 per cent at the median and 23 per cent at the top decile). The changes were more important for the university level.

**TABLE 19**

**Percentage Change in the Marginal Value of Education by Quantile, 1988-97**

| Level    of Education | 0.1 | 0.25 | 0.5 | 0.75 | 0.9 | OLS |
|---|---|---|---|---|---|---|
| Primary complete | 0 | 1 | 1 | 0 | -1 | -1 |
| Lower secondary complete | 1 | 1 | 0 | 1 | 2 | -3 |
| Upper secondary complete | 7 | 7 | 8 | 14 | 23 | 5 |
| University complete | 34 | 45 | 43 | 36 | 20 | 30 |

*Source:* **Author's calculations based on ENEU.**

In sum, the returns to education have increased in Mexico in recent times, especially for higher levels of education and in the upper tail of the conditional earnings distribution. This distribution has not changed in recent years.

With the goal of putting the rate of returns in perspective, Table 20 shows the percentage of earnings differentials for other Latin American countries. Mexico is above the average, second only to Brazil (the country with the highest inequality in Latin America). Once more, this indicates that educational policies must be at the core of any effort aimed at reducing inequality and, by extension, poverty in Mexico.

**TABLE 20**

**Earnings Differentials in Latin America, by Country**

|  |  |  |  |  | **(per cent)** |
|---|---|---|---|---|---|
| *Level   of Education* | *Latin  America* | *Mexico* | *Brazil* | *Argentina* | *Peru* |
| **Primary complete** | **50** | **100** | **100** | **35** | **40** |
| **Upper secondary complete** | **120** | **170** | **170** | **80** | **80** |
| **University complete** | **200** | **260** | **280** | **160** | **145** |

*Note:* **Reference group is no schooling.**
*Source:* **IDB (1998-1999).**

### Conclusions

Even though the levels of educational attainment expanded very rapidly, Mexico has experienced a pronounced increase in the degree of income inequality over the period of analysis. Most of the deterioration in the distribution of total current income happened in the middle to late 1980s (1984-89). The early 1990s displayed little change in total current income inequality except for a slight trend toward deterioration. The trends in the distribution of earnings differ from the trends in the distribution of current income in two ways. First, the gains are not limited to the richest 10 per cent, as those in the seven-, eight-, and nine-tenths of the distribution improved their relative earnings over the period by almost 2 percentage points. Second, the distribution of earnings clearly worsened in the 1990s until 1996, although the inequality associated with total current income was moderately stable in the 1990s, displaying an improvement in 1996. Differences in the behaviour of total current income and labour earnings inequalities from 1994 to 1996 support the idea that the poor, who rely the most on labour as a source of income, are the least able to protect themselves during a recession.

Educational inequality is the variable that accounts for, by far the largest share of earnings inequality in Mexico, both in terms of gross and marginal contribution. The contribution of education to earnings inequality in Mexico is the second highest in Latin America. Moreover, what seems to be particularly interesting in the Mexican experience is the fact that the significance of education has been increasing over time.

The increase in earnings inequality, however, does not appear to be the result of a worsening in the distribution of education, whereas the income profile, which is related to the returns to schooling, has become much steeper. This means that there was a shift in demand toward high-skilled labour that was not met by an increase in supply. This probably occurred as a result of the rapid rate of skill-biased technological change, whose transmission to Mexico was facilitated by the economy's increased openness.

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**Annexure I**

**TABLE 1A.1**
**Pearson Correlation among Explanatory Variables**

| Year and Variable | Education | Occupation | Economic Sector | Status |
|---|---|---|---|---|
| **1988** | | | | |
| **Education** | 1.00 | | | |
| **Occupation** | 0.64 | 1.00 | | |
| **Economic sector** | 0.08 | 0.10 | 1.00 | |
| **Status** | 0.05 | 0.06 | -0.04 | 1.00 |
| **Spearman's rhoa** | 0.58 | | | |
| **1992** | | | | |
| **Education** | 1.00 | | | |
| **Occupation** | 0.63 | 1.00 | | |
| **Economic sector** | 0.06 | 0.02 | 1.00 | |
| **Status** | 0.08 | 0.08 | -0.04 | 1.00 |
| **Spearman's rhoa** | 0.60 | | | |
| **1997** | | | | |
| **Education** | 1.00 | | | |
| **Occupation** | 0.64 | 1.00 | | |
| **Economic sector** | 0.09 | 0.04 | 1.00 | |
| **Status** | 0.11 | 0.09 | -0.06 | 1.00 |
| **Spearman's rhoa** | 0.62 | | | |

**a. Spearman's correlation between education and occupation.**
**Source: Authors' calculation based on E N E U Survey.**

**Annexure 2**

Ramos (1990) uses three synthetic measures for the indicators "'(average schooling),

"(schooling inequality), and ˘' (income profile), based directly on the definition of the Theil index. The calculations of the principal parameters ag, pg, and Tg could determine the changes in the distribution by level of education (g groups in this category). These parameters allow us to analyze the trend in educational income differentials, the distribution of the population in each educational level, and the inequality among them.

Three synthetic measures are used to summarize the changes related to education: "' is

the average level of schooling for the year t,      is the degree of inequality in the

distribution of education for year t,   ' is the variation in the income ratios associated with education for year t.

These measures can be calculated as follows:

$$m_t = \sum_g \alpha_g^\star \beta_g'$$

$$i, \quad {}_-^{K} \frac{l \ll ; 0 > {}_\varepsilon ( a ; )}{\rule{3cm}{0.4pt}} \quad \log$$

$$'i \quad '\sim - \; {}^\wedge \frac{X \ll ; / 3 > g \ll )}{\rule{2cm}{0.4pt} l \rule{1.5cm}{0.4pt}} \log_{V}$$

where         is the standardized income of educational category g for the reference year,

"* is the fraction of the labor force in the gth educational category in year t, *and*'' is

the value pg in the reference year.   ' can be understood as an indicator of the relative steepness of the income profiles related to education. If one fixes the fraction of the labor force in each educational group, it follows that the steeper is the income profile, the

larger is the between group inequality.     corresponds to the Theil T index that would prevail in a population with no inequality within the educational groups and where the group incomes are proportional to the group average incomes in the base year.

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A Quarterly devoted to dissemination of knowledge in the fields of Industrial Relations and Human Resources, including relevant aspects of labour relations, personnel management and rural labour. Besides, communications from Managers and Union Leaders reflecting their views and Book Reviews are also incorporated.

**EDITOR : RAMA J. JOSHI**

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RESEARCH NOTES/COMMUNICATIONS

# Management of University Resources

A.K. Malik*

Educational system has evolved through the ages, changing with the needs of the society from time to time. India's 'Gurukul' system, when money was not playing a major role in imparting education, is now a matter of history. Today, Universities throughout the world are facing increased financial crisis, mainly due to declining State support. Tilak (1988) reviewed a series of studies on university finances carried out on the initiative of ICSSR and UGC and also some other studies conducted independently on university finances in the decades of the 1970s and 1980s, which clearly highlighted the financial position of the universities in India during this period as one of the shrinking resource base, leading to a crisis situation. A good number of universities are in deficit and many of them are rather in a continuous deficit (Tilak and Rani 2000). Most of the recent studies [Kiranmayi (1989), AIU (1991), Tilak and Varghese (1991), Tilak (1993, 1997a)], besides others, in the field have concentrated more on mobilization of resources in the wake of unsound financial position of universities than on other issues such as utilization of resources and aspects relating to financial management.

The problem has become more severe in India, especially after economic reform policies and serious budgetary constraints. These new economic policies demand high skilled manpower, on the one hand, and, at the same time, inflict severe cuts in the budgets of education, in general, and higher education, in particular, on the other. The allotment to education, as a percentage of DNP, has declined steadily in recent years and, today, stands at 3.5%. The share of higher education has been falling steadily. It was nearly 1% in 1980-81, which declined to nearly half by the early nineties and to less than 0.4% DNP in the mid-nineties (Powar, 1998). In the Ninth Plan also, the financial prospects of the higher education are not bright. Draft Approach Paper to the Tenth Five Year Plan (2002-2007) also emphasizes that the universities must make greater efforts to supplement resources from government. To quote: "Part of the problem facing universities is the inadequate provision of budgetary resources from the government. Since budget resources are limited, and such resources as are available, need to be allocated to expanding primary education, it is important to recognize that the universities must make greater efforts to supplement

* Jawaharlal Nehru University, New Delhi-110 067, Email: achalmalik@hotmail.com

resources from the government." Punnaya Committee (1992-93) on UGC Funding of Institutions of Higher Education recommended that while the Government/UGC may continue to be the major funding agency, the universities must generate internal resources, which should constitute at least 15% of the total recurring expenditure at the end of the first five years and at least 25% at the end of 10 years.

Two important issues emerge. First, what are the new or additional ways and means by which more resources could be tapped? And second, how efficient is the current management/utilization of the available resources (human, physical and financial)? These are discussed below more with reference to university finances than from academic point of view as much debate is still on about continuance of funding of Higher Education by the State.

### Mobilization of Resources

*Traditional Resources - Tuition Fee, Annual Charges etc.*

In order to augment the resources to meet the above-mentioned problems, it is necessary to go in for non-traditional resources. Traditional resources like increasing tuition fee, annual charges etc. cannot be raised substantially due to political and social reasons. The Punnaya Committee while recommending that the tuition fees may be revised upwards with immediate effect and may be periodically adjusted, keeping in view the rate of inflation as also being conscious of the need to provide freeships and loans. Some other committees (e.g. UGC 1997, 1999, 2000), constituted as a follow up of Punnaya Committee recommendations, recommended several reforms relating to fees in higher education. Following the recommendations of these several committees, many universities and other institutions of higher education have increased student fees (from modest to steep) of various types - tuition fee, examination fee, registration fee, entrance examination fee, hostel fee and miscellaneous services like application forms, brochures, prospectus, etc. The UGC/MHRD has yet to finalise the fee structure for various educational courses.

Nanjundappa (1994) found that fee income forms about 10 to 12 per cent of university income and there has been a large opposition to hiking the fees. Tilak and Rani (2000), in a study of 39 universities (six central and 33 State universities), however, observed that share of the income in the total recurring income of the Universities of Bangalore, Karnataka, Kumaon, Punjab, Mumbai and Saurashtra increased by more than ten percentage points between the two periods 1990-91 and 1993-94; and 1994-95 and 1999-2000, but in another set of 10 universities, the share of fee income has declined. However, the share of fee income, as an average, increased from 16.9 per cent to 19.5 per cent and mainly in State universities. Therefore, a few State universities have been able to revise

the fees, but only marginally.  The universities must continue their efforts to raise tuition and other fees reasonably, but gradually.

### Foreign/NRI Students

If fee rise is not possible in the given situation, what are the other ways through which a university can raise funds? One method which has become quite popular, and many of the Indian Universities are using this channel, is to attract foreign/NRI (Non-Resident Indian) students and industry-sponsored students. Universities like Aligarh and Pune started charging much higher fees from foreign students about seven years back.  Almost the same time, NTs also raised their fees from $ 100 to $ 2000 a semester for undergraduates and from $ 200 to $ 3000 for postgraduates.  Other universities also followed.  JNU started charging higher fees from foreign students from 1995-96. Punjabi University, Patiala, was able to generate about 2 crores of rupees in the year 1998-99 by attracting foreign students and NRI/Industry sponsored students.  This indicates that a few universities have been able to enhance fees of foreign students so as to recover in full/part the recurring expenses incurred directly on these students.  Central Universities in India, which have, by and large, been offering heavily subsidized higher education even to foreign nationals, need to reconsider fee structure for the foreign students so as to recover in full the recurring expenses incurred on these students.  Recovering recurring hostel charges from foreign students also needs to be reviewed.

A Committee of UGC has recommended 1:10:20 formula for charging fees from a 'free seat' student, a 'payment seat' student and a 'Non-Resident Indian seat' student for self-financing deemed to be universities, likely to be extended to all private unaided professional institutions in the country and the fee-structure is to be reviewed periodically.  While determining the fee structure, the committee will consider the total expenditure of the institution for running the professional course.  The tuition fee shall meet the actual cost of imparting education like establishment expenditure, administrative expenditure, cost of maintaining laboratories, etc. The UGC may like to issue directives to the Central Universities to enhance fees and hostel charges for foreign students and in case some countries are charging from Indian students subsidized fees as an expression of goodwill, it can be reciprocated.

### Donations/Support from Alumni

Punnaya Committee has recommended that each university should take initiative to organize and set up an effective Alumni Association with a view to mobilizing resources from all over the country and abroad.  But is it possible to raise funds from donations from alumni?  The experience has not been very encouraging except in few cases, like a former student of IIT, Kharagpur, who is settled in the

USA, had reportedly promised to raise a fund of two million US dollars for the alma-mater. In the Calcutta University also, NRI students have raised a fund of Rs. 20 lakhs for a Chair in Chemistry (Gandhe, 1994). These are some good examples but again limited to certain institutions of higher learning and in certain specialized disciplines. However, even some of the premier universities like JNU and University of Delhi have not been able to tap much resources through this method. Now that 100% income tax exemption is available on donations to universities, it should be used as an incentive for donation from the Alumni of the institutions. It is high time that all universities should not only establish Alumni Association but also work plans and programmes to generate resources with their help. It is important that the alumni should be kept in touch with the activities of the universities and they should be offered something in return like inviting them for Convocation and other important functions and ceremonies.

### University-Industry Linkages

Another important source of funds is the industry. It is often said that since industry is the user of the university graduates, it must share some burden in terms of resource mobilization for the effective functioning of the university system. Most people misunderstand resources to mean money only and hence come to the conclusion that industry should be taxed for the purpose. Real benefit will accrue only if we treat resources in terms of human resources, physical facilities and experiences. The university teachers in hi-tech areas, that can earn good revenue to the university, can offer consultancy services. A certain percentage is allotted to the teachers for their work and toil. However, it has been observed that the universities made very little attempt to attract business organizations to render financial assistance to them.

To attract financial support from industry, it is important to take industrial leaders into confidence, give them the recognition, create conditions to sponsor courses, adopt institutions/programmes and make them agree to earmark at least one per cent of the total profits for educational support. This may require constant updating of curriculum, linking the ongoing projects of the industries with the academic requirements, commitment from the faculty, identifying and monitoring projects that are mutually beneficial to the university and the industry. This is necessary, as experience indicates that wherever they have provided to support Universities, one or more of the points mentioned above have been taken care of.

The higher education institutions need to adopt entrepreneurial approaches to market their products - degree/diploma/training programmes and research and consultancy services. Linkages with industry could be in the form of establishment of Chairs, visiting faculty, funds for lab equipment, joint ventures with industries for sharing equipment and using infrastructure facilities.

### Research Grants from National and International Agencies

Universities can also tap the grants provided by various national and international agencies for research and their faculty members need to be serious about it to do quality research. This is particularly important, as universities have no provision to provide funds to support the research of Ph.D. students. Students, specially in science areas, therefore, depend upon the research grants of their faculty supervisors. Research projects obtained by the faculty members are, therefore, a great asset for the University. Research projects also bring in extra overhead charges to the University (nearly 10 to 15% of the project cost), which can play a crucial role in strengthening the research infrastructure in the University. JNU is fortunate in this regard, as its faculty attracts substantial sums of money as external research grants. The project grants from 60 national and international agencies, received in JNU at the end of 1999-2000, were for Rs.4.21 crores. Therefore, universities must make efforts to get grants from various national and international agencies in pursuance of their basic mandate i.e. doing quality research and providing trained manpower, especially in science areas.

### Endowments

Sustained efforts could bring in more endowments. The JNU has been able to tap this resource and at the end of financial year 1999-2000, it has 34 endowments worth Rs. 297.98 lakhs. To fetch optimal income from the endowment funds, it needs to be invested judiciously in short-term/long-term deposits and multiplier schemes.

### Publications

The Universities, which are well developed, have modern computerized facilities and whose faculty members publish substantial number of books (like JNU whose faculty members published over 100 books during 1999-2000), can increase their income through publication of the books of faculty members. However, this needs to be ensured that the quality of the books, payment of royalty to authors, timely printing etc. need to be on business-like-manner so that faculty members do not get disgusted on the working of this publication unit. There is no need to establish a printing press as in the competitive world it can be got easily printed from open market at a less cost, within reasonable time and quality job. A committee can be formed consisting of senior professors, representatives of administration and finance to chalk out details and look after the functioning of this unit.

### Partially/Fully Financed Courses

Some of the universities have also started partially/fully financed courses in professional/contemporary courses like management, computer, business administration, information technology, bio-technology, environmental sciences, etc. which can be counter-productive in departments related with the liberal arts. This calls for greater attention on the part of University authorities to ensure that although courses in the new areas be encouraged and continued but funds, that are essential for running the traditional courses, are made available to the concerned departments. A mechanism needs to be devised so as to share the resources generated by the introduction of professional courses with other traditional departments for their infrastructure development etc. However, it raises a question - should the Universities not review the curricula of traditional courses and incorporate changes which might have become necessary with the passage of time and fast changing social, political and economic conditions to make them more interesting and useful to the new generation?

### Efficient and Effective Use of Available Resources

Pressures on institutions to control and reduce costs are sharpened by reports that highlight low productivity and under-utilization of facilities and staff (Sperling and Tucker 1997) and by the characterization of traditional models of higher education as 'inefficient, low-tech...a cottage industry' (Marchese 1998).

Sharma and Qamar (1990), in a study on four universities and several colleges in India, have described how resources are severally under-utilized. Human, physical or financial - all kinds of resources are quite inefficiently utilized. Libraries, equipment and even buildings are not fully utilized. Funds are also under-utilized as the complementary necessary resources are not provided. This makes it clear that there exists much scope for better utilization of the existing resources.

With the introduction of technology and entry of foreign banks, the Indian banks have initiated many steps to increase efficiency, make effective use of resources and increase productivity. The Government now wants it to be implemented in the Government sector itself and other sectors, including Education.

### Human Resources

Human resources are very important for any organization as efficient utilization of these resources can contribute significantly in the overall growth of the organization. In the competitive world, efficient and effective utilization of human resources has become necessary in all fields, be it Government or Education. It is recognized in principle that there is need to downsize the government machinery.

The Draft Approach Paper to the Tenth Five Year Plan states: "surplus staff in government is a serious problem and corrective steps cannot be postponed. One should identify surplus staff, set up an effective redeployment plan, and a liberal system for exit. For the time being, recruitment should only take place for functional posts, and vacant posts of secretarial and clerical posts should not be allowed to be filled. Since expenditure on staff has increased to an unsustainable level, one must seriously consider changing the service conditions at least for new government recruitment."

In the University sector, it has been observed that about 60% of the budget is spent on salaries of staff and the UGC has also issued guidelines and directives to the Universities on the lines indicated in the Draft Approach Paper to the Tenth Five Year Plan, namely, 10% cut on non-plan and non-salary expenditure, 10% reduction in the number of posts, filling up of vacant posts with the permission of UGC (The Hindustan Times, 9.9.1999). Mathur (2001) in a study on financial management in Indian Universities revealed that establishment expenses in universities account for about 80-90% of their total expenditure and the strength of non-teaching staff is much higher (about 20%) than the norm recommended by the Punnaya Committee. Singh (1999) has pointed out that in Delhi University Colleges, there is a surplus non-teaching staff to the tune of 15-20% and has suggested that UGC should constitute a committee to identify the sources of wastage and to plug them. Further, although the UGC has provided funds to the Universities for new activities, it has not sanctioned administrative and ministerial staff for them and instead has asked to redeploy the staff from the other departments of the University.

The Prime Minister has recently announced reduction in government staff by 10% in four years in order to effect economy in government expenditure. This requires 3% per year reduction in the number of government employees with no new recruitment; rationalization of various Ministries and all additional requirements be made through redeployment.

In order to optimize the utilization of human resources, the Universities have no other alternative but to meet additional requirements through redeployment of non-teaching staff and rationalization of various departments/sections and recruitment to take place only for functional posts and vacant secretarial and clerical posts not to be allowed to be filled. At the same time, it is also important to strengthen the human resources potential of the non-teaching staff through better selection procedures, better training for them in their particular areas of work, more of welfare measures which together will bring about better motivation of work on the part of non-teaching staff as also better efficiency and productivity. This will facilitate the teachers to do their work smoothly and efficiently with the backing of proper, efficient and prompt administrative support. The JNU has setup a Committee, under the chairmanship of Rector

**(Admn.), to undertake the review of deployment of non-teaching staff at various Schools/Centres/Departments of the University.**

### Physical Resources

**Infrastructure building is a slow and steady process involving considerable scarce financial resources. Very often we complain of lack of adequate physical infrastructure and funds for improving them and for other needs of the university. But the big question is how well do we manage even the existing limited physical resources of the University?  Therefore, it is necessary that effective, efficient and economic use is made of the physical resources so as to obtain maximum 'value for money' invested in higher education.**

### Resource Sharing

**There may be instances where similar costly equipments are purchased by more than one laboratories in the same School/Department. Not only that a particular professor and his team for the concerned project only make use of scientific equipment procured out of the grants sanctioned by various organizations, it is not allowed to be used by other researchers within the same university or outside, even if it has time and scope of use by others. This 'resource sharing', however, is not allowed because of many reasons.  Therefore, apprehensions need to be cleared and after a set of brain-storming sessions, some ways need to be found indicating how, when and on which terms sharing of costly equipment could be allowed.  Even grant sanctioning agencies can also initiate such an exercise so that not only certain privileged faculty members make use of such equipment but also others, who are deprived of such grants due to limited R & D funds but are also able to make use of such facilities.  This will ensure 'optimal' use of scarce funds and resources.**

*Pool of Costly Equipments at University Level:* **In view of the above, there is a need to create a pool of costly equipments which should be available to other faculty members and researchers for use, when not being used by the principal researcher and his team. This could be on reciprocal basis firstly, within the institution, and, later on, amongst other research and educational institutions located in the vicinity. One such example is that of CCMB, Hyderabad, where the labs remain open twenty-four hours and centralized facilities are created involving costly equipment. Day to day use of instruments costing fewer amounts is made available to individual researcher and his team for the lab.  Chemicals etc. are purchased at centralized level to avail the benefits of scale.  Considerable savings are made with this arrangement as generally such chemicals are imported and the agencies charge minimum handling charges irrespective of the quantity of chemical.**

Special committees to study the under-utilization of the costly equipment/ facilities may be constituted and the recommendations to improve utilization should be implemented. At the same time, timely maintenance is essential. A system needs to be evolved for effective management of equipments/instruments (which in some cases be worth crores of rupees), which may be lying idle in different labs/departments/offices owing to their irreparable/obsolete or requiring minor/major repairs. Some equipments/ instruments may be worth getting repaired or others need to be condemned and still some can be got replaced under exchange/buy-back schemes. For example, in Delhi University's Science and Instrumentation Centre (established in 1985 with Rs.30 crore aid from the Japanese Government and is the largest centre of its kind in North India), more than 50 per cent of the 25 high-tech instruments are non-functional. A few instruments are getting dust (Mittal, 2001).

### Sharing Special Facilities with other Institutions

Many of the institutions may have been able to get funds and create facilities like big auditorium, generally used only a few times in the year but its maintenance and up-keep costs are heavy. If such facilities are made available to other institutions on payment of certain charges with certain laid down conditions, not only the concerned institution will get some money but optimal use will be made of the facilities.

### Creating Joint Infrastructure by Institutions

To create state of the art facilities like an auditorium, conference hall with interpretation facilities, audio and video equipment, recreational facilities, etc. for institutional purposes, a few organizations located in the same vicinity can join hands and build it together. Contributions can be decided which may be in the form of land, consultancy, funds etc. and a committee can be formed with the representatives of participating institutions to finalise the terms and conditions, charges, maintenance etc. This will not only make possible access to state of the art facilities to the participating institutions but will also help optimal use of such resources.

### Increased Sharing of Library Facilities

With expansion in information technology and availability of internet, inter-library loan facilities should be encouraged, sharing of information data base need to be encouraged.

**Financial Resources**

The financial situation of the Universities has been deteriorating continuously. Punnaya Committee had recommended, "quality, efficiency and innovativeness must be consciously rewarded and institutions failing to improve financial and academic discipline should face disincentives". This calls for undertaking an exercise in preparing realistic budget estimates, non-incurring of any expenditure by the university in excess of the limits so fixed, and efficient investment of the university funds. The Universities are now clear about the extent of funding by the UGC. Whatever budget exercise the Finance Committees of the Universities may undertake, the UGC has a clear-cut formula for providing budget like salary bill for the month of April multiplied by 12, 5% increase for increments, etc. Therefore, budget exercise becomes a mere ritual and this necessitates taking effective steps to make an efficient use of the available resources. To achieve this, the following suggestions are made:

1. *Rate Contract:* **Identify the common non-specialized generalized items, which are required by various Centres/Schools with their specifications, if any, and the approximate requirement for a year. Call for quotations/ tenders separately for electrical, civil, furniture and fittings, stationery, sanitation, etc.; frame terms and conditions, select 2-3 agencies at the university level purchase committee after negotiations due to large number of requirement and notify the same within the University so that orders can be placed with any of the selected vendors/agencies. Once annual contracts are awarded, a set of nominated officials be notified, with the approval of the Vice Chancellor, who are authorized to operate on these contracts and the financial and budgetary limits for each one of them. These names can be part of the contract works so that the suppliers/contractors also have a correct picture. This will help the Schools/Departments to place orders directly with the listed suppliers for the common non-specialized general items within sanctioned budget allocation.**

   **The non-execution of order(s) may also be brought to the notice of the concerned controlling officer and others so that, if there is frequent failure in execution of orders by the listed suppliers, their contract may be considered for cancellation by the University. The users can always give their feedback about performance of the vendors/agencies decided by the committee so that the same can be kept in view next year while finalizing the rate contracts.**

   **This will avoid variation of rates which is generally around 10% and bring the benefit of 'economies of scale', avoid duplication of effort at different levels and this will ultimately result into considerable savings.**

2. *Award of Annual Maintenance Contract for Air Conditioners, Lifts, Xerox Machines etc.* **Due to decentralized system, each School/ Department initiates the process and finalizes the agency. It has been noticed that again there is a variation in the AMC rate in spite of following the laid down procedure of calling three quotations, etc. Since the number of Air conditioners may run into few hundreds in the entire University (guest houses, labs, offices, etc.), the exercise as suggested at (1) above including negotiations for better rates, could be done. At least two agencies need to be identified so that one agency should not have monopoly and scope for taking undue advantage. Finance Department of the JNU recently circulated some guidelines for AMCs and insisted on compatibility of the rates vis-a-vis quality of service provided, views of user departments on the service provided, disseminating the terms and conditions to user departments like penalty clause, and even in decentralized system of award of AMCs for ACs considerable savings were made. Although this exercise might have caused some delay and resentment as it was a departure from the existing system, ultimately the higher ups appreciated it.**

3. *AMC of Computers/Printers/UPS:* **Due to decentralized system, the respective centres/department/Schools may be placing orders for AMCs of computers/printers/UPS with different firms. It is estimated that if a university has about 500 PCs/printers/UPS and rates are finalized at University level and 2/3 vendors selected, this process can save at least few lakhs of rupees. Due to large number of PCs etc., it is possible that the selected agency may depute one or more of its engineers on the campus to attend to complaints, as is being done even now by one of the agencies for the maintenance of Air-conditioners even in decentralized system, which will have its own advantage.**
   **One may argue that when decentralization is being encouraged to facilitate work and speedy action, the above suggestions have no relevance. This needs to be looked into carefully as what is being argued is basically the identification of agencies at the University level, but execution at the Department/School level.**

4. *Method of Procurement of Library Books:* **Agents and booksellers provide the usual trade discounts on purchase of books to the Universities. The JNU Library has a unique system in which it is able to earn more discount over and above the usual trade discount i.e. by creating a J A Y E N U Bookshop. J A Y E N U Bookshop handles all the book acquisitions of the Library and earns discounts ranging from 15 to 25% in a year. During 1999-2000, against an actual expenditure of Rs.21.82 lakhs, it had an income in the form of extra discount of about Rs.3 lakhs.**

The other universities also need to explore such an initiative to take advantage of the procedural hurdles in getting extra advantage.

5. Project accounts are computerized for better monitoring of receipt/investment of funds and also to submit timely utilization certificates to the funding agencies.

6. *Minimizing Expenditure on Electricity:* The Universities incur heavy expenditure on electricity. To minimize expenditure on electricity, various steps need to be taken like ensuring that there is no wastage of electricity during its transmission, electricity meters installed in residential quarters are working properly and there is no theft of electricity, there is proper balancing of the bills raised for residential quarters and the actual receipts, encouraging students, office staff, teachers, etc. to switch off lights, fans, coolers, air conditioners and other electrical gadgets personally while going out of labs/classrooms, offices, etc. Sponsored projects where numbers of electric equipment are used may be charged electricity bills for the electricity consumption.

7. *Rental from Shops:* The rents of the shops allotted to different persons on the campus be fixed keeping in view their rental value. There is no need to provide any subsidy as the main idea is to provide the services on the campus but not at subsidized rates. However, it may be ensured that the rates, charged by the shopkeepers for various services/commodities, are not more than what are normally being charged by the shopkeepers outside the campus.

## Conclusion

The Budget Allocation for the University sector has been slowly going down in relative terms over the years. In the coming years, it is going to be reduced further. In such a situation it has now been made very clear to the Universities to make efforts to mobilize resources, make efficient and effective use of human, physical and financial resources (improving fiscal discipline). The present way of managing educational institutions/universities on traditional lines with rigid structures, high wastage and low efficiency will require change keeping in view the emerging social, economic and cultural environment. The style of management will have to be much more responsive and accountable through induction of eminent academicians, technologists, industrialists and other men of stature. They will have to focus on vision, goals, objectives and policies for the institutions and not meddle with issues of micro management. The Vice Chancellors will have to spend more time on finding ways to mobilize resources like in the USA where many University Presidents spend more than half of their working time in raising funds for the university. To reduce costs and achieve higher productivity, optimum utilization of facilities and staff will have to be ensured and computerization of office working will have to be introduced

without further delay as it has already been considerably delayed. The Universities, which initiate such action, will be in a better position soon, compared with those who wait and watch.

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# Inter-State Gender Disparity in Literacy Rates - A Look at Census Data (1991 & 2001)

### Hemant Kumar Varshney

### Abstract

*Using the current trends in literacy rates available from Census 2001, the inter-state gender disparity in terms of three different indices are examined. Compared to male literacy, there has been significant improvement in female literacy. This has helped in reducing the gender disparity. Making a further analysis at State level, it is noteworthy that Chhattisgarh and Rajasthan, in particular, have shown remarkable progress in their female literacy. Among other States/UTs, in this respect, are Kerala, Meghalaya, Mizoram, Nagaland, A&N Islands, Chandigarh, Delhi and Lakshadweep, which have achieved more than 85 per cent equality in terms of male-female literacy. It is evident from the empirical data that disparity is inversely correlated to literacy rates.*

### Introduction

The year for the "Empowerment of Women" has just taken its last breath. For providing empowerment, the womenfolk should be properly developed. Education is a pre-requisite for the development of a society. The importance of education in the human resource development (HRD) has been recognized by all sections of the society and in all types of economies. An essential feature of HRD is to have equity in terms of accessibility to the facilities of education irrespective of sex, caste, region etc. In fact, equity in education is not purely an educational issue as it cuts across the entire social and political fabric of a nation.

Literacy and education could be reasonably good indicators of development in a society. Growth and diffusion of literacy is generally linked with culture, attitude, infrastructure facilities, economic condition of parents and development of urban industrialisation. Being in the lower rungs of the socio-cultural and economic ladder, a negative relationship between female literacy and their population is expected. Literacy is an important component - both as an input in and outcome - of the development process. It forms an important input in the

**\* Institute of Applied Manpower Research, I.P. Estate, Mahatma Gandhi Marg, New Delhi - 110002**

overall development of individuals enabling them to comprehend their social, political and cultural environment better and to respond to it appropriately.

Literacy measures the most basic level of educational attainment in any society. Even though literacy itself may not have all the advantages of education, literacy rate is a fairly reliable indicator of educational development. The importance of literacy has well been recognized for the successful implementation of various social and economic programmes. Spread of literacy has been an important programme since independence. Adult literacy continued to receive special attention since 1978 onwards when administrative and technical structures were established and voluntary agencies got involved in large numbers. The National Policy on Education (NPE, 1986) envisaged that adult education would be a means for reducing economic, social and gender disparities. As a result of these and other new policy thrusts, the literacy rates have improved gradually despite tremendous increase in population. There has been a monotonic increase of 7 to 8 percentage points in each of the decades.

Though the growth in educational facilities has been somewhat satisfactory, yet the rate of improvement in literacy has not been sufficient to reduce the disparity in male-female literacy. It is often argued that, despite planned and concentrated efforts, both gender and regional disparities in literacy have a remarkable temporal stability. However, these disparities should be seen as part of wider regional imbalances that existed as a result of Indian socio-culture and historical past.

In the light of this, the paper aims to analyse the trends in gaps in male-female literacy rates (as obtained through Census of India) both at national and state levels. It tries to focus on the level of literacy rather than educational attainment. In our population census, a person aged seven and above, who can both read and write with understanding in any language is treated as a literate. For the purpose of measuring the disparity, three different coefficients/indices, as suggested by Naik (1971), Tilak (1983) and Kundu & Rao (1986), have been worked out and analysed.

Divided into four sections, the paper examines the subject matter, analyses the gender disparity at all India level with the same at the State level. In particular, the State level analysis provides three distinct profiles viz., (i) Literacy map of India; (ii) Gaps in male-female literacy; and (iii) Analysis of various disparity indices. Then the concluding observations follow.

## Gender Disparity at All India Level

The efforts of the Education Commission (1966), the National Literacy Mission (1978) and the National Policy on Education (1986) have brought some improvements in the level of literacy, as is evident from various census reports. The results show that, throughout the period, female literacy improved at a faster

rate than the male literacy, though initially the decadal difference in male literacy was higher.

FIGURE 1

## Literacy Rates in India, 1951-2001
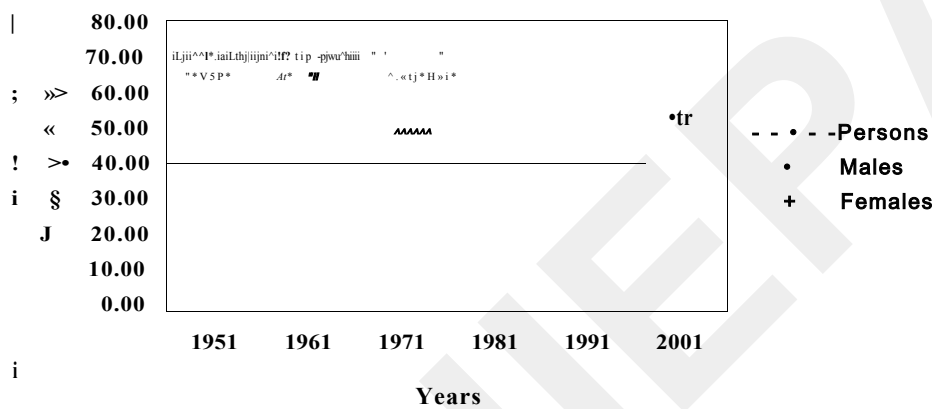


Figure 1 provides an overview of progress of literacy rates by sex at all India level since 1951. It is observed that though significant improvement in literacy rates have been achieved during the last decades, the literacy rate for the country as a whole in 2001 for persons, males and females are still 65.38 per cent, 75.85 per cent and 54.16 per cent respectively. Thus, one fourth of males and nearly half of the females in the country are still illiterate. However, during the last decade, it has recorded a significant jump of 13.17 percentage points - from 52.21 in 1991 to 65.38 in 2001. The increase in literacy rates of males and females during the same period are of the order of 11.72 and 14.87 percentage points respectively. Thus, during 1991-2001, both male and female literacy have witnessed a visible improvement, with latter having an edge. This improvement in literacy rates augurs well for the country and needs not only to be sustained but also requires a stimulus, particularly in the case of females.

A comparison between male and female literacy shows that throughout the period, annual compound growth rate (ACGR) in literacy among females is significantly higher than males. During 1991-2001, the annual rate of growth in literacy rates for females is 3.26 per cent as against 1.69 per cent for males. This has resulted in considerable decline in the male-female disparity.

Table 1 presents the gender disparity in literacy rates in India during 1951¬ 2001. The gap in male-female literacy rate was 18.30 percentage points in 1951, which increased to 26.62 in 1981. The increase in gap was more because of our

social and cultural ethos which gives more importance to males than females. However, due to attitudinal change and family welfare programmes, the gap has been uniformly declining since 1981. In 1991, this gap became marginally reduced to 24.84 percentage points and in 2001, it has further gone down to 21.69 percentage points. The disparity indices, however, suggest that there has been a continuous decline in the gender disparity over the years. The decline is bound to be slow initially, as a result of the continuing past legacy of a large number of adult illiterate women.

TABLE 1

Gender Disparity in Literacy in India (1951-2001)

| Year | Literacy Rates | | | ACGR in Literacy Rates | | | Gap in M/F Lit. Rate | Disparity Indices | | |
|------|------|------|------|------|------|------|------|------|------|------|
| | P | M | F | P | M | F | | D(N) | D(T) | D(KR) |
| 1951 | 18.33 | 27.16 | 8.86 | - | - | - | 18.30 | 67.38 | 99.84 | 53.02 |
| 1961 | 28.30 | 40.40 | 15.35 | *4.44* | 4.05 | 5.65 | 25.05 | 42.00 | 88.52 | 48.36 |
| 1971 | 34.45 | 45.96 | 21.97 | 1.99 | 1.30 | 3.65 | 23.99 | 52.20 | 69.81 | 38.34 |
| 1981 | 43.57 | 56.38 | 29.76 | 2.38 | 2.06 | 3.08 | 26.62 | 47.32 | 61.10 | 35.13 |
| 1991 | 52.21 | 64.13 | 39.29 | 1.82 | 1.30 | 2.82 | 24.84 | 38.73 | 47.58 | 28.57 |
| 2001 | 65.38 | 75.85 | 54.16 | 2.27 | 1.69 | 3.26 | 21.69 | 28.60 | 33.18 | 21.62 |

Note: P=Persons; M=Male; F=Female; D (N)=Disparity Index by Naik; D (T)=Disparity Index by Tilak; D (KR)=Disparity Index by Kundu and Rao

Source: Census of India, 2001, Series I (India), Provisional Population Totals, Paper I of 2001.

However, despite the disparity that exists between male and female literacy, the two themselves are highly correlated (r = 0.82), indicating a close spatial co-variation of the two rates, despite differences in absolute value levels. It is observed that a rise in the levels of literacy is accompanied by reduction in gender disparity, in general. The empirical evidence further supplements the result. The correlation between the literacy rates and disparity indices by Naik, Tilak and Kundu and Rao are respectively (-) 0.99, (-) 0.93 and (-) 0.98, which indicates that there exists a very high negative correlation between the two.

### Gender Disparity at State Level

*Literacy Map of India*

A quick look at the literacy map of India shows wide variations in the literacy rates in different States/UTs of the country. Table 2 presents the state level data on literacy by sex for 1991 and 2001. It is observed that though literacy rates improved for both the sexes over the period under study, everywhere male literacy is higher than female literacy. In 2001, Kerala, with literacy rate 90.92 per cent, holds the first rank in the country, closely followed by Mizoram (88.49

per cent), Lakshadweep (87.52 per cent), Maharashtra (77.27 per cent) and Tamil Nadu (73.47 per cent). On the other hand, Bihar with a literacy rate of 47.53 per cent ranks last in the country preceded by Jharkhand (54.13 per cent) and Jammu and Kashmir (54.46 per cent).

### TABLE 2
### Literacy Rates in India by States/UTs (1991 and 2001)

| States | 1991 | | | 2001 | | |
|---|---|---|---|---|---|---|
| | Persons | Males | Females | Persons | Males | Females |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Andhra Pradesh | 44.09 | 55.13 | 32.72 | 61.11 | 70.85 | 51.17 |
| Arunachal Pradesh | 41.59 | 51.45 | 29.69 | 54.74 | 64.07 | 44.24 |
| Assam | 52.89 | 61.87 | 43.03 | 64.28 | 71.93 | 56.03 |
| Bihar | 37.49 | 51.37 | 21.99 | 47.53 | 60.32 | 33.57 |
| Chhattisgarh | 42.91 | 58.07 | 27.52 | 65.18 | 77.86 | 52.40 |
| Goa | 75.51 | 83.64 | 67.09 | 82.32 | 88.88 | 75.51 |
| Gujarat | 61.57 | 73.39 | 48.92 | 69.97 | 80.50 | 58.60 |
| Haryana | 55.85 | 69.10 | 40.47 | 68.59 | 79.25 | 56.31 |
| Himachal Pradesh | 63.94 | 75.41 | 52.26 | 77.13 | 86.02 | 68.08 |
| Jammu & Kashmir | N.A. | N.A. | N.A. | 54.46 | 65.75 | 41.82 |
| Jharkhand | 41.39 | 55.80 | 25.52 | 54.13 | 67.94 | 39.38 |
| Karnataka | 56.04 | 67.26 | 44.34 | 67.04 | 76.29 | 57.45 |
| Kerala | 89.81 | 93.62 | 86.17 | 90.92 | 94.20 | 87.86 |
| Madhya Pradesh | 44.67 | 58.54 | 29.35 | 64.11 | 76.80 | 50.28 |
| Maharashtra | 64.87 | 76.56 | 52.32 | 77.27 | 86.27 | 67.51 |
| Manipur | 59.89 | 71.63 | 47.60 | 68.87 | 77.87 | 59.70 |
| Meghalaya | 49.10 | 53.12 | 44.85 | 63.31 | 66.14 | 60.41 |
| Mizoram | 82.27 | 85.61 | 78.60 | 88.49 | 90.69 | 86.13 |
| Nagaland | 61.65 | 67.62 | 54.75 | 67.11 | 71.77 | 61.92 |
| Orissa | 49.09 | 63.09 | 34.68 | 63.61 | 75.95 | 50.97 |
| Punjab | 58.51 | 65.66 | 50.41 | 69.95 | 75.63 | 63.55 |
| Rajasthan | 38.55 | 54.99 | 20.44 | 61.03 | 76.46 | 44.34 |
| Sikkim | 56.94 | 65.70 | 46.76 | 69.68 | 76.73 | 61.46 |
| Tamilnadu | 62.66 | 73.75 | 51.33 | 73.47 | 82.33 | 64.55 |
| Tripura | 60.44 | 70.58 | 49.65 | 73.66 | 81.47 | 65.41 |
| Uttar Pradesh | 40.71 | 54.82 | 24.37 | 57.36 | 70.23 | 42.98 |
| Uttaranchal | 57.75 | 72.79 | 41.63 | 72.28 | 84.01 | 60.26 |
| West Bengal | 57.70 | 67.81 | 46.56 | 69.22 | 77.58 | 60.22 |
| A &N Island | 73.02 | 78.99 | 65.46 | 81.18 | 86.07 | 75.29 |
| Chandigarh | 77.81 | 82.04 | 72.34 | 81.76 | 85.65 | 76.65 |
| D & N Haveli | 40.71 | 53.56 | 26.98 | 60.03 | 73.32 | 42.99 |
| Daman & Diu | 71.20 | 82.66 | 59.40 | 81.09 | 88.40 | 70.37 |
| Delhi | 75.29 | 82.01 | 66.99 | 81.82 | 87.37 | 75.00 |
| Lakshadweep | 81.78 | 90.18 | 72.89 | 87.52 | 93.15 | 81.56 |
| Pondicherry | 74.74 | 83.68 | 65.63 | 81.49 | 88.89 | 74.13 |
| INDIA | 52.21 | 64.13 | 39.29 | 65.38 | 75.85 | 54.16 |

Source: Same as in Table 1.

A ranking of states, according to literacy levels, reveals that, despite the differential increase in literacy rates, the relative position of states has more or less continued to be the same, despite also additional inputs in the backward states. It is significant to note that Kerala, Mizoram and Lakshadweep, which occupied first, second and third ranks respectively in 1991, retained the same positions in 2001 also.

Barring a few exceptions, the status of States/UTs in relation to above/below national average has remained more or less the same in the two periods. In 1991, there were 10 States/UTs where both male and female literacy rates were below their national counterparts. These were Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and Dadra & Nagar Haveli. Out of these, four states viz., Chhattisgarh, Madhya Pradesh, Orissa and Rajasthan have improved their literacy rates, and, in 2001, these were above the national average in terms of male literacy. On the other hand, Nagaland and Punjab, which were above the national average in both male and female literacy in 1991, slipped below the national average in 2001 in male literacy. The status of States/UTs in terms of female literacy remained unchanged during the period under review.

A comparison of two census data reveals that during 1991-2001, the number of States/UTs having 50 per cent or less literacy rates decreased from eleven to one while the number of States/UTs with 80 per cent or more literacy rates went up from three to nine. It is significant to note that the number of States/UTs having 50 per cent or less female literacy rates declined from 20 to 7 while the number of States/UTs with more than 60 per cent female literacy rates rose up from 8 to 19.

*Gaps in Male-Female Literacy Rates*

Table 3 presents the decadal difference in the literacy rates over the period 1991¬ 2001 and the gaps in male-female literacy rates for the two points of time. All the States/UTs without exception have shown increase in literacy rates during this period. The States/UTs, which have moved forward by more than 15 percentage points during the decade, are Rajasthan (22.48), Chhattisgarh (22.27), Madhya Pradesh (19.44), Dadra and Nagar Haveli (19.33), Andhra Pradesh (17.02) and Uttar Pradesh (16.55). Among the States/UTs, which had literacy rates below 50 per cent in 1991, Bihar has registered a minimum increase of 10.04 percentage points, moving from 37.49 per cent to 47.53 per cent and it is the only state left where literacy rates are still less than 50 per cent.

The highest visible improvement in male literacy during 1991-2001 is for Rajasthan, where it has moved forward by 21.47 percentage points, followed by Chhattisgarh, Dadra and Nagar Haveli, Madhya Pradesh, Andhra Pradesh and Uttar Pradesh, which registered an improvement of 19.79, 19.76, 18.26, 15.72, and 15.40 percentage points respectively.

**T A B L E  3**

**Decadal Difference in Literacy Rates and Male-Female Gaps (1991-2001)**

| States | Decadal Difference in Literacy Rates | | | Gap in M/F Literacy Rates | |
|--------|----------|--------|---------|------|------|
| | Persons | Males | Females | 1991 | 2001 |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Andhra Pradesh | 17.02 | 15.72 | 18.45 | 22.41 | 19.68 |
| Arunachal Pradesh | 13.15 | 12.62 | 14.55 | 21.76 | 19.83 |
| Assam | 11.39 | 10.06 | 13.00 | 18.84 | 15.90 |
| Bihar | 10.04 | 8.95 | 11.58 | 29.38 | 26.75 |
| Chhattisgarh | 22.27 | 19.79 | 24.88 | 30.55 | 25.46 |
| Goa | 6.81 | 5.24 | 8.42 | 16 55 | 13.37 |
| Gujarat | 8.40 | 7.11 | 9.68 | 24.47 | 21.90 |
| Haryana | 12.74 | 10.15 | 15.84 | 28.63 | 22.94 |
| Himachal Pradesh | 13.19 | 10.61 | 15.82 | 23.15 | 17.94 |
| Jammu & Kashmir | N.A. | N.A. | N.A. | N.A. | 23.93 |
| Jharkhand | 12.74 | 12.14 | 13.86 | 30.28 | 28.56 |
| Karnataka | 11.00 | 9.03 | 13.11 | 22.92 | 18.84 |
| Kerala | 1.11 | 0.58 | 1.69 | 7.45 | 6.34 |
| Madhya Pradesh | 19.44 | 18.26 | 20.93 | 29.19 | 26.52 |
| Maharashtra | 12.40 | 9.71 | 15.19 | 24.24 | 18.76 |
| Manipur | 8.98 | 6.24 | 12.10 | 24.03 | 18.17 |
| Meghalaya | 14.21 | 13.02 | 15.56 | 8.27 | 5.73 |
| Mizoram | 6.22 | 5.08 | 7.53 | 7.01 | 4.56 |
| Nagaland | 5.46 | 4.15 | 7.17 | 12.87 | 9.85 |
| Orissa | 14.52 | 12.86 | 16.29 | 28.41 | 24.98 |
| Punjab | 11.44 | 9.97 | 13.14 | 15.25 | 12.08 |
| Rajasthan | 22.48 | 21.47 | 23.90 | 34.55 | 32.12 |
| Sikkim | 12.74 | 11.03 | 14.70 | 18.94 | 15.27 |
| Tamilnadu | 10.81 | 8.58 | 13.22 | 22.42 | 17.78 |
| Tripura | 13.22 | 10.89 | 15.76 | 20.93 | 16.06 |
| Uttar Pradesh | 16.65 | 15.41 | 18.61 | 30.45 | 27.25 |
| Uttaranchal | 14.53 | 11.22 | 18.63 | 31.16 | 23.75 |
| West Bengal | 11.52 | 9.77 | 13.66 | 21.25 | 17.36 |
| A &N Island | 8.16 | 7.08 | 9.83 | 13.53 | 10.78 |
| Chandigarh | 3.95 | 3.61 | 4.31 | 9.70 | 9.00 |
| D & N Haveli | 19.32 | 19.76 | 16.01 | 26.58 | 30.33 |
| Daman & Diu | 9.89 | 5.74 | 10.97 | 23.26 | 18.03 |
| Delhi | 6.53 | 5.36 | 8.01 | 15.02 | 12.37 |
| Lakshadweep | 5.74 | 2.97 | 8.67 | 17.29 | 11.59 |
| Pondicherry | 6.75 | 5.21 | 8.50 | 18.05 | 14.76 |
| INDIA | 13.29 | 11.83 | 15.00 | 24.85 | 21.68 |

Source: As in Table 1.

In the case of female literacy, Chhattisgarh occupies the first place, recording a creditable increase of 24.87 percentage points during 1991-2001, closely

followed by Rajasthan with an upward movement of 23.90% points. The other states/UTs reporting significant improvement in the female literacy are Madhya Pradesh (20.93), Uttaranchal (18.63), Uttar Pradesh (18.61), Orissa (16.29), and Dadra and Nagar Haveli (16.01). As in the case of males, and, for the same reasons, Kerala has shown the least increase in both male and female literacy rates, these being 0.58 per cent and 1.69 per cent respectively. The reason might be that the state has already reached the saturation point and had broad base-year figures. The female literacy rates increased at faster rate than male literacy rates in all the States/UTs except Dadra and Nagar Haveli during the decade under review

It is significant to note that gap in male-female literacy is inversely proportional to the literacy level of the State/UT. The minimum gap in male-female literacy rates in the country has been observed for Mizoram (4.56 percentage points), followed by Meghalaya (gap of 5.73 percentage points) and Kerala (gap of 6.34 percentage points). It is important that in the case of Meghalaya, although the combined literacy rate of the state is below the national average, the gap in male-female literacy rates is very small. On the other hand, Bihar, Jharkhand, Madhya Pradesh, Rajasthan, and Uttar Pradesh, where literacy level is on the lower side of the scale, have shown much higher gap in male-female literacy.

Out of the thirteen States/UTs, whose literacy rates are below the current national average of 65.38%, nine also occupy the first nine positions in the male female gaps in literacy rates. Rajasthan, however, continues to occupy the unceremonious top position in male-female gap in literacy rates. The other eight States/UTs in this group are Dadra and Nagar Haveli (30.32), Jharkhand (28.57), Uttar Pradesh (27.25), Bihar (26.75), Madhya Pradesh (26.52), Chhattisgarh (25.46), Orissa (24.98) and Jammu and Kashmir (23.93).

*Analysis   of Disparity   Indices*

Table 4 provides the disparity indices in literacy rates in States/UTs by sex in 1991 and 2001. In the case of Naik's Disparity Index, the States/UTs which have reduced the disparity by more than 10 percentage points over the last decade are: Andhra Pradesh, Arunachal Pradesh, Bihar, Haryana, Jharkhand, Madhya Pradesh, Manipur, Orissa, Rajasthan, Uttar Pradesh, and Uttaranchal. Out of these, Madhya Pradesh, Rajasthan and Uttar Pradesh have reduced the disparity by more than 15 percentage points.

While analyzing the Tilak's Disparity Index, it is observed that the States/UTs which have reduced the disparity by more than 20 percentage points are: Bihar, Chhatisgarh, Jharkhand, Madhya Pradesh, Rajasthan, Uttar Pradesh and Uttaranchal. The states of Chhatisgarh, Rajasthan and Uttar Pradesh have remarkably reduced the disparity by more than 25 percentage points.

**T A B L E  4**

**Gender Disparity in Literacy Rates in India and States/UTs (1991 & 2001)**

| *States* | *D(N)* | | *D (T)* | | *D (KR)* | |
|---|---|---|---|---|---|---|
| | *1991* | *2001* | *1991* | *2001* | *1991* | *2001* |
| *1* | *2* | *3* | *4* | *5* | *6* | *7* |
| Andhra Pradesh | 40.65 | 27.78 | 50.83 | 32.20 | 28.90 | 20.29 |
| Arunachal Pradesh | 42.29 | 30.95 | 52.32 | 36.23 | 29.81 | 22.00 |
| Assam | 30.45 | 22.10 | 35.62 | 24.74 | 21.32 | 15.93 |
| Bihar | 57.19 | 44.35 | 78.37 | 56.28 | 44.68 | 33.06 |
| Chhattisgarh | 52.61 | 32.70 | 71.20 | 39.06 | 40.90 | 25.42 |
| Goa | 19.79 | 15.04 | 21.92 | 16.24 | 15.35 | 12.01 |
| Gujarat | 33.34 | 27.20 | 39.74 | 31.30 | 25.29 | 21.10 |
| Haryana | 41.43 | 28.95 | 51.26 | 33.45 | 31.82 | 22.40 |
| Himachal Pradesh | 30.70 | 20.86 | 36.21 | 23.26 | 23.33 | 16.51 |
| Jammu & Kashmir | N.A. | 36.40 | N.A | 43.94 | N.A. | 26.77 |
| Jharkhand | 54.27 | 42.04 | 73.16 | 52.76 | 42.25 | 32.19 |
| Karnataka | 34.08 | 24.70 | 40.90 | 28.10 | 25.01 | 18.47 |
| Kerala | 7.96 | 6.73 | 8.30 | 6.97 | 6.54 | 5.55 |
| Madhya Pradesh | 49.86 | 34.53 | 65.35 | 41.37 | 38.13 | 26.86 |
| Maharashtra | 31.66 | 21.75 | 37.37 | 24.28 | 24.32 | 17.28 |
| Manipur | 33.55 | 23.33 | 40.12 | 26.38 | 25.20 | 17.56 |
| Meghalaya | 15.57 | 8.66 | 16.84 | 9.05 | 9.73 | 5.76 |
| Mizoram | 8.19 | 5.03 | 8.52 | 5.15 | 6.29 | 4.02 |
| Ngaland | 19.03 | 13.72 | 20.88 | 14.68 | 13.20 | 9.63 |
| Orissa | 45.03 | 32.89 | 57.87 | 39.27 | 34.18 | 25.29 |
| Punjab | 23.23 | 15.97 | 26.06 | 17.27 | 16.15 | 11.58 |
| Rajasthan | 62.83 | 42.01 | 89.62 | 52.63 | 52.26 | 33.70 |
| Sikkim | 28.83 | 19.90 | 33.26 | 21.91 | 20.50 | 14.71 |
| Tamilnadu | 30.40 | 21.60 | 35.78 | 24.20 | 22.84 | 16.68 |
| Tripura | 29.65 | 19.71 | 34.63 | 21.80 | 21.79 | 15.05 |
| Uttar Pradesh | 55.55 | 38.80 | 74.80 | 47.51 | 43.48 | 29.60 |
| Uttaranchal | 42.81 | 28.27 | 53.96 | 32.86 | 33.78 | 22.52 |
| West Bengal | 31.34 | 22.38 | 36.83 | 25.08 | 22.80 | 16.76 |
| A &N Island | 17.13 | 12.52 | 18.53 | 13.28 | 12.76 | 9.74 |
| Chandigarh | 11.82 | 10.51 | 12.47 | 11.01 | 8.90 | 8.11 |
| D & N Haveli | 49.63 | 41.37 | 65.29 | 50.52 | 37.02 | 32.51 |
| Daman & Diu | 28.14 | 20.40 | 32.67 | 22.23 | 22.20 | 16.41 |
| Delhi | 18.31 | 14.16 | 19.95 | 15.12 | 13.99 | 11.16 |
| Lakshadweep | 19.17 | 12.44 | 21.14 | 13.24 | 15.59 | 10.24 |
| Pondicherry | 21.57 | 16.60 | 24.15 | 18.11 | 16.82 | 13.30 |
| INDIA | 38.75 | 28.54 | 47.61 | 33.10 | 28.58 | 21.59 |

**Note and Source:   Same as in Table 1.**

In the case of Disparity Index by Kundu and Rao, the States/UTs which have reduced the disparity by 10 percentage points are: Bihar, Chhatisgarh, Haryana, Jharkhand, Madhya Pradesh, Rajasthan, Uttar Pradesh and Uttaranchal. Out of these, Chhatisgarh and Rajasthan narrowed down the disparity by more than 15 percentage points.

It is worth mentioning that with the spread of literacy, the disparity has come down by all the scales of measurement. However, barring the states of Andhra Pradesh and Uttaranchal, the status of states in respect to above and below the national average remains almost identical as can be seen from the Table 5.

Measuring the gender equality by Naik's scale, it is observed that the States/UTs of Goa, Kerala, Meghalaya, Mizoram, Nagaland, Andaman & Nicobar Islands, Chandigarh, Delhi and Lakshadweep have achieved more than 85 per cent equality while they, except Goa, have achieved 85 per cent equality by Tilak's scale and 90 per cent equality by Kundu and Rao's scale.

### TABLE 5
### Disparity Levels by Different Indices

| Level of Disparity | 1991 | 2001 | Change in Status |
|---|---|---|---|
| More than the National Average | Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Haryana, Jharkhand, Madhya Pradesh, Orissa. Rajasthan, Uttar Pradesh, Uttaranchal, Dadra & Nagar Haveli | Arunachal Pradesh, Bihar, Chhattisgarh, Haryana, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, Dadra & Nagar Haveli | |
| National Average | | | Reduction by: |
| D(N) | 38.75 | 28.54 | 10.21 |
| D(T) | 47.61 | 33.10 | 14.51 |
| D(KR) | 28.58 | 21.59 | 6.99 |
| Below National Average | Assam, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Punjab, Sikkim, Tamilnadu, Tripura, West Bengal, Andaman & Nicobar Islands, Chandigarh, Daman & Diu, Delhi, Lakhshdweep, Pondicherry | Andhra Pradesh, Assam, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Punjab, Sikkim, Tamilnadu, Tripura, Uttaranchal, West Bengal, Andaman & Nicobar Islands, Chandigarh, Daman & Diu, Delhi, Lakhshdweep, Pondicherry | The states of Andhra Pradesh and Uttaranchal in the case of D(N) and D(T) and only Andhra Pradesh in the case of D(KR) reduced the disparity to join the group of below national average states |

For all the three indices, we find that disparity is more where literacy level is low. This is in accordance with the earlier observation and we find that gender

disparity is inversely correlated to literacy in a state. This fact appears to derive partial empirical validation by the values of correlation coefficients observed between the literacy rates in States/UTs and the three disparity indices D(N), D(T), and D(KR) in 2001 (these being -0.83, -0.83 and -0.78 respectively). However, this assertion may require further probe.

## Conclusions

From the discussions in the preceding paragraphs, it is clear that there has been a significant improvement in the literacy levels of both males and females. However, the growth of female literacy was higher than males, especially in the last decade, which helped in reducing the gap and disparity in male-female literacy. In this respect, performance of Chhattisgarh and Rajasthan stand out for their remarkable progress. It is a matter of concern that, during the period under review, the States/UTs of Arunachal Pradesh, Bihar, Chhattisgarh, Haryana, Jammu & Kashmir, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, Uttaranchal and Dadra and Nagar Haveli did not make any progress towards the reduction of gender disparity and by all the three indices, considered as yardstick for comparison, these have continued to show more disparity than the national average. On the other hand, the States/UTs of Kerala, Meghalaya, Mizoram, Nagaland, A&N Islands, Chandigarh, Delhi and Lakshadweep achieved more than 85 per cent equality in terms of male-female literacy. It tends to derive home the fact that improvement in literacy contributed significantly in narrowing down the disparity. Also, the disparity is more in the States/UTs where literacy level is low i.e., gender disparity is inversely correlated to the literacy level. Hence, any programme aimed at removing disparity should focus its attention on literacy development missions.

It is observed that both male and female literacy have witnessed a visible improvement, with latter having an edge. The fruits of this major achievement are bound to have positive bearing on the future aspirations of our society.

## Notes and Comments

(i)      **Disparity Index by Naik: If X, and X, represent the literacy rates of males and females respectively, then**

$$D(N) = \{1 - (X_2/X_1)\} * 100$$

The positive value of the index indicates disparity against females, negative value indicates the disparity against males and in perfect equality situation the value of D(N) should be zero.

(ii)      **Disparity Index by Tilak: If X,, X, and X.are the literacy rates of males, females and persons respectively, then**

$$D(T) \quad = \quad \{(X_1 - X_2)/X\}*100$$

The positive value of the index indicates disparity against females, negative value indicates the disparity against males and in perfect equality situation the value of D(T) should be zero.

**(iii)    Disparity Index by Kundu and Rao: If X, and $X_2$ are the literacy rates for males and females respectively, then**

$$D(KR) \quad = \quad \{\log(X_1/X_2)+\log((200-X_2)/(200-X_1))\}*100$$

The positive value of the index indicates disparity against females, negative value indicates the disparity against males and in perfect equality situation the value of D(KR) should be zero.

**(iv)    A number of indices have been proposed by various researchers to define and describe the equality/disparity. Some of them have been explained above. The indices by Naik as also by Kundu & Rao make use of literacy rates for males and females only while the index by Tilak uses literacy rates for males, females and persons. In this paper, the disparity indices have been worked out by using all the three methods discussed above and it is observed that, though the values of the indices differ, the relative ranking of the states in terms of gender disparity remains almost identical. However, the index by Tilak, being simple to calculate and based on all the three parameters, is perceived to have an edge over the others.**

**(v) Some notes on limitation of Census data**

**(a)    Literacy rates for 1951, 1961 and 1971 Censuses relate to population aged five years and above.**

**(b)    The rates for the 1981, 1991 and 2001 Censuses relate to the population aged seven years and above.**

**(c)    The 1981 literacy rates exclude Assam where the 1981 Census could not be conducted.**

**(d)    The 1991 Census Literacy rates exclude Jammu and Kashmir where the 1991 Census could not be conducted due to disturbed conditions.**

**(e)    The 2001 Census literacy rates exclude entire Kachchh district, Morvi, Maliya-Miyane and Wankaner talukas of Rajkot district, Jodiya taluka of Jamnagar district of Gujarat and the entire Kinnaur district of Himachal Pradesh where population enumeration of Census of India, 2001 could not be conducted due to natural calamities.**

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# Can there be Alternative Indicators of Enrolment? A Critical Review of the Frequently Used Indicators[1]

A. C. Mehta*

## Background

Free and compulsory education for all children up to the age fourteen is the constitutional commitment in India. At the time of adoption of the Constitution in 1950, it was decided to achieve the goal of universal enrolment within a period of ten years. Keeping in view the educational facilities available in the country at that time, the goal of universal enrolment was too ambitious to be achieved in a short span often years. Therefore, the target date (1986 onwards) was revised a number of times, despite significant improvement in all the spheres of elementary education. The Government of India has recently launched a new programme *Sarva Shiksha Abhiyan* (MHRD, 2000) to achieve the goal of universal primary education by 2007 and that of universal elementary education by 2010. To review the progress made in the area of elementary education, a set of indicators concerning different aspects such as universal access, enrolment, retention and quality of education are constructed and analyzed at different levels. To assess the progress made during the decade 1990-2000, a lot of activities were initiated globally as part of *EFA: [The Year 2000 Assessment* (UNESCO, 1999)]. By way of this exercise, in India, a set of 18-core indicators concerning early childhood education, adult literacy and elementary education were developed both at the all-India and state levels (Thakur & Mehta, 1999 & Govinda, 2002). Keeping in view availability of the data, a few of the 18 indicators were not constructed but, at the same time, a few additional indicators were constructed with special reference to conditions in India. Computation of the size of out-of-school

children, transition from primary to upper primary level of education and a few indicators concerning access form part of this additional set of indicators.

So far as the goal of universal enrolment is concerned, a variety of indicators were used to measure the progress made between 1990 and 2000 among which enrolment ratio is the most prominent one. A variety of enrolment ratios are available, all of which have some sort of limitations. In this article, first, all such indicators are critically analysed and then, the discussion is focused on the *Attendance Rate* that is proposed to be a better indicator of participation than the traditionally used enrolment ratios. This is followed by a discussion on possible limitations in getting data on attendance. Alternative to attendance rate, *Completion and Graduation Rates* have also been proposed and discussed in detail as how to calculate *Gross and Net Completion Ratios.* In the end, limitations in the existing information system are briefly discussed in the light of whether the system is ready to generate alternative indicators.

### Review of Indicators of Enrolment

The basic indicator that gives idea about the coverage of child population (in a system) is the intake (entry) rate which is simply ratio of enrolment in Grade I to the corresponding population at which a child is supposed to enter into the system (in most of the cases, it is either 5 or 6 years). However, while calculating the entry rate, repeaters are not considered and only fresh (new) entrants in Grade I are considered (Mehta, 1999). This is because of the fact that repeaters are not the members of the present cohort but they have entered into the system, one or two years back. In the case of gross enrolment (including children below & above '6' in Grade I), the rate calculated is known as *Gross Entry Rate*[2] otherwise, it is known as the *Net Entry Rate\* Entry rate is also known as Admission or Intake rate that demonstrates capacity of the system with regard to availability of schooling facilities. While calculating the net entry rate, net enrolment (new entrants) in Grade I of age '6' is considered. A gross entry rate of 80 per cent means that about 80 per cent children (of entry age) including the overaged and the underaged ones are enrolled but a net entry rate of 80 per cent means that only 20 per cent children of entry age ('5' or '6') are out of the system or are yet to be enrolled. Net entry rate is considered a better indicator of student coverage at the entry point (Grade I) than the gross entry rate. Unless the net entry rate is brought to hundred per cent, the goal of universal enrolment cannot be achieved. Entry rate is also useful in estimating the likely enrolment in the subsequent grades in years that follow. However, in many systems, age-grade

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[2] **Gross entry rate: New entrants in Grade I as a percentage of the corresponding population of entry age that is officially entitled to obtain admission in Grade I.**

[3] **Net entry rate: New entrants in Grade I of the official entry age as a percentage of the corresponding population of entry age that is officially entitled to obtain admission in Grade I.**

matrix is not available (except for Census years) and hence, net entry rate cannot be calculated.

By enrolling all children of age-6 does not guarantee itself that the goal of universal enrolment will be achieved on its own; it is a necessary condition but not the sufficient condition. Children are to be retained in the system and should also acquire the minimum levels of competencies. For that purpose, other indicators such as Gross and Net enrolment ratio, drop-out and retention rate, transition from primary to upper primary level and achievement levels should also be analyzed.

The intake rate gives an idea about the coverage of child population of entry age-6 in Grade I but it fails to give any idea about those children who entered and then remained in the system in years that follow. For this purpose, indicators concerning enrolment ratio and retention need to be analyzed. A variety of indicators such as Overall, Gross (GER), Net (NER) and Age-specific enrolment ratios are available for this purpose. The overall enrolment ratio presents the overall view of the entire education system whereas GER' and NER' presents information about the coverage of child population at a particular level such as primary and upper primary level of education. On the other hand, age-specific enrolment ratio presents information about the coverage of a particular age or age group. While assessing the progress made between the period 1990 and 2000, as a part of the EFA assessment (18-core indicators), GER and NER were computed and analyzed.

The GER is the ratio of enrolment (total) at school level f in year 'f by a population in that age group a' which officially corresponds to that level f. Thus, for calculating the GER at primary level, total enrolment in primary Grades I-V, irrespective of ages, is considered which is then divided by the corresponding age-specific population 6-U (6+ to 10+) years to obtain the GER. Similarly, total enrolment in upper primary grades VI-VIII is divided by the corresponding population 11-14 years (11+ to 13+) to obtain the GER at the upper primary level. This means that over-age and under-age children are included in the GER, which resulted into GER more than hundred per cent in many locations. In locations with small population, a slight over-reporting of enrolment may also result into GER more than hundred. The GER is, therefore, considered a crude indicator of child coverage and may present misleading picture of the true situation. Because of the over-age and under-age children, a GER exceeding hundred does not imply that the goal of UPE is achieved. Alternatively, net enrolment of a particular age group is considered in place of total enrolment. One

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' Gross enrolment ratio: Total enrolment at an educational level irrespective of age as a percentage to the corresponding school age population.

' Net enrolment ratio: Total enrolment at an educational level of the official age group as a percentage to the corresponding school age population.

such indicator is the Net Enrolment Ratio, which is an improved version of the GER.

In N E R, over-age and under-age children are excluded from the enrolment and then ratio to the respective age-specific population is obtained. For example, enrolment in Grades I-V of age 6-11 years is considered which is then divided by the 6-11 years population to obtain N E R at the primary level. Similarly, N E R at the upper primary or the entire elementary level can also be worked out. A N E R of 77 per cent at the elementary level implies that 23 per cent children of age 6¬ 14 years are still out-of-school. Unless these children are brought under the education system, the goal of universal elementary enrolment cannot be achieved. Achieving hundred per cent N E R does not itself guarantee that the goal of U E E will be achieved at its own. Those who enrolled will have to be retained in the system up to the end of an educational level. The N E R and other indicators should be calculated separately for boys and girls and in rural and urban areas and also at the different administrative levels, as it would help to identify areas/locations that need immediate attention.

N E R is considered a better indicator of enrolment than the G E R. However, the limitation of the N E R is that it excludes over-age and under-age children from the enrolment though they are very much in the system. The calculation of N E R requires age-grade matrix that, in most of the systems, is not available. Alternate to G E R and N E R, *Age-Specific Enrolment Ratio*[*] may be considered which gives enrolment ratio for a particular age or age group. For example, age-specific enrolment ratio of age 7 will include total enrolment of age 7 (irrespective of grades) which is then divided by the single age population 7 to obtain the ratio. The limitation of this ratio is that it considers total enrolment than enrolment in a particular grade that corresponds to age 7. The calculation of age-specific ratio requires age-grade matrix, which, as mentioned above, is not readily available in many locations. An age-specific enrolment (age-7) of 67 per cent implies that 67 per cent children of age-7 are enrolled but it is not known in which grade they are enrolled, or alternatively it can be said that 33 per cent children of age-7 are yet to be enrolled (in Grade I).

As it seems, the Net Enrolment Ratio is a better indicator of enrolment than other indicators of enrolment. It presents coverage of child population of a specific age group in relation to corresponding grades. In other words, it gives in percentage terms how many children of a specific age group are enrolled and at the same time also presents the estimates of out-of-school children at that point of time. The calculation of net enrolment ratio needs the age-grade matrix, which is not available in most of the cases. Sporadic attempts have been made in India to collect information on age-grade matrix but the same is not available on regular basis both at the provincial as well as the country levels. Information on

[*] Age-specific enrolment ratio: Total enrolment of a age or age group irrespective of grades as a percentage to total population of that age or age group.

the age-grade matrix is being collected in the DPEP districts but the same cannot be used to generate state-specific estimates of over-age and under-age children because of the limited coverage of districts in a state. Till such time, the existing estimates from the Sixth All India Educational Survey conducted in 1993-94 can be used to know the percentage of the over-age and under-age children both at the primary and upper primary levels of education. However, the same is not readily available at the district level as the publications containing district-specific data in case of most of the states are either not available or they do not contain this set of data. Whatever the limited data, that is available, on age-grade matrix, is not free from the errors of measurement. For instance, in India, enrolment is collected from the recognised schools only whereas the unrecognized private institutions, which are large in number, are not included in the annual collection of statistics. Data on age-grade matrix is obtained from the class registers where the date of birth of each and every child enrolled is written. But in the process of transmitting age (in years) from the date of birth, many approximations take place; hence, the age and grade matrix is not free from errors (lot of confusion prevails so far as 5+ or 6+ or 6-11 or 5+ to 10+ population)[7]. Further, the date of birth itself may not be correct especially in the rural areas where births are generally not registered. On the vague memory of the parents or even teachers, the date of birth is recorded in the school registers.

### Can Attendance be A Better Indicator of Enrolment?

The discussion presented suggests that unless all the children of age 6-11 years are enrolled, the goal of universal primary enrolment cannot be achieved. This is also true for the other age groups like 11-14 and 6-14 years. However, by enrolling children itself does not guarantee that the goal of universal enrolment will be achieved. It has been observed that those children who are enrolled do not attend schools regularly. For instance, in India, compared to a GER of above 90 per cent at the primary level, the corresponding attendance rate is only 65 per cent (MHRD, 2001 & NSSO, 1998). At the upper primary level also, the attendance rate is much lower than the corresponding GER and NER. Therefore, indicators such as GER and NER cannot be considered better indicators of children attending school. Alternatively, it would be better to consider *Attendance Rate\** at different levels of education, which can be calculated either

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[7] **Invariably in literature the corresponding age group at the primary, upper primary and elementary levels are referred as 6-11, 11-14 and 6-14 years as against actual 6-10 (6+ to 10+), 11-13 (11+ to 13+) and 6-13 (6+ to 13+) years. 6+ to 10+ includes children above age 6' but below age ' 11' and similar for other age groups.**

\* **Attendance rate: Students attending a class/educational level as a percentage to total working days in a month/quarter/year in that class/educational level. In many states, the Government deploys teachers to schools, distributes textbooks, mid-day lunch, teacher-grant, school bags, uniforms etc. only on the basis of attendance rate.**

on daily, monthly, quarterly or even on annual basis. Keeping in view the availability of data, the attendance rate may either be gross or net in nature. The attendance rate is one of the important indicators of monitoring. For that purpose, it should be calculated separately for boys and girls and also at different levels. The school-specific attendance rates will help to identify schools that need immediate attention. Monthly attendance, if monitored properly, will highlight possible reasons of low attendance and whether it is because of boys or girls, harvest season, festival season or because of the migratory population can also be known. All this is not possible to analyse in the traditional enrolment ratios. In India, attendance rate is generally not available as it is not a part of the regular collection of statistics.

Attendance rate can be calculated in relation to the number of school working days and children actually attending a class. For example, in a Class of 45 students in a school that functioned for 22 of the 30 days in a month, attendance rate can be calculated in accordance with the actual number of days the children attended the schools. Some of them might have attended school for all the 22 days while others may not have. First, the maximum possible present days (attendance) is calculated by multiplying the number of school-days to number of students in a class. In this case, it would come out (22 x 45), a total of 990 present days (care should be taken in schools that have tradition of marking attendance twice a day, in the first and last period. In that case both the maximum possible attendance days and actual present days will be changed accordingly). Now the actual number of present days (number of days students actually attended a class) is counted in that month by observing the class register. Suppose, it comes out to be 600 students present days. The average is calculated simply by dividing 600 by the maximum possible present days (990). This will give an average monthly attendance of 60.61 per cent in a class. By following the same procedure, average attendance in other classes, and separately in case of boys and girls, can be obtained either on daily, monthly, quarterly or annual basis. Once the average attendance is obtained in all the classes of a school, the same may be used to obtain the average attendance for that school. In that case, the first total student present days in a month are obtained by adding the present days in different classes, which is then divided by the maximum possible present days (all classes) in that month. This can be obtained by multiplying school working days to the total number of students in different classes in a school. Once the school-specific average attendance rates are calculated, it can be used to calculate the same at different levels. The above set of attendance rates are based on the school registers, which should be built-in in the management information system. Alternatively, attendance rates can also be worked out on the basis of household survey either on sample or census basis. This was initiated recently in India and Gross, Net and Age-specific attendance rates were worked out by NSSO (1998) on household sample basis. Tnese rates are worked out in relation

to the total number of children attending school. If the attendance rate is calculated by considering all the children in Classes I-V, including the over-age and under-age children, the rate obtained is called *Gross Attendance Rate*[8]. Otherwise, if the over-age and under-age children are not considered and only enrolment of a specific age group is considered in calculating the rate, the rate thus obtained is termed as *Net Attendance Rate*[10]. Similarly, *Age-Specific Attendance*^ rate can also be worked out by considering a specific age children attending schools.

The **GER, NER** and Age-specific Enrolment Ratio can be adjusted in the light of the actual average attendance. A **GER** of 95 per cent at the primary level with 65 per cent attendance will give an adjusted-GER of 62 per cent. Similarly, a **GER** of 59 per cent at the upper primary level with 43 per cent attendance will give an adjusted-GER of 25 per cent. The adjusted-GER suggests that though 95 per cent children (including over-age and under-age) are enrolled in primary classes but only 62 per cent of them attend schools regularly. The corresponding figures at the upper primary level is 59 per cent against adjusted-GER of 25 per cent. But how *'average attendance'* should be defined is an important question. Similarly, who will be termed as *'regular students' as* the same children do not remain absent on all the days and how migratory and nomad children will be treated are the other important areas of the concern.

### Can Reliable Attendance Rate be Generated?

However, obtaining an accurate attendance rate is a challenging task. Data users often question reliability of educational data and the official set of enrolment is found inflated. This is also reflected if the official set of data is compared with the corresponding statistics of the All India Educational Survey conducted by the **NCERT (1998)**. A significant gap, irrespective of educational level, is noticed both at the all-India and provincial levels and also in case of boys and girls. Information on the attendance can be collected through the teachers only, which, like enrolment, may not always present the true picture. Generally, three sets of enrolment are available in the schools. First, the number of students whose names are written in the class register, second, those who are marked present and third, those who are physically present in the class on the day of the visit. The third one, in most of the cases, is found lower than the second one and the second one lower than the first one. It may also be recalled that in the developing countries, specifically in the South Asia, a number of incentives are being offered to the

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[8] **Gross attendance ratio: Children attending an educational level as a percentage to corresponding age group population.**

[10] **Net attendance ratio: Children of an age group attending an educational level as a percentage to total population of that age group.**

[11] **Age-specific attendance ratio: Children of an age group attending educational institutions (irrespective of class/level) as a percentage to total population of that age group.**

children to improve both the enrolment and the attendance. For instance, in India mid-day meal is one such scheme under which all the primary school children are entitled to receive rice/wheat at the rate of 100 grams per day provided they attend school for not less than 80 per cent of the total working days in a month. This has suddenly increased both the enrolment as well as attendance across the country. Independent observers are of the opinion that, in many cases, the improvement in the attendance is not genuine and, like enrolment, it is also inflated. Most part of the country is covered under the mid-day meal scheme. Schools that are covered under the scheme and have lifted the grains have at least 80 per cent attendance by default. In many locations, it is found even above 90, and even hundred per cent that may be genuine or may also be even inflated. Thus, obtaining attendance data from the school registers through the teachers may not bring forth the real picture about the children attending schools. The same, if collected from the households, is also not likely to improve the reliability of the attendance rate.

However, an advantage of the HH survey is that those children who are enrolled in private unrecognized institutions are also covered in the survey, which is not true in case of the information collected from schools as a part of the regular collection of the statistics. The respondent in household surveys, in most of the cases, is the head of the household. The head of the household is authorized to provide answer whether children in his/her house are attending the school regularly. But how is 'regular' defined and interpreted is an important mater. A student attending school for 50 per cent of the working days in a month will be considered regular like a student who attends school for 75 or 80 per cent of the total working days. Can the head of the household provide this information accurately? This is doubtful especially when a large number of heads of the households themselves are illiterate or are literate without completing any schooling level. The only option, therefore, left to collect reliable information on attendance is through visiting the schools without a prior notice. Naturally, this can be done on sample basis only. But who will conduct the survey is a moot question. Community, as it seems, is the only option left for this purpose. What would be the frequency of such surveys and feedback mechanism are the other important questions which need to be properly addressed before such surveys are launched.

### Can Completion Rate be An Alternative Indicator of Enrolment & Attendance?

Even if some mechanism is developed to generate reliable attendance rate, a host of other issues concerning the classroom transactions would need to be addressed. It is not possible to compare different educational systems because of the number of days a school functions (in a year), actual duration of classroom transactions and type of transaction taking place, all these vary from school to school. Even within a country, it is not possible to compare the attendance rate in

schools under different managements. Schools are not at par with reference to the duration of classroom transactions, number of teachers and teaching-learning aids. The quality of classroom transactions solely depends upon the teachers, their qualifications, experience, training and subject specialization. It also depends upon the pupil-teacher ratio, average number of teachers per section, whether multi-grade teaching is taking place and the type of teaching aids being utilized, all that varies from school to school. The leadership provided by the Headmaster/Head-teacher also influences classroom transactions so as the physical and ancillary facilities available in the schools. The attendance rate may, therefore, be considered a better alternative indicator of enrolment, but, because of the considerations presented above, it may not be possible to use it globally for measuring the participation rate. Second, there is no guarantee that students who attend schools regularly would also complete the educational level. It is because of these reasons, *Completion Rate*[12] may be considered an ideal alternative indicator of performance of the education system.

Information on completion rates can be generated in a variety of ways. The methodology developed should be dynamic in nature so that information over a period of time can be analyzed, duration of which depends upon the composition of an educational level. Information on number of graduates is generally available on a regular basis but the same needs to be linked to the enrolment in Grade I (four years back) through which graduates enter into the system. Had there been no wastage in the system (i.e. the perfect efficient system), graduates will take exactly five years to complete primary and three years to complete upper primary level. But in reality, the situation is not so, as large number of repetitions (across grades) are taking place every year. In addition, a number of children drop out from the system without completing an educational level. It is precisely because of this reason that the issue of completion rate gets complicated. Because of the repetition, it is not possible from the secondary sources to find out the true completion rates as some graduates take five years while others may take six or more years to complete the primary level. Alternatively, completion rates can also be obtained by using the *Reconstructed Cohort* method, that is based upon a set of three assumptions. First, the existing grade-specific transition rates such as drop-out, promotion and repetition remain constant, second, no fresh admissions are allowed in between the evolution of the cohort and third, after repeating a grade, certain number of times, students will either drop out from the system or they will be promoted to the next higher grade. It gives completion rate for a hypothetical cohort, with a given set of repetition and drop-out rates. If repetition and drop-out rates change, completion rates will also change. However, no consideration is given to the quality of outcomes (completers) that the system is producing.

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[12] **Completion rate: Children completing an educational level as a percentage of initial enrolment in the first grade of that level four years back.**

Because of the above considerations, some mechanism would need to be evolved to generate the true completion rates. One such alternative is the tracking of each and every child who enters into the system till he/she remains in the system. This can be done either by using the past school registers or by maintaining the same in the future. By following the methodology, completion rates starting different cohorts (years) can be generated by considering transfers. During the evolution of cohort, a pupil who leaves school for any reason, except death, before completion of an educational level and who does not transfer to another school (including the unrecognized one) is termed as a drop-out. A few others who leave the system with transfer certificates and if the receiving school sends pupils record, or the parents/guardian provide information regarding the school into which the pupil is transferring are termed as *transfers.* The number of transfers, if significant, may influence the completion rates dramatically. The other important aspect is the question of *new entrants,* those who join the system in between the evolution of cohort. These students are not the members of the original cohort and as such they should not be considered in generating the completion rates. We are interested only in the original members of the cohort as how they move into the system. This can be done in two ways either by considering repeaters or without considering repeaters. If the repeaters are not considered, completion rate would produce percentage of children (in relation to Grade I) who have exactly taken five years to complete the primary level. On the other hand, a few children repeat a grade once or more and hence would not be able to complete the level in five years but continue to remain in the system. These children are expected to take six or more years to complete the primary cycle and hence should not be ignored. Therefore, the ideal situation would be to generate completion rates with the repeaters until the last student leaves the system. Thus, we may have two sets of the completion rates, one, for those who take exactly five years and the other, for those who take more than five years to complete the primary level. The third alternative may be to consider both these together. The only information that needs to be analyzed is in the class registers that are readily available in most of the schools. The completion rates should be generated separately for boys and girls and also at the disaggregated levels. One such study was recently undertaken in India, that is termed as 'Cohort Study'. This has been experimented in the DPEP states of Maharashtra, Karnataka and Tamil Nadu. School-specific completion rates are now available in these states along with the achievement levels in a few sampled schools. The study tracked children from the school registers from grade one to another until they complete primary schooling (Grade V) in exactly five years but ignored those children who repeat a particular grade (Aggarwal, 2002) and take more than 5 years to do so.

Completing the primary level itself does not guarantee that children will automatically transit to the upper primary level. Therefore, once the completion rates are available, the next important indicator that needs to be analyzed is

transition from the primary to the upper primary level of education. The transition rate is calculated by considering Grade VI enrolment *(minus repeaters)* in relation to the enrolment in Grade V, the previous year. (It is better to consider the number of students who complete Grade V successfully and then transit to Grade VI). It may, however, be noted that without attaining the status of universal primary enrolment, the goal of universal elementary education too cannot be achieved. Primary enrolment depends on 6-11 years population but the same is not true in case of the upper primary enrolment, which depends on primary graduates. Availability of primary graduates along with transition from primary to upper primary level would decide the future expansion of upper primary education. After transition rates are analyzed, completion rate at the end of the upper primary level (Grade VIII) would be the next indicator that needs to be analyzed.

### Gross and Net Completion Ratios

Once the completion rates, both at the primary and upper primary levels of education, are available, the next important issue is their interpretation. High completion rates suggest that the system is an efficient one as most of the students are taking five years to graduate the primary level. On the other hand, low completion rates would mean that the system is not a fully efficient one as only a few students are taking five years and others have either dropped out from the system or have taken more than five years to graduate primary education. Once the completion rates are available, the same should be linked to the corresponding single-age population in estimating child population (of a specific age) graduating an educational level. This can certainly be considered a better indicator than the traditional enrolment ratios. It would present percentage of child population (say age 11) graduating an educational level (say primary) in any given year. While calculating percentage, if all the graduates, irrespective of the age are considered, the ratio that would be obtained is termed as *Gross Completion Ratio"*. Otherwise, graduates of a specific age (say age 11), if considered in calculating percentage would term as *Net Completion Ratio"*. By and large, Gross and Net Completion ratios would also take care of the over-age and under-age children as well as those children who take more than five years to complete an educational level. In case of universal primary education, all children of a specific age (say age 11) would need to complete the primary level.

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[13] **Gross completion ratio: Total number of students completing an educational level (including repeaters and over and under age children, say Grade V) as a percentage to single-age population (total, say age ' 11 \*), which is supposed to complete that level.**

[14] **Net completion ratio: Students completing an educational level (say Grade V) of a particular single-age population (say age '11') as a percentage to total single-age population, which is supposed to complete that level.**

### Is It Completion or the Graduation Rate That Can be An Ideal Alternative?

No doubt, the Completion Rate and Gross & Net Completion Ratios, proposed above, are better indicators than the traditionally used enrolment indicators. However, the more pertinent question is whether the completion rate under different managements can be compared, as all members of a cohort do not have identical input conditions in schools under different managements. Second, because of the early or lateral entry, all the members of the cohort are not of the same age. Third, the methodology proposed takes cognizance of only those number of students who successfully complete an education cycle and does not take into account the quality of output that the system is producing. Therefore, unless the achievement level is linked to the outcomes, the Gross and Net Completion Ratios would serve only a limited purpose. The next indicator that should be considered is the achievement level of graduates. Because of the no detention policy in the primary grades, examination results in India, by and large, are not considered an indicator of student's achievement. Quality of education in India is measured in terms of the learner's achievement. State Governments are responsible for establishing requirements for the school graduation and maintaining standards. Since education is a state subject, states are free to adopt local-specific curriculum, syllabus, textbooks and medium of instruction. However, while assessing the quality of outcomes, they are generally influenced by the Minimum Levels of Learning specified by the NCERT. Keeping in view the educational development, parental background and socio-economic background of an area, graduation requirements may vary from one area to another. Attempts have been made in the recent past in India to conduct achievement tests in the DPEP states in language and mathematics (Grade I & IV) but tests have not yet been administered on to the primary school outcomes.

Therefore, in addition to the completion rate presented above, *Graduation Rate*[15] should also be generated to know the quality of outcomes. The completion rate is purely a quantitative analysis that provides a measure of how many pupils complete an educational level ignoring the qualitative aspects. The Completion Rate is a cumulative rate, which gives the number of students who complete schooling. It is calculated as a per cent of those who were the members of the initial cohort and could have completed primary schooling over a five-year period. But who is a graduate and how graduation rates are calculated is a pertinent question. Are the completion and graduation rates same, if not how do they differ is another important question. An outcome that meets the graduation requirements (i.e. achievement tests of his/her district/state, if any,) should be considered graduate. In other words, achievement tests should be administered on

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[15] Graduation rate: Students who complete an educational level and fulfill graduation requirements (achievement tests) as a percentage of total number of completers. The rate if calculated in relation to the original cohort is termed, as *cohort graduation rate,* which can either, be gross or net in nature.

the school completers to know whether they fulfil requirements of a graduate. Graduation rates should be calculated, based on the school outcomes only. If a student is not considered a graduate, then he/she is not included in calculating the graduation rate. On the other hand, completion rates are calculated based on all students who are graduates, plus those who are not considered graduates as per the achievement tests. Alternatively, graduation rate can also be calculated in relation to the number of completers who meet the graduation requirements instead of the total number of initial cohort members. In that case, the rate calculated would be known as percentage of completers (out of total completers) those who meet graduation requirements. Can there be pupils who complete five years of schooling and are not termed graduates? Yes, this is quite possible if they do not fulfil the requirement of graduation in terms of attainment. These students can be treated as *school completers™,* as they do not meet the graduation requirements. Neither the completion nor the graduation rate can be greater than 100 per cent.

**Is the System Ready to Generate Completion and Graduation Rates?**

A variety of completion and graduation rates and ratios are proposed as alternative to the traditionally used indicators of enrolment. Many countries, especially from the South Asian region, are not in a position to generate these rates on a regular basis. Countries, in this region, are still struggling with how to generate the reliable statistics of enrolment. Over-reporting of enrolment, error of measurement in generating age-grade matrix, time lag and gaps in the educational data are some of the major limitations in the existing set of enrolment. Question mark on the reliability of educational data in India is another major area of concern (Mehta, 1996). This is also relevant to the enrolment data in India that has initiated a number of steps to improve upon the existing EMIS. Over-reporting of enrolment and attendance in India is mainly because of the incentive schemes and other parameters linked to the enrolment. However, there are a few administrative limitations also which are responsible for this state of the affairs. Multiple data collection agencies, lack of coordination between different education departments, problems in the printing and distribution of data capture formats, inadequate, under-qualified and untrained staff for the MIS at all levels, ineffective feedback mechanism, unsatisfactory dissemination and poor utilization are some of the other limitations in the existing information system. However, the most significant limitation is the lack of the accountability in the affairs of the data management, as it seems that no one is accountable for this state of affairs right from the national to the grassroot levels. Because of the interventions in India, in about 192 of the 593 districts, the data tabulation

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ᵏ **School completers: Students who complete an educational level but do not fulfill graduation requirements (in terms of achievement tests) is termed as school completers..**

process has improved effectively but the reliability of data still remains a major area of concern. It seems that, for the time being, it is not possible to get reliable data from the schools. Therefore, it may not possible to provide the indicators (mostly based on school registers) proposed in this article. The only alternative left is to collect the information on the basis of the household surveys like NSSO and NFHS which are perhaps far more reliable than the information collected from the schools through teachers. But these surveys are not being conducted on a regular basis. More specifically, NFH Survey is to collect demographic information but information on a few educational variables like attendance rate was also generated through it in 1992 and 1998. Therefore, the Department of Education (MHRD, GOI) should approach NSSO authorities so that educational variables should form part of its different rounds.

It may also be noted that under the Sarva Shiksha Abhiyan programme, it is mandatory that the districts conduct household surveys to gather information on out-of-school children and on reasons of the never-enrolled and drop-outs. A large number of districts under SSA have conducted such surveys but the same need further refinements. The methodology and formats used, the unit of consolidation, level of computerization, dissemination and utilization, unless made uniform, may not serve the purpose. By and large, teachers have conducted these surveys and unless the community is involved (like in the Lok Jumbish in Rajasthan) in. the conduct of the survey, data feeding, dissemination and utilization, one cannot expect much improvement in the quality of the educational data. Till such time, there is no option but to utilize the statistics in whatever form these are available.

Once this system of collecting information from HH is streamlined, information concerning attendance should also be added to it. The HH survey can be conducted once in five years that should be of complete enumeration in nature. In the intermediary period, the same should be conducted annually on sample basis. Unemployed youths and those others who are interested in promoting elementary education (other than teachers) at the grassroot level should be involved in this annual survey. Keeping in view the socio-economic-demographic structure of a district, the sample should be drawn. Expertise to draw sample, in most of the states, may not be available at the district level. State level DPEP and SSA implementing agencies in consultation with the University Department of Statistics, State level Institutions, NSSO and NIC authorities at the state level etc. should evolve sampling design/guidelines and methodology to generate district-specific estimates. Information, through this survey, can be collected both from the households and schools. While children attending schools can be generated through households information, on completion rate can be generated by using the school registers. The independent enumerators will then be entrusted to administer achievement tests (under the guidance of state level institutions like SCERT) on the school completers to know their graduation

levels. Conducting large-scale sample surveys, especially for the first time, may not be an easy task. Therefore, before the same is scaled up, it should be conducted on pilot basis in one or two districts. The Department of Education, MHRD, has recently initiated a process to further streamline the Household Surveys that will also enable to generate completion rates on an annual basis.

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# M A R G I N

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# BOOK REVIEWS

MICHAEL A. STADLER and PETER A. FRENSCH (Ed.) (1998): *Handbook of Implicit Learning,* Sage, pp.636, Price. £ 75

The present volume, the editors write, grew out of numerous discussions about implicit learning they enjoyed at a pizza parlor called Shakespeare's near the campus of the university of Missouri, Columbia. The important point to note is that the area of their common interest continues to flounder in the realms of uncertainties and vagueness. Except for Arthur Raber who named and launched the field of implicit learning in 1967, no one showed any interest in it until the 1980's. Now that interest in the area has grown, the researchers the world over are applying a variety of approaches and theoretical perspectives to many variants of this problem.

Besides the inevitable Preface, the volume is divided into 17 chapters under three broad sub-heads. The first sub-head is Defining Implicit Learning, which contains 3 chapters; the next sub-head, which has six chapters, is titled Methodologies and the last one deals with Theoretical and Empirical Issues and also carries the rest of the chapter load. The presentation of the theme is perfect. The volume contains Author Index, Subject Index and an Introduction to the contributors - some of whom are quite distinguished.

Let me first deal with the definition of the term 'implicit learning'. The first chapter talks of implicit learning in the context of implicit memory. The authors, while establishing parallels and differences in asking how these two terms may be used for a synergistic transfer of concepts and techniques, attempt to go a little beyond and explore a totally unfamiliar terrain. After having declacdred implicit memory and implicit learning as 'fashionable topics', they go on to define implicit memory as "the facilitation of task performance through prior experiences in the absence of conscious or intentional recollection." The authors consider an analogy between the concepts of selective and explicit and unselective and implicit learning and consider it to be close enough to describe the reality. This being their main thesis, they continue dealing with empirical findings and finally, conclude, "what is wanted, then, is a more differentiated and articulated conception of consciousness in order to be useful for the research about implicit learning and implicit memory phenomena".

It is, however, in the second chapter where Frensch titles his write-up as One Concept, Multiple Meanings. He wrestles with the problem of developing a precise, cryptic definition of the term 'implicit' learning. He makes a very interesting remark as he argues, "Lack of a commonly accepted meaning of the concept is one of the primary reasons why researchers cannot even agree on the very existence of the phenomenon." The author goes on to say that for a given

concept its definition should be scientifically useful in communication among researchers, which unfortunately is not the case here. The concept may be one but it has numerous definitions (pp. 50-51), and even conceptually implicit learning has three distinguishable processes. We find here the involvement of perceptual process, cognitive process and that of the retrieval process. Consequently, it is not possible to define the concept clearly and usefully. This then remains *the main unresolved issue.*

The present volume contains a number of very useful and relevant studies — some of which deserve to be replicated in India, too. For instance, Aging and the Development of Learning, Learning and Development etc. I find the chapter that discusses Methodological Issues and Unique Characteristics of Implicit Learning worth repeated reading. Since the present volume carries no references outside of the USA and Germany, it is quite likely that nothing worth any particular notice has been attempted anywhere else. Wouldn't some Indian psychologists and neurosurgeons etc. like to join in this kind of quest? I am sure the area is worth exploring.

I have every intention of discussing a few findings on the aged, largely because I myself belong to that group. Chapters 13 and 17 should interest many in this country, too. In chapter 13, the authors Hoyer and Lincourt found evidence to suggest that age-related differences in implicit learning and explicit learning are probably best understood in terms of age-related differences in the efficiency of processing speed and particular mechanisms such as 'chunking or unitization, associative learning, instance-based learning' etc. "These age-sensitive mechanisms provide a satisfactory.account of observed age differences in the course of implicit learning and explicit learning, and for the lack of age differences on simple or well-learned implicit or explicit tasks. The efficiency of basic learning mechanisms can affect performance on a range of cognitive tasks, from detecting simple co-variations to solving complex problems." Chapter 17 admits the absence or, shall we say, paucity of data regarding the effect of age on novel motor skill learning, and the ones in existence "show that older subjects are impaired in learning some skills but learn others at the same rate that younger subjects do." These studies somehow do not deal with such mental tasks as reasoning, concept formation etc. I am quite sure these are those domains where maturity may lead to greater efficiency and speed.

I should like the present volume to be read by a large variety of people from diverse backgrounds because it is capable of giving them insights they might suspect they never possessed.

**Pocket A-4/206 Kalkaji Exten.**                    **R.P.Singh**
**New Delhi - 110019**                    **E-mail: rpsingh2@vsnl.net**

**LEWIN, KEITH and FRANCOISE CAILLODS (2001):** *Financing Secondary Education in Developing Countries: Strategies for Sustainable Growth,* **UNESCO, International Institute for Educational Planning, France, pp.370, ISBN 92-803-1139-9.**

Secondary education *per se* and financing secondary education, in particular, is gaining importance at least for a couple of reasons. One, the indirect demand for secondary education is generated due to the increasing demand for highly skilled labour force in globalised economy and second, the rate at which the developing countries achieve Education for All goals. However, the degree of importance and resources available for secondary education vary as only few of the developing countries have already approached near to the universal elementary education (Education for all) goals, majority of them are in the midway and still many of them, especially the poorest countries of the world, viz Sub-saharan African, South Asian and a few Latin American countries are struggling hard to achieve universal elementary education itself. In accordance with their level of achievement in elementary education, the demographic profile of the country - composition of both elementary and secondary age group population, rate of growth of population; socio-economic development of the country; and the resources available for education, in general, and the commitment of the state and its resources for education, in particular, determine the importance of secondary education.

The book under review is a timely effort as there are hardly any research studies on financing secondary education. It is an endeavour to generate more research and development in the area of secondary education, in general, and financing secondary education, in particular. The edited volume under review runs into eleven chapters, wherein the general context and the trend in secondary education in developing countries is set in the first three chapters, then in another five chapters a broader overview of secondary education and financing of secondary education in five different countries viz, Zimbabwe, Malwai, Sri Lanka, China and Costa Rica is discussed. In one of the chapters, issues on secondary education in few francophone African countries are discussed. The last two chapters bring out a brief summary of each case study countries and then discuss a number of policy options.

In the first chapter, rationale for a study on financing secondary education was culled out from various angles such as the curriculum issues, globalisation and finally, the financing aspects. In the next chapter, basic indicators such as per capita GNP, trends in enrolment both in primary and secondary education with the gender perspective, financial indicators such as ratio of public expenditure on education as a per cent of GNP and ratio of public expenditure on education as a per cent of government budget over 40 developing countries from the UNESCO database has been analysed. After presenting the indicators, a useful

classification of the averages of very low, low, middle and high secondary enrolment countries and their averages in the same set of basic indicators Is also presented. In chapter 3, simulations at three levels based on a number of baseline indicators have been attempted. It provides a forecast on the extent of resources required for secondary education enrolment at low, medium and high levels given the baseline information. The simulation exercises also suggest that there are opportunities to increase internal efficiency. It also highlights the change in the demographic profile on account of HIV especially in African countries. Chapter 4 examines the aspects of access, equity and efficiency in financing secondary education in Zimbabwe. Growth of education system in the country has been briefly reviewed by looking growth in enrolment, policy of automatic promotion and transition rates and PTR in the country. The financial indicators such as budgetary allocations to education cost per student at primary and secondary level, recurrent unit costs by type of schools and fee differentials are examined. High level of commitment for public resources to education was sustained over a long period of time, which helped in attaining higher level gross enrolment ratio at primary level in the country. The government shares the cost of increased participation with communities and community-based organisations. However, the automatic promotion at primary level; temporary teachers consisting majority of untrained teachers; double shifting; substantial contribution from parents have raised issues both on quality and equity. As resources to education are unlikely to grow in real terms, improvements in distribution, more efficient use of existing resources and the maximum use of alternative sources of funding are suggested. Alternatives such as distance and mixed mode of education viz., formal/on-the-job/part-time etc. are suggested. But, their effectiveness will have to be really assessed.

In Malawi and francophone African countries, secondary gross enrolment ratio is very less ranging from 6 per cent in Malawi to 25 per cent in Cote d'Ivoire. The difficulties in improving access to and quality of secondary schooling is on account of a number of factors - unaccomplished agenda of universal primary education in all of these countries with a resource crunch; overall budgetary position is constrained due to lack of economic growth, limited fiscal base and heavy commitments to debt servicing and reimbursement. Malawi and Cote d'Ivoire allocate 5 to 6 per cent of their GNP to education and higher levels of allocation above this per cent seems to be difficult; per student costs in normal secondary schools are high and hence average costs of primary schools are several times high. Though, several of these countries are committed to expanding access to secondary schools (Malawi, Mali, Senegal and Cote d'Ivoire), financial commitment for the challenge is considerable. Alternative measures are introduced which range from reducing the length of lower-secondary education (Mali), reducing the number of boarding schools and expanding day secondary schools and increasing private contributions (Malawi)

and encouraging the development of the private sector (Cote d'Ivoire, Madagascar and Mali). However, these measures can only be supplementary to the government resources. That higher allocation of public resources is to be devoted to primary and secondary education remains a difficult issue in these countries.

Sri Lanka has achieved high levels of secondary enrolment at low cost, with low per capita income but consistently investing around 3.5 per cent of GNP and around 10 per cent of its government expenditure. Low cost was due to a less share of GNP allocated to salary levels and an unusual pattern of open access to schooling without selection through grade 11. Many secondary schools include primary sections (or vice versa) and benefit from the economies of scale. Further, demographic transition to low population growth was also conducive. Despite high levels of enrolment, there are as yet many problems such as inequalities between schools, between those secondary schools that have university entrance grades and those that do not persist.

China has had a very diverse experience in expanding access to secondary schools. Liberalisation and the development of a socialist market economy since the mid 1980s have resulted in a great range of financing mechanisms to support growth in enrolment. School financing conditions vary widely across the country, but common arrangements include: earmarked local taxation for education levied on business turnover and payrolls; allocation of a share of the profits of school-run businesses; and different forms of collective work-unit support for schools based in the community (in cash and kind).

In the two areas studied in China, low population growth has resulted in a shrinking school age group population but with a high level of dependence. It is common that school development is financed from entrepreneurial use of school assets (e.g. Renting space and buildings). A significant proportion of urban schools generate substantial income from fee-paying students, which results in wide differentials in unit costs among urban and rural schools. Further, teachers' (publicly funded) salaries and teachers' total income have diverged widely because of non-budget contributions raised from non-governmental resources.

Costa Rica has followed a consistent development strategy in favour of investments in the social sector and has achieved relatively high levels of secondary participation in 1980s. However, recession in the 1980s resulted in a decline of enrolment rates at secondary from about 62 per cent to 49 per cent. Hence, existing pass rates, repetition and drop-out rates in secondary schools indicate problems of quality and fragile effective demand. The unit cost of secondary education is low in that the ratio of costs between primary and secondary is close to 1:1, which has been made possible by the relatively low level of salaries of the teachers. However, various measures are needed to improve quality and making secondary schooling more attractive to students from rural and semi-urban low-income households (e.g. curriculum reforms,

distribution of learning materials, retraining of teachers, increase in teacher salaries). Several cost control measures have been proposed which could offset some of the planned increase in expenditures. Reallocation of funds between levels had been suggested, since the country is unlikely to increase the amount allocated to education.

Various policy options suggested include: increase overall allocations to the education sector; shift resources from other levels of education; reduce unit costs from other levels; decline the unit costs - curriculum issues; increasing PTR and class size; increasing teacher utilisation; declining average teacher costs; limiting non-salary costs; increasing school size; increasing efficiency; reducing repetition and drop-out rates; reducing teacher management; ensuring effective school management; various measures to improve efficiency; reducing capital costs; alternative modes of delivery; cost recovery and community contributions and call on external assistance.

Policy options suggested in the last chapter include: increase public spending on education, reduce unit costs, increase efficiency and cost sharing. Many of the policy options suggested are short-term and biased in the sense that they jeopardise the quality of the education system. They do not seem to be cost-effective measures; rather they are the cost control measures. These last two chapters could have been made as one, consisting of the issues and policy options sticking to financing secondary education alone to easily avoid many overlapping. Further, many of the policy options suggested are not new and not necessarily on financing of secondary education, neither on the inferences, which flow from the analysis of case studies. Nevertheless, the edited volume under review is a useful reading material for the planners and researchers in the field of education.

**NIEPA** **P. Geetha Rani**
**New Delhi - 110016** **E-mail: geetharani@niepa.org**

**NAGEL, STUART, S.** (ed.) (2000): *India's Development and Public Policy,* Ashgate Publishing Limited, Hants (England), ISBN 1 84014 022 4, Pages 201, Price: £ 50/- (Hb)

The book under review is a collection of nine papers from areas as diverse as economic policy, social policy, environment, science and technology and political reforms, in addition to a brief editorial introduction. Obviously, covering all of them in a comprehensive manner in a single volume of 200 pages is just not possible. As a result, there appears to be little of linkages, if at all, among the papers included in the volume except that, as the editor mentioned in introduction, they follow a super-optimizing analysis.

The section on *economic policy* includes just one paper under it and, that too, on just one sector *viz.,* textiles. It analyses causes and consequences of state interventions in this traditionally highly regulated sector. It indicated dominance of informal sector within a dualistic structure. It takes into account, to an extent, the textile policy of 1985 but not the developments thereafter. In the reform period, the whole perspective of developing this sector has undergone a drastic change and, hence, instruments deployed to regulate it changed altogether. Licensing, for example, has been abolished altogether as early as in 1991 and several barriers restricting its growth performance were removed or liberalised in the new regime to make it globally competitive through technological upgradation and new investment.

A widening of coverage of the section on *economic policy* would have considerably enhanced the value of the book aimed at discussing *Development and Public Policy.* In fact, three papers covered under Science *and Technology Policy* could have comfortably formed its part.

Sharma's paper under the section on *Science and Technology Policy* focused on Indian Council of Agricultural Research. It has elaborated on mandate, organisation structure and network, style of working, funding etc. of this research body but did not capture adequately its achievements and contributions, without which the paper appears to be incomplete. Further, it has not taken into account the emerging global environment in agriculture, following Uruguay round of multilateral trade negotiations. One interesting area would have been the role of this organisation in strengthening India's advantages in the new trip regime under which even the plants and their properties are increasingly patented.

The paper on information technology (IT) focuses on the relationship between state and the sector. It expresses concern about distributive impact of growth in this sector in the liberalised regime. Further, it called upon an IT policy that "allows for people's access, education and use of IT". The analysis on distributive impacts needs to be viewed in a much wider context under which the market driven system is adopted. With regard to its access to people, phenomenal growth of this sector in the nineties has drastically altered the spectrum. Today almost every youngster, at least in the urban and semi-urban areas, is attempting to gain, though to a varying extent, knowledge of computer, thanks to phenomenal spread of computer education, especially in the private sector. Its cascading effect on rural areas may also be felt sooner than expected considering the initiatives the Indian states have planned in the recent past.

Last paper in this section attempts to make a comparative analysis of India and Brazil with regard to administering electronics sector. It suggested a model for administrative organisation based on the flexibility and selectivity. It is, however, not clear why Brazil was chosen, leaving aside big players in this sector from East Asia.

The volume includes three papers relating to women - two under the *social policy* and one, under the *Environmental and health policy.* They together could have formed one section on women's role.

Medhi's paper explains gradual deterioration of women's status in India since later Vedic period marked by the Manu's doctrine. The paper has largely focused on Hindu society; status of women in other societies including Muslim and Christianity was not given due importance. Author has rightly highlighted the importance of women's education to improve their status. A strange omission was, however, the recent initiative by the government in order to reserve one-third of legislative seats for women.

Pandit's paper on impact of political education on political socialization has also recognized the importance of women's education. Based on field survey in Delhi across women of two generations, it has clearly brought out the 'reforming' Indian society, though at a slower pace, strangely, though, it has not mentioned the year in which the survey was carried out. Despite being a well attempted paper, it is difficult to fully agree with the observation that old and traditional values are to be thrown out for uplifting the women's status. The alternative western model too has its own problems in the weaker family set up leading to social tensions and disintegration. Women certainly need to take active part in the socio-economic-political development process but alternative arrangement of sharing her traditional responsibilities needs to be explored.

The only paper under the *Environmental and health policy,* too, deals with gender dimensions. It highlights exploitation, deprivation and inhuman treatment to tribal, hill and marginal peasant women in the prevailing development models. It emphasized on their greater participation in policy and decision making.

Section on *Political Reform,* however, includes a paper on a topic of great importance i.e. Panchayati raj as a model of self-government at the local level. It provides a couple of useful suggestions such as providing independent status to these bodies and placing larger resources at their disposal to make the system more effective.. But it is not understood why the efforts made by some of the states like Madhya Pradesh in the last decade for improving the effectiveness of local level governments are not analyzed. The only other paper in the section is a brief commentary on 1989 general elections. It appears that most papers have been finalised taking late eighties or early nineties as a terminal reference. Indian policy regime and environment since then have undergone drastic changes in almost all spheres. A U-turn in policy regime under the reform process is already more than a decade old. As such, papers seem to be of less relevance to policy making in the first decade of twenty-first century. Nonetheless, they are interesting readings providing historical background and interplay of different forces.

Before concluding, a few words on the technique of *Super-optimizing analysis.* The editor explains it as a new and useful form of public policy evaluation which seeks to find solutions to policy problems whereby conservative, liberal and other major viewpoints can all come out ahead of their best initial expectations simultaneously. One, however, does not get a very clear idea about it from the editor's note.

**S.G.T.B. Khalsa College (ev.), University of Delhi and**     **Pradeep Kumar Mehta**
**Project Visitor, Indian Statistical Institute, New Delhi.**

**SINGH, HOSHIAR and A.S. MALIK (2001):** *Socio-Economic Development of Scheduled Castes in India',* **Alekh Publishers, Jaipur, 236 pages, Rs.325**

There is a long history of deprivation of scheduled castes in India. As a result of being discriminated, because of the caste system that prevailed in the country for several centuries, they lag behind others in all walks of life and are, therefore, branded as socially backward castes. This has compelled them to remain economically as well as educationally backward also. However, after independence of the country, deliberate attempts have been made by the Government to improve their position and safeguard their interests by providing reservation, in educational institutions as well as in jobs, for them so as to help them participate in all walks of life at par with other sections of population. Several clauses have been provided in the Constitution and policies have been made to ensure that no discrimination is done against them and they are given all opportunities to pursue their socio-economic development. As a result of implementation of these policies during last five decades, schedule castes have made some progress but many studies have revealed that they are still not at par with other sections of population to participate in the socio-economic development of the country.

The book under review is one such attempt to study the socio-economic development of the scheduled castes with specific reference to a particular state of the country i.e. Haryana. The focus of the book is on studying the impact of various programmes adopted for the development of scheduled castes in Haryana and thus study the socio-economic changes that have taken place consequent to the implementation of these programmes. The authors opine that the problem of illiteracy, rural background, non-ownership of productive assets, insecurity of employment, untouchability and their exploitation by the non-scheduled caste people etc. are some of the factors that are mainly responsible for their abject poverty and this has hampered the process of development programmes to bring them in the mainstream of national life.

The study is based on the first hand information collected by authors from eight villages sampled out from eight blocks of two districts having the highest scheduled caste population in Haryana, namely Hisar and Ambala. Four blocks having maximum scheduled caste population from each of these two districts were selected for conducting field survey. The villages selected are average size villages having population between 2000 and. 3000 and having minimum 25 per cent scheduled caste population each. The population of the study comprises 770 respondents, out of which 400 are beneficiaries from various government programmes and the rest 370 are non-beneficiaries.

The study reveals that education leads to empowerment of people and, as a result of that, the scheduled castes have been sending or are willing to send their children to schools. This trend is found more in case of beneficiaries, may be because of their exposure to the educated world as well as their readiness to participate in the development programmes of the Government. However, the study finds that education of girls is not considered essential by many people even today. Referring to various schemes presently implemented by the Government to raise the educational standard of scheduled castes, the study reveals that masses are not even aware of all these schemes.

The reasons for low participation and high drop-out of girls from schools, according to authors, are inability to pass a class/standard, girls' services are required at home to discharge household activities, and non-availability of school within the village for higher classes. These are in addition to the most important reason, i.e., poverty.

The study further reveals that though perceptible change has taken place, yet the process is very slow and the human resource development level of the scheduled castes has been quite low as compared to other sections of the society. So, more need-based efforts are required to bring the scheduled caste masses at par with other sections of the population.

According to authors, sufficient infrastructure has been evolved by the Government for the upliftment of the people, in general, and scheduled castes, in particular. The living condition of scheduled caste people has improved and the attitude and perception of subjugation to the upper castes has almost vanished. Although employment prospects have not improved much, their employment in secondary and tertiary sectors has registered an upward trend. The reservation policy, no doubt, created jobs for them but the scheduled caste people, who got the job, migrated to the cities. The need of the time is to make the development delivery system more efficient, effective and accountable so that the development efforts for scheduled castes may be intensified which, in turn, will help to bring a qualitative social change in these communities.

Discussing the participation of women in economic activities, the study reveals that their participation is restricted, as women have to look after the children at home or the incidence of limited employment opportunities in the

villages. Commenting on the process of economic assistance, the programme authors are impressed upon by people that these economic assistance programmes suffer from certain weaknesses such as: inadequacy of loans given to poor people, absence of strict follow up actions, improper procedure of selecting the beneficiaries etc. It is, therefore, necessary to rectify these problems so as to get the maximum benefit from the schemes of economic assistance.

Some important findings of the study, as mentioned in the book, are as follows.

- A qualitative discrimination still persists not only among Scheduled Castes, but also in rural society as a whole. However, the untouchability criterion of earlier days is on the wane and freedom of access to the temple has increased over years. The social status of Scheduled Caste people has been showing an upward trend.

- Girls are withdrawn from schools without completing a level of education and these reasons, as found in the study, are: the services of the girl child are required at home, non-availability of school within the village for continuing her studies for higher classes, attainment of marriageable age as per their own norms and failure in a class. However, a perceptible change is evident in the outlook of Scheduled Caste people in the field of girls' education.

- There are various agencies involved in executing and disseminating information about the schemes of economic assistance to the poor people and Scheduled Castes. It has been resulting in duplicating of work and erosion of responsibility. The responsibility of publicity for these schemes may be entrusted to the Gram Panchayat which is the most effective agency to discharge this function.

- The reasons for creating difficulties for the disbursement of loan amount to the Scheduled Caste beneficiaries are: the complex procedure, bureaucratic attitude of officials, lack of coordination and accountability among various concerned agencies, delayed sanction of funds etc.

- The economic assistance schemes are useful and economically advantageous to the Scheduled Caste people but the loan amount given to the beneficiaries is insufficient. However, the lack of proper follow up action results in poor recovery of loan.

An important contribution of the authors in the book are the suggestions made by them to bring human resource development of Scheduled Caste people, which, according to them, is the pre-requisite for their socio-economic development. One of the important aspects of human resource development is to bring about educational development of the Scheduled Caste communities. In this regard, the following suggestions are noteworthy.

- The ruralite Scheduled Caste people are not availing the benefits of certain schemes (meant for higher education) because they are incapable of doing so and, therefore, the benefits of these schemes are being availed by well-off Scheduled Caste people. It is suggested that this problem can be overcome if more funds are allocated to these schemes which cater to the school going rural Scheduled Caste students and those who are pursuing vocational/technical education in ITIs and Polytechnics. This will certainly help the really poor students of the community.

- Maximum emphasis should be given to pay financial incentives (in the form of scholarship) at the primary level, followed by school education, vocational/ technical education, professional and higher education.

- More vocational/technical institutions, particularly in those villages which have emerged as trade centres/towns/block headquarter/tehsil or sun-tehsil headquarter and located in the centre of the hub of villages, should be set up so that the Scheduled Castes can send their children to these institutions with minimum financial burden.

- Social welfare services related to children, women and other general purposes should be integrated under one agency and a separate cell should be created within that administrative unit at all levels for the welfare of Schedule Caste people. This cell should be entrusted with the responsibility to enquire into the requirements of social welfare services by the Scheduled Caste people and to monitor and evaluate the execution of these services to them.

- A proper management of execution of relevant legislations along with rapid socio-economic development of Scheduled Castes will be the only solution for eradicating the problems of untouchability and check atrocities committed against them.

- With regard to the loans given under economic assistance programmes, it is suggested that the sanctioning and disbursing officials adopt a somewhat liberal attitude attaching rather than over-due importance to achieve the targets. This will help the beneficiaries to repay the loan instalments with ease, as they have not to save money to repay the loan of a friend or relative.

- The identification of prospective beneficiaries for economic assistance programmes should be made through a base-line survey only. This will help to give publicity to the programmes and motivate people to come forward for availing the benefits. The Scheduled Caste people can be educated about these programmes and made to understand about the procedure for availing the benefits during the survey. The Gram

Panchayat and members of their caste should be actively associated in this survey.

NIEPA                                                                     **S.M.I.A. Zaidi**
New Delhi - 110016                                          E-mail: szaidi@niepa.org

**THE WORLD BANK (2001):** *A Chance to Learn: Knowledge and Finance for Education in Sub-Saharan Africa,* **Africa Region Human Development Series, Washington DC: The World Bank, ISBN 0-8213-4907-4, Pages: 86, Price not mentioned (Paperback).**

The World Bank's Africa region comprises fortyone countries which rank among the poorest in the world. Around twelve per cent of the world's children aged 6¬ 11 live here and the region has more than a third of its children out of school. In fifteen countries more than twenty per cent of students are those who have had to repeat grades. More than forty per cent of children in Africa are stunted while almost a third are underweight. The average African adult has fewer than three years of schooling. Add to this, the rapid spread of AIDS, armed conflict, high fertility rates, a region that only produces one per cent of the world's GDP with eleven per cent of its population while being plagued by massive external debts and you have a synoptic view of the challenges Africa poses to the World Bank's programmatic efforts in the education sector.

A Chance to Learn is a product of the Bank's two-year internal reflection and analysis on its assistance to the education sector in the continent and it puts forth a strong case for the Bank to expand and broaden its support for this sector. The focus - similar to what it has been throughout the developing world post-Jomtien and more recently Dakar - is on strengthening basic education and addressing central issues of equity, quality, sustainability and capacity while pursuing this. The book devotes sections to detailing the African development context, the various country responses to education development and the Bank's own proposed plans for expanding the lending services.

Within a "knowledge-based global economy", the Bank regards education as an edifice upon which economic growth and poverty reduction depend, and, therefore, rapid and substantial improvements in education access and quality are required. At the primary education level, access, retention and low learning achievements are the major problems and Africa remains the only region of the world where the out of school children's population is on the rise. The reasons why children do not join or drop out of school are similar to those in South Asia, namely poverty-related and school-related factors. Poor nutrition, illness, the need for children's labour along with the lack of an effective and inviting learning space, and children having to repeat grades at the primary level - all

combine to create a dismal state of affairs in primary education. The situation does not improve much, within the sphere of higher education, with Africa's colonial university structures being unable to expand beyond a certain privileged elite and lacking adequate scientific and technical expertise.

To move toward equitable, efficient and high quality education systems, the Bank would like the African governments to prioritise the following: promote universal primary enrollment, expand access to full *basic education,* enhance vocational and technical skills, prepare *select* students for scientific and technical careers and revitalise national research and development programmes. In order to do this, the Bank advises the use of local strategies, the balanced development of the education sector and also stresses the importance of *choice.* By this, the Bank implies that the governments share the responsibility of providing and financing schools along with private providers, including NGOs as well as explore *alternatives* to existing service delivery approaches.

National initiatives, in this direction, have already been taken by Burkina Faso, Mozambique, Senegal, Guinea and Uganda who have all initiated programmes of reform and development in primary education. South Africa has formulated a nine-point programme for an overall sector reform. The book contains several examples of *innovative* education provisions from different countries in Africa, highlighting the various forms in which high quality and efficient education sectors are beginning to function.

The World Bank believes that it has two comparative advantages to contribute to education sector reform in Africa: firstly, a strong macro-economic and public expenditure perspective and second, its breadth of international knowledge and expertise. Self-evaluations of its own lending reveal the limited impact of past investments. To be a more effective partner, the Bank's strategy aims at giving priority to innovation, increasing the efficiency of its non-lending services, and exploiting its comparative advantage. Through designing education investments as an integral part of poverty reduction programmes, the Bank hopes to address key institutional priorities including equitable access issues (especially for girls), broadening the education portfolio to address combating HIV/AIDS a central element of Bank assistance and improving quality of provision as measured by learning achievement and sustainable financing. In pursuing this strategy, the Bank will design its support to promote balanced development of the entire education sector, as well as adopt measures to improve its portfolio performance which includes promoting partnerships, and being flexible and responsive in order to match support strategies to country conditions.

Africa personifies dire poverty within media constructions and our everyday discourses. The Bank's fetish for sensational statistics (some of which are provided in the first paragraph of this review) reflects the ways in which the international development community views the continent: namely in a state of persistent crises, inherently self-destructive and lacking the ability to bring about

reform without external assistance and supervision. The World Bank and other key institutions that are at the forefront of international development have set 2015 as the date for reducing by half the number of human beings in the world who live in extreme poverty. The book reflects this focus on poverty reduction and its impact of educational attainment and vice-versa. Poverty became prominent in the international development agenda in the 1990s, a decade during which the unwavering promotion of globalisation and market economies by international financial institutions allowed for the increased accumulation of wealth in the hands of a few and left the majority of the world's poor gasping for breath.

This increasing polarisation of the rich and the poor has been extensively documented and has led in the recent past to massive anti-globalisation/World Bank rallies in the US and Europe (from where the Bank gets its contributions). This has necessitated the creation of a new discourse around the centrality of poverty reduction in order for these international financial institutions to have continued legitimacy. But underlying this increased focus on poverty reduction is the continued canonical belief in market-led economic growth, the need to cut social spending in order to create more efficient economies, and external financial investments being tied to the country's "attractiveness" to investors. The Bank's proposed language of educational reform in Africa needs to be critically read through the lens of these market-led reforms and the gradual dissolution of state responsibility in education provision. This inflected understanding of 'alternatives', 'choice', 'portfolio performance', 'efficiency', the technical-speak that the book abounds in, when viewed in the light of our own experiences in India (where 'education for all' has engendered – as the dominant model – the creation of 'alternatives' in the form of one-room primary schools with poor facilities and low qualified teachers!), indicates' to some extent, the fissure between the rhetoric and the reality of the Bank initiated education sector reforms. These reforms are often legitimated within discourses that valorise the "role of the community" in these schools, as well as juxtapose the child's former life of labour with the now school-going child. Given this, we need to view with caution success claimed for Bank-sponsored education reforms in Africa in future reports and read these through our own experiential understanding of Bank-led reforms in our part of the world.

National Institute of Advanced Studies
Indian Institute of Science Campus,
Bangalore-560012

**Sarada Balagopalan**
Email: saradab@vsnl.net

**RAO, K. SUDHA (ed.) (2002):** *Educational Policies in India: Analysis and Review of Promise and Performance,* New Delhi, National Institute of Educational Planning and Administration, Pages: 501, Price: Rs. 600 (Hard Cover).

The book has 30 chapters arranged in three sections. The "National Policy on Education: the Profile" constitutes the single chapter of the first section. The second section on "The Sectoral Scenario" has 9 chapters and the third section on "The Further Dimensions" as many as 20 chapters. The first chapter presents in tabular form, both the 1968 and the 1986 policy statements on the different issues and aspects of education in India. It also makes comments on the implementation of these policy statements. The issues of education in India, that have been dealt with, in the different chapters of the second and third sections of the book, include inequality (gender, caste and tribe), education of children with special needs (the disadvantaged), work education and vocationalisation in school, vocationalisation of undergraduate education, guidance and counselling, teacher education, management of education, university-industry interaction, accreditation and quality of education, supplementary funding of higher education, open learning and distance education, literacy campaigns, info-tech in the classroom, and media and educational technology. Teacher education is the topic of discussion in four chapters of the book. At least three chapters of the book deal with the issue of women's education.

The book has done a commendable task in sifting out the policies on the different issues and aspects of education from the two major policy statements of 1968 and 1986. In the first chapter, they have been put together in an organised form under 21 areas listed by the National Policy on Education, 1986, (Programme Action, 1992). The volume contains at least one article on most of these areas identified in the policy statements. Another positive aspect of the book is that some of the chapters have dealt with the progress and problem of implementing the policy statements in some of the areas of education.

Substantively, the first chapter deals with the policies on almost all aspects of education under 21 areas. On the whole, the aspects or issues listed, under the 21 areas in the first chapter, are the subject matter of the 29 chapters in the second and third sections of the book. However, a few of the policy issues/areas identified in the first section are not discussed in detail by way of individual contributions in the other sections. On the other hand, a few of the issues are discussed in more than one contribution of the book. Some of the contributors have dealt with policy and implementation, while some others have discussed the policy statements on certain issues without going into the aspect of implementation. Still others have just pointed out the various dimensions of the issues in education without really relating them to the policy statements or their implementation. Some contributions contain empirical data purportedly on

implementation but not always related to policy. A few of the contributions are too sketchy or tangential to make a significant contribution to a book on educational policy; they are just notes that provide neither discussion on an issue of education nor analysis of any policy and implementation. Some of the important issues in education, that have not been included or given adequate attention in the book, are privatisation of education, financing of education, non-formal education and adult education.

With regard to the methodology, the authors have not followed any uniform scheme in writing their contributions. Individual authors seem to have been given the freedom to write on any issue of their choice in the manner they wished. Conventionally, an edited volume has an introductory chapter presenting the common thrust that binds the different contributions together. In the absence of a typical "introduction", the first section/chapter of the book could be expected to give a common theme or scheme to be followed in the remaining contributions. If one assumes that the tabular presentation of the policy statements in the first chapter was to provide the thrust for the rest of the volume, it has not happened. The different chapters are not consistent in making comparisons between the 1968 and 1986 policies and relating them to implementation. There is no common scheme or structure that has been followed by the different contributors in order to hold their contributions together in the volume. What is common to the contributions, to be included in the volume, is that all of them deal with some educational issue that is related at least indirectly to policy. As a result, the book may be treated more as a collection of articles in education in India rather than an edited volume of contributions on educational policy in India.

The book has had the objective of presenting an "analysis and review of the promise and performance" of educational policies in India. However, there is very little analysis or review, in the real sense of educational policies. Most of the contributions selectively reproduce the relevant policy statements in the form of descriptive presentation. Beyond the tabular presentation, the first chapter has hardly any discussion on the various issues of educational policy. If we exclude the first chapter, it is more appropriate to treat this book as a volume on issues in education than on educational policies, because most of the contributions in the second and third sections are written from the perspective of discussing issues in education. From that point of view, the book has a number of articles that deal with some of the important issues in education in India with empirical data. There are not many books that really analyse and review comprehensively educational policies in India with reference to their implementation, probably because the task involved is really difficult. The present volume, despite the limitations, deserves appreciation for making an attempt at the analysis and review of educational policies in the context of their implementation over the years.

**Tata Institute of Social Sciences**
**Deonar, Mumbai - 400 088**

**Jacob Aikara**
**Email: jaikara@tiss.edu**

**SURESH GARG and SANTOSH PANDA (ed.):** *Education for Knowledge Era: Open and Flexible Learning by V.C. Kulandai Swamy,* Kogan Page, India, New Delhi, Price: Rs. 450.

The book sets in modest tone in the beginning by saying, "this book is not based on scholarship, but it is written on organized training under any apprenticeship" (p.l). The original author is a teacher, an educational administrator and an advisor to face-to-face open and virtual education in India. As a professional engineer, his experiences in higher education, his virtues and his skills to handle duty with commitment enabled him to form various indigenous ideas on education, in general, and open education, in particular. The writer of this book is often called 'Sankaracharya of the south', but after going through the work, he can well be called the Indian Peter F. Drucker, who can authoritatively explain theory and practices of Higher, Open and Distance Education and its administration.

The editors, Prof Suresh Garg and Santosh Panda deserve complements to bring out book, where Kulandai Swamy's ideas are retained in letter and spirit. It is an adventure because it is difficult to bring coherence and a concept from various lectures and presentation. The book, in its true sense, is a by-product of distance mode, as the editors placed at New Delhi and the writer at Channai seem to have successfully utilized all the communications to bring out the book. The book gets importance because there are very few models and ideas available on Indian experience in open and distance education and because the book is totally Indian and written by Indians.

It consists of eight chapters, good references, a sound logic and polemics on various issues related to education in general, and open and distance education, in particular. It is said that the Indians do not write but when they are in need, they only quote Europeans and westerners, but this book is a total departure from such practices.

In the first Chapter titled, "Evolution of Open Learning" the author says, that in the 20* century, "The most remarkable development of this century is the emergence of knowledge as a resource". His argument is relevant; he shows in terms of development of Science and Technology that has paved the way to development of universities around Europe and Asia and growth of GNP. He talks about education as dynamic entity. "It changes, evolves and grows: it responds to the needs and demands of the economy" (p.l), the new economy to arouse new challenges such as universalisation of education, continuing and life-long education and issues of access and equity in educational opportunities. While studying these areas, the cultural context of a country must be taken. He also talks about the global concerns and their agencies' concern for education with special reference to India. The various sectors of education were given the focus of attention with special reference to boys, girls and socially, educationally

and geographically disadvantaged groups of the society. In this context, that distance education is neither a supplement nor a complement to the conventional system, he assertively says, it is not even an alternative; it is a new mode in its own right to meet the demands and cater to new target groups. Further, he says, "in the 19th century, the knowledge product was being transported but in the 20th century, it was marketed by communication revolution". Role of telecommunications, internet and its access in the Indian context are thoroughly discussed. The structure of Open learning systems in the global level, its institutions, and number of courses, are also thoroughly discussed. Moreover, single, dual and consortium in open and distance education too are also discussed. He also talks about the multinational universities in imparting education in borderless context. He says education is a marketable commodity, and equitable with industry and the characteristics of industry are quality, customer satisfaction, quick response to the changing needs and, in short, competitiveness. Finally, he refers, in the end of this chapter, towards a major revolution, and cautions the academia to be prepared to accept the new revolution in the areas of education, especially distance education as a new modern tool. The power of a tool is not in the tool only. It is in the hand of the user as he uses. He further says the educationalist must do today's job with today's tool: if we do today's job with yesterday's tool, tomorrow we will be out of business. Thus ends the first chapter.

In the second Chapter titled, "Prosperity through Pooling Knowledge Resources", by using UNESCO and the education commission report 1986 as a base. He says, "Any society, one person designs, but many build to translate the design"(p. 14). Design is different but is difficult to correspond a shift to open and flexible and life-long learning, there is always growing shift towards more flexible mind-set-up to learning to unlearn, further, he questions by asking what could be holistic vision for university education today, and quotes Otto Peters (2000): "All universities need to be open universities and practice life-long learning". This chapter is devoted to the issue of 21st century in qualities in the areas of education according to UNDP 1999 at global level adequately focused.

In the Indian scene, "essentially with emphasis on skill, what has gained in importance and recognition for both hand workers and knowledge workers? Is this tradition, the open and distance education learning system? Where emphasis is more on learning, the teacher is a facilitator. He further says, "growing realization of the immense potential of non-formal and ODL system to cater to the needs of the people" (p. 16.) He says, parliament and state assemblies have no brief knowledge resource in the country, further, he discusses the issues of formal system in primary, upper primary, secondary and senior secondary educational levels. On origins of open and distance education, he goes back to Kothari Commission 1966, Delhi University 1962 and UGC 1990. In this chapter, the issues like four generations propounded by Taylor and the present status,

planning preferences, their strength with data with the help of U G C, I C T, M H R D, G O I, I G N O U documents are extensively quoted. He suggests that multimedia component such as audio-video should be used extensively and made necessary component of the curriculum and syllabi. The open school or Open University is capable of contribution in improving the skills of the lab. He says, "This will provide opportunity for creative minds to grow".

The potentials of "Open distance learning promote equality by taking knowledge to the learner instead of insisting on the learner to come to the place of knowledge" (p. 2), thus, creating equality and social justice in education.

While talking about collaboration and partnership in delivery of education, he strongly believes in multi-media approach, where internet and e-learning plays a pivotal role. The future, he hopes, has a paradigm shift towards more responsive learner-friendly systems. This would facilitate globalisation of education, intra-university linkages, and the future FM stations, TV channels, KU Band Technologies, an increasing effective teaching days. Lastly, he says, "Pool of knowledge resources is for useful social interventions, development and prosperity".

The third Chapter titled, "Development of Open and Distance Education" discusses planning preferences, C A B E report, other issues like policies, practices, experiences and reflections on open and distance education which are adequately covered. Lot of data on the enrolment of students in formal, open and distance education Universities, particularly disadvantaged sections like S C / S T and BC data is missing in this chapter, besides the other issues such as age-group, learners without formal qualifications, instructional system, print and face to face counseling considered as dominant in I G N O U. Review of enrolment, organization of university, its growth and development of both face to face and distance education has been focused very well; further, issues like collaboration and co-operation in the higher education also are thoroughly discussed. The inter-open University linkages that have allowed the state open universities to share the I G N O U course material are very well dealt.

In the fourth Chapter titled, "Structure and Management", he says, 'The O D L system, in general, and the Open University, in particular, is not an invention in the pursuit of knowledge for its own sake. It is the reaction of the education system to a new challenge and response to a new demand. He has also considered distance education as a silent revolution in education and like Prof .G. Ram Reddy, he raised the issues for 21st century which are: the emergence of knowledge as a resource and the status and role of Science and Technology as a major force in the social, cultural and economic life of the people. He compared that agricultural economy depended on muscle power and in the knowledge society it is the skill obtained through literacy, which is like an ornament (for the elite). Consequently, education became an economic necessity and tool for development and knowledge today is a resource. This has created greater

awareness among the masses to get educated. Finally, resulted an agenda "Education for All". In the past, it was the religion before people; now it is Science and Technology. The need for education for all can be partly fulfilled by Open and Distance education through its continuing education concern.

The entire objective of non-formal education is preservation of knowledge, creation of knowledge, and communication of knowledge. This need created 64 correspondence course institutions, a slow transformation of every university into a dual-mode university; and 9 State Open Universities and One National apex Institution. These universities has inbuilt capacity to use technology for education with its flexible nature to yield high productivity.

In the area of structure and management, we have a single-mode, a dual-mode universities and a consortium of institutions. He emphasizes that these institutions are increasing because of the need of the present time, but quality and relevance are two important characteristics. In the areas of quality management and assurance, he has focused the institutional attention on National Assessment and Accreditation Council (NAAC), National Board of Accreditation (NBA) and Distance Education Council (DEC). He finally says, "Governments, especially in developing countries, should have a philosophy and principle of funding open universities and a device for monitoring quality to ensure that commercial considerations do not take the form of inferior service and exploitation"(p 59).

In the fifth Chapter titled, "Funding Open Universities", he says, "It is an important area in higher education in view of emerging self-funding, self-supporting agenda and policy of higher education, that different funding patterns existing in the higher education, i.e. state, central, deemed, Open and Distance Educational Institutions". He also says, "there may be attempts to commercialise education"(p. 63). A special emphasis was given to the areas of Open and Distance Education. The ODL system is self-supporting, it has great impact on higher education system, and since the distance education institutions are highly income generating agencies for the face-to-face institutions, distance education is cost-effective without compromising the quality. In the ODL system, the major cost is initial capital, which can be witnessed by producing the quality material and choice of communication and information technologies. He also says that IGNOU plays an important role of funding, monitoring and maintaining the standards in the ODL institutions. The commitment to all the educational institutions is that "Education at all the levels has been treated as a part of social service."(p. 64). And it can fulfil the large member of aspirants' educational needs. A special sub-section has also been discussed on the IGNOU's costing. The areas on costing in IGNOU have been divided into three, *capital, operating* and *salaries* to teaching and non-teaching staff. Adequate data have been provided in the book; otherwise, it is difficult to get such data for an ordinary researcher. The university has conferred a special distinction to YCMOU because of the attainment self-sufficiency.

The contribution of 1986 educational policy in India regarded **IGNOU** with innovative nature, its mandate and extensive operations, access to remote and backward areas longing for quality, reach out to the disadvantaged, maintenance of standards, which focus in the capital. The chapter ends with issues involved in operating costs, production costs and the gestation period. Lastly, he advocates an aggressive marketing campaign of its production and delivery process and policies; the area of training also focused in terms of costs.

In the sixth Chapter titled, "Cost Effectiveness of Distance Education", he talks about the need for the flexible and greater productivity in higher education. Distance Open Education is one of the most important institutional strategies but the dual-mode institutes could not enjoy academic credibility or any kind of autonomy. **IGNOU**, through its **DEC**, is a co-coordinating, monitoring and maintenance agency for the **ODL** systems. He poses the question, "Why educationists now think of convergence of the two and emergence of a seamless and borderless education" (p. 146). The discussion has also identified 17 issues, as objectives for co-coordinating, which are relevant for formation of a vision and mission of the Open and Distance system. The book discusses about jurisdiction of Distance Education at State, National Directorate and non-governmental, profit-making agencies. It also focuses on the role of state council for higher education in each state. It optimistically suggests the areas of course development for both conventional and non-conventional programmes, audio, video electronic media usage, transfer of credits and enabling learner's mobility and introduction of modular system in higher education. It further says, "**IGNOU** with its national resource expertise offers guidance to other distance institutes to come up to the agreeable benchmark of standards on all the functional area of operation" (p. 150). In the areas of quality assurance and maintenance and role of **DEC, NAAC, MHRD**, role is adequately focused.

In the eighth Chapter titled "Epilogue" the author talks about equity and disparities in education as also UNDP, World Bank, **UNESCO**'s role and strategy to educate the people. Finally, his emphasis is on in his own words, "When technology was applied to education, distance education (1992)", this transformation marked inauguration of a '**NEW ERA** in education in the history of classroom instruction". Distance Education constitutes the third stage of development in education. The first being Guru Kula system, the second, being classroom system, and the third, is distance education which allows accessibility to education to employed, handicapped, who cannot reach the places at affordable cost. It further about the Global University Alliance (**GUA**). But the requirement of education in developing countries is different from the advanced countries. Developing countries programme has to be in conformity with the economic and knowledge environment of the target groups. In the areas of research, technology is always accomplished by research. Finally, he quotes that **Tamil Virtual University** is the result of the demands of Tamil people who are

spread over different parts of the globe. The book is appreciated because of the inner strength, spirit, conviction, concern, competencies and confidence to explain higher education in the context of the changing scenario. This book is more about Indian Open and Distance Education in its letter and spirit and not at all European or Western in its contents. This book is indeed an added feather to Open and Distance system, theory and practice.

STRIDE, IGNOU                                              Rampelli    Satyanarayana
New Delhi - 110068                          E-mail: jyothirampelli@hotmail.com


**B R A Y , M A R K and L E E , W.O. (ed.) (2001, 2ᵈ edition):** *Education and Political Transition: Themes and Experiences in East Asia,* CERC Studies in Comparative Education, Hong Kong: Comparative Education Research Centre, The University of Hong Kong, ISBN 962 8093 84 3, Pages: 228, Price: HK$ 200 or US$ 32 (Paperback).

This book looks at the interplay between education (particularly higher education) and political transition in various countries in East Asia. Each chapter is preceded by a useful abstract and ends with a clear conclusion. The opening essay by the editors offers a snapshot view of the chapters that follow, and weaves the thematic strands of these chapters into a cogent whole. The different historical experiences of political transition and their interplay with education are dealt with. The editors hold that the existence of commonalities, despite wide variations in levels of education, population, political systems, religion, geography and colonial history, is significant. The diversities imply that the East Asia is a region which lends itself to profitable comparative studies. The editors do a commendable job of summarizing the findings of the various authors, a fact that comes in handy as a substantive excuse for this reviewer to confine to some select chapters, in addition to the more mundane one of space limitations. The ways the sovereignty of the counties of East Asia were affected due to colonial transition and what it meant for education in these countries is the first theme covered under the commonalities. The relationship between educational changes and economic transition is the second major theme. Finally, how the international forces impact on education and the role of the state are delved into.

Saravanan Gopinathan raises the issue of globalisation and whether it affects the educational policies of the individual states. Globalisation can be seen as a process of economic integration on a global scale transcending the nation state boundaries. There has been an apprehension that these processes of globalisation have a tendency to reduce the power and authority of the independent state through the erosion of regulatory powers of national governments. How does such globalisation impact on education? The author studies the recent experience

of Singapore in coping with these forces of globalisation. Singapore has historically kept itself open to external influences in its efforts to develop, though, at the same time, keeping its independence intact.

Even in the 1970s, the period when Singapore was importing lots of ideas in areas including education, it maintained its national identity without being swamped by external ideas. While shaping for the national identity, ethnic diversity was managed through the system of education. Singapore identified education as investment for scarce human resources and not as consumption. This fundamental clarity coupled with a determined push given to the educational front under a multi-ethnic milieu sets Singapore apart from other developing countries' experience of the 1970s and 1980s. The fact that Singapore was a strong state and the availability of adequate financial resources helped. What comes through is, that, despite the all-encompassing features of globalization, the independent policies of the nation-state really define the way the state develops the education sector and how it plays a useful role in the economic development of the country.

Law Wing Wah chronicles the ways in which the political transition - as seen in the Taiwanisation, democratization and internationalization of Taiwan - was to impact higher education in Taiwan in the recent past. The changes initiated by the state in the political sphere had a significant impact on higher education. Important non-state actors in the form of university academics and students were also to contribute to the influences that led to the changes in higher education. The expression of dissenting ideas against the state is seen to a much larger degree in Taiwan than in South Korea which suppresses such ideas. The state control over education continues with the controls now employed through economic as compared to the earlier political means. The issue of what kind of political relation is to be maintained with the mainland China has been in the background all through and this issue is to going to have its impact on these actors in the foreseeable future.

W.O. Lee and Anthony Sweeting look at the debates on citizenship education between 1995 and 1997 in Hong Kong. The fact that Hong Kong was to revert to China at this time makes a look at these debates meaningful. After a brief history of citizenship education, it concentrates on the debates before and after the second set of *Guidelines on Civic Education* was issued in 1996. The debates represented a wide spectrum of opinions, with varying interpretation about what the identity of both Honk Kong and its people should be after the unification. The authors value the *Guidelines* not as just a curriculum policy document but also as something that can be used to understand the curriculum policy process. Anti-colonial sentiments were clearly observable among those who tried to promote nationalistic education and patriotic education, ideas that jelled well with concepts of democracy and human rights education. How far the participants of

the debate really understood the concept of civic education is a moot question, as some of them did not even support the involvement of students in the debate.

The chapter by Lee Yonghwan on education and political change in Korea is easily the one that raises a great amount of interest, with the depiction of the Korean model of the role of education in economic development, being held up as a shiny example for the benefit of the developing countries. During the colonial rule between 1910 to 1945, the Japanese had put in place a centralized and authoritarian system of education with the express purpose of colonisation and Japanisation of the Korean society. The education of Koreans was made subservient to the larger goal of keeping them colonized and as lesser mortals compared to the Japanese. After Korea gained independence, the centralized control of education tended to continue with Korea, splitting into North and South. The ensuing tensions were used as a reason by the South Korean authorities to continue to have a strong grip over the curriculum. The chapter focuses on South Korea from this time on, as North Korea had closed itself and information on the educational sector is hard to come by. The 1990s were to witness a series of educational reforms. After liberation, under the control of US authorities, all schools were opened in South Korea and Japanese was replaced with Korean as the medium of instruction.

The preoccupation of the South Korean government with economic growth in the 1960s meant that it accorded high priority to efficiency and practicality. While this was to play an important role in the meritocracy that was sought to be created, what was given up was variety and different shades of opinion and ideas. In the single mode role allocated to education, it was sought to be equated with the deliberate change of human behaviour. Good teaching was identified as the transmission of a fixed set of knowledge to receptive students. Thus, Korean education has continued under the authoritarian control of the government for a fairly long period. Second, it has been open to outside influences, for good or bad. To mention just one of the implications of this study for the developing countries, while clear vision of the state on the role of education in economic development, as seen in the case of Korea, is worthy of emulation, the relegation of education to a mono-mode of utility entails a serious cost to society.

W.O. Lee traces the moral education policy in China since 1978. He analyses government documents relating to moral education to study the changing perception of the role of moral education, the changing emphasis of what moral education should achieve and how these changes are indicative of the shifting social and political situation in China. He finds that moral education could never be delinked from the ideo-political education. The documents, while stating the problem, also suggested solutions, with both set on ideological moorings. Sufficient moderation was exercised so that there was continuity in the policies towards moral education, notwithstanding the changing ideological perceptions. There has been a shift towards the encouragement of independent

thinking and rational teaching with moral education focusing on the well-being of the individual. The high point of a liberalized environment, as far as the operational area for moral education is considered, seems to have been reached.

This book is a useful addition to the existing literature on education in East Asia. It has brought out a wide array of interesting analyses from the education scene in a number of countries that comprise East Asia. To this reviewer, its special value lies in the fact that it handles a number of issues that easily lend to intra- and inter-country comparisons over a historical time span. The basic theme of the interaction of education and political transition both in the colonial and the contemporary time periods, has thrown up so many interesting lines of enquiry that can be profitably employed for other countries.

**Department of East Asian Studies**                                    **G. Balatchandirane**
**University of Delhi, Delhi 110 007**                          **E-mail: bala_du@vsnl.com**

**W A L T E R  W.  M C M A H O N  (1999):** *Education for Development: Measuring the Social Benefits,* **Oxford University Press, Oxford and New York, I S B N  0-19¬ 925072-3, pages: xiv+299. Price: £35.00.**

Walter McMahon, throughout his long professional career, has been a bastion of human capital. By brain and sweat, he has always added a twist and contributed to the empirical literature on the subject. The book under review is the culmination of years of trying to pin down the often elusive benefits of investment in education.

He does this, starting from the latest endogenous growth literature, which he redefines and augments into what he calls "endogenous development". The latter includes not only conventional output (e.g., income or gross domestic product), but a host of other intermediate variables such as population growth, life expectancy, fertility, female labour force participation, human rights, democratization, political stability, rural poverty, infant mortality, forest preservation, air and water pollution, homicide, drug use, urban poverty and income inequality. These variables are not exogenous to the system (or manna from heaven, as the author notes correctly), but they are influenced by education, i.e. they are determined endogenously.

Then, there are not only direct returns to education, as in conventional estimates, but there are indirect effects. There are not only market effects, but non-market effects as well. There are not only monetary, but also non-monetary benefits. In addition, there are distributional effects and externalities, the latter operating at the household and the community level. Needless to say, adding all these previously unmeasured benefits of education can result to a handsome social rate of return.

The data for estimating the endogenous growth model come from pooling annual observations from 78 countries in the period 1965 to 1995. Given the necessary time lags to establish causality of education, simulations are made by making projections to 2035. The latter might be considered a very bold step. The model is estimated separately for different regions of the world.

Evidently, given such wide ranging macro, global and time span approach, it is not easy to summarize the results. But, for example, a 2 percentage points increase in public investment in education in Brazil would lead to a $17,000 per capita income in 2035, relative to a $7,000 per capita income in the base endogenous development scenario (read off the graph in page 188). Or, including the valuation of non-market outcomes, the social rate of return to investment in education in the United Kingdom is estimated at 30% (page 267).

Is this too good to be true? I was familiar with intermediate pieces of McMahon's work reported in this book, always trying to understand them. But the eventual book landed on my desk about the same time as Alison Wolfs *"Does Education Matter? Myths about Education and Economic Growth"* (Penguin Books, 2002) that received wide publicity claiming exactly the opposite to McMahon, i.e. that in the United Kingdom in particular, the social returns to education might be much lower than one thinks. So, whom should one believe? McMahon or Wolf?

For my part, I lean on McMahon's side. This is not in terms of exact numerical results presented in the book, that many readers may find overly ambitious or difficult to decipher. The main value of McMahon's book is in providing the most complete taxonomic catalogue ever of the multiplicity of education benefits. In this sense, I find the book an invaluable lexicon that will guide many others to follow-up and estimate even partial relationships in his model.

Hope, that, in the near future, readers and contributors to this Journal will report findings based on the framework and many insights McMahon has given us.

**Hellenic Parliament**          **George Psacharopoulos**
**Res: 5 Kasou Street, Athens 11364, Greece**      **E-mail: gpsach@erols.com**

**RIVERO, OSWALDO DE (2001):** *The Myth of Development: The Non-Viable Economies of the 21' Century* [Translated by Claudia Encinas and Janet Herrick Encinas], Zed Books, London and New York, pp 212 ISBN: 1-85649¬949-9 (paperback)

The slim paperback published in a new series on Global Issues in a Changing World, an initiative taken by Zed Books in collaboration with a few publishers

and non-governmental organisations, is a refreshingly stimulating reading on changing development paradigms. The six critical essays in the book focus on the six closely inter-related issues in development: the twilight of nation-state in Chapter 1, globalisation in Chapter 2, international Darwinism in Chapter 3, the 'non-viable national economies' in Chapter 4, worldwide depredation in Chapter 5 and 'a pact for survival' in Chapter 6.

The author critically reviews the complex processes of development, raises political, economic and ethical issues at national and international levels and makes quite a few startling propositions on the paradigms of development. His essential thesis is: development is 'one of the most persistent myths' of the second half of the 20$^{th}$ century. Before the appearance of development theories, many of the poor countries were called 'backward' countries; in the 1950s these were termed as 'under developed countries': in the 1960s the name was changed to 'countries undergoing development'; and later they began to be known as 'developing countries', implying that development is an inborn, inevitable, natural process, like Darwin's evolutionary certainty. But the experience of the poor countries in the last fifty years shows that this is not true. Rivero is critical of the whole development ideology as it is burdened with the ideology of happiness based on material progress. Material progress is the crux of both main line economists starting from Adam Smith, who also highlighted moral and ethical issues, and also the critiques of capitalism, particularly Karl Marx. Though Rivero refers to the human development index (pp. 65-67), this was in a different context and it was not referred to as an improvement or contrary to the prevailing development paradigm, which is obsessed with GNP per capita and material progress.

While strong nation-states in Europe evolved over hundreds of years, many countries in the developing world of Latin America, Asia and Africa, suddenly became nation-states, where the political authority, that is to say, the state emerged before the nation, before the national cultural identity and before the development of a true middle class and a unifying national market. As a result, they turned out to be gi/asi-nation states, and with a few exceptions in Europe, many quasi-nation states even turned into 'non-viable' national economies; they are not viable with their own resources. This led to new theories of international relations and the emergence of a new transnational aristocracy. Finally, the myth about closing the gap between the so-called developing countries and the industrial nations as translated into a 'splendid disaster'.

The author provides a powerful critique of the global development policies, including globalisation and other policies of the western countries and organisations like the World Bank and the International Monetary Fund, which emerged as 'the international third estate' and how it is leading to global aristocracy, global economic and financial dictatorship, which is contributing to 'global empowerment and national impoverishment.' He also laments that even

the most powerful developing countries, such as Brazil and India, are unable to influence the rules of the international economic game.  He describes how sadly, the western civilisation - the most technically advanced of them all and the cradle of human rights, democracy and the idea of progress - has practised human depredation, to a degree unequalled by any other civilisation.

The long struggle for world power between capitalism and communism, finally led to the collapse of the later, and it along with increase in violence and terrorism gave birth to 'ungovernable chaotic entities.'  Ungovernable chaotic entity is characterised by a collapse of state control over the territory and its population; it is a violent entity where public order no longer prevails either in the cities or in the rural areas.

The highly thought-provoking book finally concludes by arguing in the concluding chapter that 'the wealth of nations' agenda needs to be replaced by a 'survival of nations' agenda.  However, the pact of survival' outlined seems to be too simple, if not tame, and little new.  The author suggests that many developing countries, should, instead of trying to reproduce the paradigms of prosperity of the West, should stabilise their population, ensure democracy and provide basic needs - water, food, energy and security.

Overall, the book is a delight to read.  In the extremely readable slim book, Oswaldo Rivero, a former Peruvian diplomat, indeed gives a lot to think and to be thanked for.

**NIEPA**  
**New Delhi - 110016**

**Jandhyala B G Tilak**  
**E-mail: jtilak@niepa.org [or] jtilak@vsnl.com**

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**e-mail: kulkarnk@mscd.edu**

**Prof. Bansi Sawhney, Ph.D.**
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**University of Baltimore**
**1420 No. ChSrles Street**
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**e-mail: bsawhney@ubmail.ubalt.edu**

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