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CAN THERE BE ALTERNATIVE INDICATORS OF ENROLMENT: A CRITICAL REVIEW OF FREQUENTLY USED INDICATORS

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Background

Free and compulsory education to 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 year. Keeping in view the educational facilities available in the country at that time, the goal to achieve universal enrolment was ambitious to achieve it in a short span of ten year. Therefore the target date (1986 onwards) was revised a number of times despite the 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 a part of *EFA: The Year 2000 Assessment* (UNESCO, 1999). As a part 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 the availability of the data, a few of the 18 indicators were not

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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 & 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 the present article, first all such indicators are critically analysed and then the discussion is focused on the *Attendance Rate* that is proposed 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 & 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' year). 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 some one or two years back. In case of the 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*³. Entry rate is also known as Admission or Intake

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.

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

By enrolling all children of age-6 do not guarantee itself that the goal of universal enrolment will be achieved at 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, dropout & retention rate, transition from primary to upper primary level and achievements levels should also be analyzed.

The intake rate gives idea about the coverage of child population of entry age-6 in Grade I but it fails to give any idea about children those 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 GER⁴ and NER⁵ 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

⁴ Gross enrolment ratio: Total enrolment at an educational level irrespective of age as a percentage to the corresponding school age population.

⁵ Net enrolment ratio: Total enrolment at an educational level of the official age group as a percentage to the corresponding school age population.

assessing the progress made between the period 1990 & 2000, as a part of the EFA assessment (18-core indicators), GER and NER were computed and analyzed.

The GER is ratio of enrolment (total) at school level 'i' in year 't' by a population in that age group 'a' which officially correspond to that level 'i'. 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, 6-11 (6+ to 10+) years to obtain GER. Similarly, total enrolment in upper primary grades VI-VIII is divided by the corresponding population 11-14 years (11+ to 13+) to obtain GER at the upper primary level. This means that overage and underage children are included in GER, which resulted into GER more than hundred percent 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 overage and underage 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 such indicator is the Net Enrolment Ratio, which is an improved version of the GER.

In NER, overage and underage 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 NER at the primary level. Similarly, NER at the upper primary or the entire elementary level can also be worked out. A NER 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 percent NER does not itself guarantee that the goal of UEE will be achieved at its own. Those who enrolled will have to retain in the system up to the end of an educational level. The NER 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.

NER is considered a better indicator of enrolment than the GER. However, the limitation of the NER is that it excludes overage and underage children from the enrolment though they are very much in the system. The calculation of NER requires age-grade matrix

that in most of the systems is not available. Alternate to GER and NER, *Age-Specific Enrolment Ratio*⁶ 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 are they 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 from the above discussion that 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 as mentioned above 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 the regular basis both at the provincial as well as the country level. Information on the age-grade matrix is being collected in the DPEP districts but the same cannot be used to generate state-specific estimates of overage and underage 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 overage and underage 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 the most states is 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 where as the unrecognized private institutions which are large in number is not included in the annual collection of

⁶ 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.

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 year) from the date of birth many approximations take place; hence the age & 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 it self 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 above 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 it self 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*⁸ at different levels of education, which can be calculated either 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

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.

⁸ 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.

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 to the actual number of days children attended 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 (22×45) , 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 actual number of present days (number of days students actually attended a class) is counted in that month by observing the class register. Let us suppose that it comes out to be 600 student 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 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. These 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 overage and underage children, the rate obtained is called *Gross*

*Attendance Rate*⁹. Otherwise if the overage and underage 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*¹¹ 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 overage and underage) 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 student*' as the same children do not remain absent on all the days and how migratory and nomads children will be treated are another important areas of the concern.

Can reliable attendance rate be generated?

However, obtaining 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

⁹ 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.

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 children to improve both the enrolment and 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, even it is found above 90 and even hundred percent that may be genuine or may also even be 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, advantage of the HH survey is that those children who are enrolled in the 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 attending school regularly. But how 'regular' is defined and interpreted is an important matter. A student attending school for 50 per cent of the working days in a month will be considered regular or a student who attend schools 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 the heads of the households themselves are illiterate or literate without completing any schooling level. The only option therefore left to collect reliable information on attendance is through visiting the schools without the prior notice. Naturally, this can be done on the 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 needs 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 that 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 type of the teaching aids being utilized all that vary from school to school. The leadership provided by the Head Master/Head Teacher also influence 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 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

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

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 dropout, 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 dropout rates. If repetition and dropout rates change, completion rate will also change. However, no consideration is given to the quality of outcomes (completers) that the system is producing.

Because of the above considerations some mechanism would need to evolve to generate the true completion rates. One such alternative is 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 dropout. A few others who leave the system with transfer certificates and if the receiving school sends pupils record, or the parent/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 other for those who take more than five years to complete the primary level. The third alternative may be to consider both 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 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 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 & 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 fully efficient one as only few students are taking five years and others have either dropped out from the system or 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**¹³. Otherwise graduates of a specific age (say age 11), if considered in calculating percentage would term as **Net Completion Ratio**¹⁴. By and large, Gross & Net Completion ratios would also take care of the overage and underage children as well as children those who take more than five years to complete an educational level. In case of the universal primary education, all children of a specific age (say age 11) would need to complete the primary level.

Is it completion or graduation rate that can be an ideal alternative?

No doubt the Completion Rate and Gross & Net Completion Ratios proposed above are the 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 the members of a cohort do not have the 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 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 & Net Completion Ratios would serve only a limited purpose. Therefore, the next indicator that should be considered is the achievement

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.

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 cumulative rate, which gives the number of students who complete schooling. It is calculated as a percent of those who were the members of the initial cohort and could have completed over a five-year period primary schooling. But who is a graduate and how graduation rates are calculated is a pertinent question. Is 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 the school completers to know whether they fulfill requirements of a graduate. Graduation rates should be calculated based on the school outcomes only. If a student is not considered 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

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.

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 fulfill the requirement of graduation in terms of attainment. These students can be treated as *school completers*¹⁶, 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 & graduation rates?

A variety of completion & graduation rates and ratios have been proposed in the present article as an 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 as 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 & distribution of data capture formats, inadequate, under qualified & 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 the affairs right from the national to the grassroots levels. Because of the interventions in India, in an about 192 of the 593 districts, the data tabulation process has improved effectively but the reliability of data still remains a major area of concern. It seems that for

¹⁶ School completers: Students who complete an educational level but do not fulfill graduation requirements (in terms of achievement tests) is termed as school completers.

the time being, it is not possible to get the reliable data from the schools. Therefore, it may not be possible to provide the indicators (mostly based on school registers) proposed in the present article. The only alternative left is to collect the information on the basis of the household surveys, like NSSO & 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, NFHS Survey is to collect demographic information but information on a few educational variables, like attendance rate was also generated through it in 1992 & 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 reasons of never enrolled and dropouts. A large number of districts under SSA have conducted such surveys but the same need further refinements. The methodology & formats used, the unit of consolidation, level of computerization, dissemination and utilization are unless made uniform may not serve the purpose. By and large teachers have conducted these surveys and unless the community is involved (like 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 it is 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 others those who are interested in promoting elementary education (other than teachers) at the grassroots 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 & 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 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.

References

1. Aggarwal, Yash (2002): **‘Regaining Lost Opportunity: The Malaise of School Inefficiency’**, NIEPA, New Delhi.
2. Govinda, R (2002): **‘India Education Report: A Profile of Basic Education’**, NIEPA, UNESCO and Oxford University Press, New Delhi.
3. IIPS (1998): **National Family Health Survey**, Mumbai.
4. International Consultative Forum on Education For All (1998), **‘Education For All: The Year 2000 Assessment (Technical Guidelines)’**, UNESCO, Paris.
5. Mehta, Arun C. (1996): **‘Reliability of Educational Data in the Context of NCERT Survey’**. Journal of Educational Planning and Administration, NIEPA, July 1996, Volume X, No. 1, New Delhi.
6. Mehta, Arun C. (1999): **‘Indicators of Educational Development: Concept and Definitions’**, NIEPA. New Delhi.
7. Mehta, Arun C. (2002): **‘Education For All in India with Focus on Elementary Education: Current Status, Recent Initiatives and Future Prospects’**, NIEPA Occasional Paper Series, No. 30, New Delhi.
8. MHRD (2000): **Sarva Shiksha Abhiyan: A Peoples Movement for Education for All, Draft Guidelines**. New Delhi: Government of India.
9. MHRD (2001): **Selected Educational Statistics: 1999-2000**. New Delhi: Government of India.
10. NCERT (1998): **Sixth All India Educational Survey Statistics on Schooling Facilities**. NCERT, New Delhi.
11. NCERT (1998): **Mid-Term Assessment Survey: An Appraisal of Students’ Achievement** (by Ved Prakash, S. K. S Gautam, I. K. Bansal and M. Bhalla). NCERT, New Delhi.
12. NSSO (1998): **Attending an Educational Institutions in India: Its Level, Nature and Cost, 52nd Round: July 1995 – June 1996**, Department of Statistics, Government of India, New Delhi.
13. Thakur, R. S. and Arun C. Mehta (1999), **Education for All: The Year 2000 Assessment, Core EFA Indicators**, New Delhi.