

The background of the page features a large, light gray watermark of the IGNOU logo. The logo consists of a stylized 'U' shape on the left, containing a circular emblem with a book and a lamp. To the right of the emblem, the word 'ignou' is written in a lowercase, sans-serif font. Below 'ignou', the words 'THE PEOPLE'S' and 'UNIVERSITY' are stacked in a smaller, uppercase, sans-serif font. A thin vertical line separates the logo from the text on the right.

BLOCK 6

EDUCATION SECTOR IN INDIA

BLOCK 6 INTRODUCTION

Block 6 is on Education Sector in India. It has two units (Units 12 and 13).

Unit 12 is on Status of Educational Outcomes. Trends in literacy rate and school participation and dropout are analysed. The issue of ‘school quality and efficiency’ is discussed.

Unit 13 is on Government Policies on Education and Educational Financing in India. It discusses the thrust behind the various national policies on education. This is followed by an explanation of the issues of financing of education like: (i) rationale for public financing, (ii) PPP models of educational financing and (iii) the role of educational grants and loans.



UNIT 12 STATUS OF EDUCATIONAL OUTCOMES

Structure

12.0 Objectives

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12.0 OBJECTIVES

After reading this unit, you will be able to:

- define 'literacy rate' (LR) illustrating its linkage with per capita net national income;
- state the 'types of literacy rates' specifying the ratio for its numerical computation;
- contrast the trends in types of literacy rates between India and other countries of the world;
- discuss the concept of 'school participation' along with its different indicators;
- outline the meaning of the term 'dropout rate' specifying the requirements for its computation;
- explain the different indicators of school quality stating the limitation of each; and
- describe the concept of 'school efficiency' along with its various indicators.

12.1 INTRODUCTION

A country's rate of economic growth is largely driven by its technological progress. For long, technological progress was considered as an unexplained time trend in labour productivity [i.e. exogenous in nature (Solow, 1956)]. However, post-Neoclassical growth theories assigned a considerable role to human capital formation and in particular to publicly financed education. In recent years, this approach has received much attention to explain the long run growth rate endogenously. This assigns an important role to both the private and public sectors in the formation of human capital at both the aggregate and individual levels. Endogenous growth theories emphasises on technological progress (influenced by educational spending and human capital formation) leading to a persistent growth (Romer, 1986; Lucas, 1988; Mankiw, Romer and Weil, 1992). These developments have had significant policy implications for long-run growth and social welfare. In all this, formal schooling is considered to be a significant component of human capital investment. In light of this, the present unit deals with the issues of participation and quality of school level education. In particular, it exposes you to outcome indicators which are helpful in assessing the quality standards of school level education.

12.2 LITERACY RATE

Literacy is defined as one's ability to read and write. People who cannot at least read and write their own language, lack an understanding of socio-economic aspects of life in general and does not have a basic functional numerical ability are considered illiterate. The term 'functional literacy' refers to one's ability to understand spoken words and decode written words. UNESCO (United Nations Educational, Scientific and Cultural Organisation) defines literacy as the 'ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts'. Literacy in this sense involves a continuum of learning in enabling individuals to achieve their goals, developing their knowledge and potential to participate fully in the community and wider society.

Developed countries in general have a high literacy rate as compared to developing countries. For a country with more literate population, it is easier to cope with the fast changing world with ever emerging technology. Countries with high literacy rates spend a significant portion of their GDP on education. Thus, a higher literacy rate is generally associated with a better state of economic development and higher Per Capita Income (PCI). A high literacy rate suggests the existence of an effective primary education system and literacy programmes endowing a large proportion of the population with the essentials of 'functional literacy' as defined above.

Literacy represents a potential for further intellectual growth and contributes to the socio-economic and cultural development of a society. Taking into account the importance of literacy in social development, every year 8th September is celebrated as the International Literacy Day. The Indian experience presented in Table 12.1 below exemplifies the positive correlation between literacy rates and per capita net national income.

Table 12.1: Trend in Per Capita NNI and Literacy Rate in India

Year	Literacy Rate	Per Capita NNI (Rs. '000)
1951	18.3	7.1
1961	28.3	8.9
1971	34.5	10.0
1981	43.6	10.7
1991	52.2	14.3
2001	64.8	20.4
2011	73.0	36.3

Source: Census of India and RBI.

Note: Per capita NNI are at factor cost and in Rs. 2004-05 prices.

Clearly, there has been a more than 4 times increase in India's literacy rate over the last six decade period [having increased from 18 percent to 73 percent in 2011]. India's per capita income has increased more than 5 times during this time period.

12.2.1 Types of Literacy Rate

Population Censuses in India provide a working definition of literacy rate. It defines 'effective literacy rate' as the percentage of population (of a particular area at a given time) aged seven years and above who can read and write with understanding. For instance, defined by age-groups, literacy rate are the 'total number of literate persons (in an age group) expressed as a percentage of the total population in that age group'. Such age group-wise literacy rates are further classified into effective literacy rate, youth literacy rate and adult literacy rate. While the effective literacy rate relates to the population of age group 7 years and above (i.e. it excludes the population below the school going age), youth literacy rate limits it to cover only the population in the age group of 15 to 24 years. Adult literacy rate, on the other hand, takes into account the population of aged 15 years and above. Note that all these literacy rates can be decomposed by gender (male, female), location (rural, urban) and region (states, districts), etc. and such disaggregated values carry important implication for policy planning.

Using the number of illiterates, one can apply the same approach to arrive at the illiteracy rate. Alternatively, 100 percent minus the literacy rate (or illiteracy rate) will provide the respective illiteracy (or literacy) rate. National population censuses and labour force surveys provide data on the required age group population and the number of literates. The formula for computing the literacy rates can be expressed as:

$$LR_a^t = \frac{LP_a^t}{TP_a^t} \times 100 \quad (12.1)$$

where, LR_a^t is the Literacy Rate for the age group 'a' in year t, LP_a^t denotes the literate population and TP_a^t denotes the total population (both for the age group 'a' and to the year t). Thus, when 'a' equals 7 years and above in (12.1) it represents the effective literacy rate, when restricted to the age limit of 15 to 24 it represents the youth literacy rate and when considered for 15 years and above, the ratio represents the adult literacy rate.

12.2.2 Literacy Rates in India and the World

Despite India having made good achievement in school enrolment, the country with a total 287 million illiterate adult population, is still home to 37 percent of the total global illiterate population (UNESCO, 2014). However, there is huge disparity in literacy rates both interstate and intrastate in India. Some of the states have very high literacy rates while some others have low literacy rates. Women literacy rates are significantly low in many of the states. The literacy rates among the socially disadvantaged groups like STs, SCs, Dalits and Muslims are also low in many states of the country. However, in the recent decades, the situation is fast changing for the better in many of the states particularly in those states in which the performance was low in the 1980s (e.g. Bihar, M. P., Rajasthan & U. P.). States like Kerala, Mizoram are maintaining a constantly high literacy rate over the last 70 year period.

Developed nations of the world have high literacy rates as also high per capita income. They spend significant percent of their GDP on their education sector. For instance, as per 2010-11 data, country with highest adult literacy rate is Russia (99.7 percent) with 4.9 percent of its GDP spent on education. More specifically, 53 percent of Russia's population has tertiary level of education (i.e. post secondary level of education). Canada too has very high literacy rate and spends around 6.6 percent of its GDP on education. USA spends 7 percent of its GDP on education. India's expenditure on education has varied from 1.5 percent of its GDP in 1960-61 to 4.1 percent in 2000-01. It has remained constant (at 4.1 percent) over the period 2001-11. The positive correlation between literacy rate and per capita income is established from the country specific figures presented above. Italy (98.8 percent), Brazil (91.7 percent), China (95.1 percent) and Sri Lanka (91.2 percent) are some other countries with high adult literacy rates and with high per capita income. India (69 percent), Pakistan (57 percent) and

Bangladesh (72.8 percent) have relatively low adult literacy rates and low per capita GNI.

12.3 SCHOOL PARTICIPATION AND SCHOOL DROPOUTS

The Annual Status of Education Report (ASER, 2014) shows that after three years of school participation, 60 percent of the pupils cannot read except for their first name and cannot solve basic numerical problems. The provision for mid-day meals is an incentive for higher school participation in the rural areas. But mere school participation and enrolment do not mean quality (or effective) school participation. Effective school participation is defined as a support system which empowers both teachers and students through a democratic process of interaction enabling the students to develop a flair for critical thinking, problem solving, teamwork, co-curricular activities and community involvement. Only such activities can build the attitudes and values in children which enhance the contribution in democratic societies.

12.3.1 Indicators of School Participation

School participation is measured by various kinds of enrolment rates and ratios. However, effective school participation cannot be measured directly by such rates and ratios. Only some structured tests intending to assess the learning quality of the students can provide an idea about the effective school participation of the pupils. Some of the methods of measuring school participation in general are outlined in this section.

Gross Enrolment Ratio (GER): GER measures the general level of educational participation in a given level of education. It thus expresses the capacity of the education system to enrol students of a particular age group. GER is defined as the total enrolment in a specific level of education, regardless of students' age, expressed as a percentage of the eligible official school-age group population corresponding to the same level of education in a given year. GER is therefore the ratio of the number of students enrolled divided by the population of the age group (corresponding to the level of education) multiplied by 100. That is:

$$GER_h^t = \frac{NE_h^t}{TP_{h,a}^t} * 100 \quad (12.2)$$

where, GER_h^t is the Gross Enrolment Ratio at level of education 'h' in school year t, NE_h^t is the number enrolled and $TP_{h,a}^t$ is the total population (both at the level of education 'h' in school year t) in age group 'a'. Enrolment data by levels of education at school level combined with population data by age group are required for computing the GERs. The particular age group 'a', say for primary education, is defined as the entry level age (say 7 years). With a further assumed study duration of 7 years, 'a' is defined as 7-14 years. Such GERs may be disaggregated by gender, location and levels of education. A

high GER indicates a high degree of participation with a GER approaching or exceeding 100 percent indicating the country is, in principle, able to accommodate all its school-age population. GER can exceed 100 percent owing to the inclusion of over-aged and under-aged students because of premature or late entrants and grade repetition.

Net Enrolment Ratio (NER): Unlike GER, Net Enrolment Ratio (NER) takes into account only the enrolment of the official age group population for a given level of education and expresses the same as a percentage of the corresponding total population. NER is computed as:

$$NER_h^t = \frac{NE_{h,a}^t}{TP_{h,a}^t} * 100 \quad (12.3)$$

where, NER_h^t is the Net Enrolment Ratio at level of education 'h' in school year t, $NE_{h,a}^t$ is the enrolment and $TP_{h,a}^t$ the total population (both in age group 'a', level of education 'h' and in school year t). Computation of NER needs the same data sources as in GER. A high NER denotes a high degree of coverage for the official school-age population. A theoretically possible maximum value of NER is 100 percent. An increasing trend of NER is considered an improvement in the coverage of the school going age group population at the specified level of education. NER, as an indicator, is not pertinent to tertiary levels of education because of the difficulties in determining an appropriate age group owing to the wide variations in the duration of programmes. For primary and secondary education levels, a significant portion of the population starts primary school earlier than the prescribed age and consequently also finish earlier. These difficulties complicate the accurate measuring of NER.

Age-Specific Enrolment Ratio (ASER): Age-Specific Enrolment Ratio (ASER) is a more precise and complementary indicator to school participation. It shows the participation in education of the population of each age group. ASER is defined as the enrolment of a specific single age cohort (irrespective of the level of education) and is expressed as a percentage of the population of the same age cohort. It thus measures the extent of the educational participation of a specific age cohort. ASER is calculated as:

$$ASER_a^t = \frac{NE_a^t}{TP_a^t} * 100 \quad (12.4)$$

where, $ASER_a^t$ is the Age-Specific Enrolment Ratio of the population of age 'a' in school year t, NE_a^t is the number enrolled in the population and TP_a^t is the total population (both at age 'a' and in school year t). The method may be used to calculate ASER at disaggregate levels of education and by gender, location, etc. Data sources too are similar to that of GER and NER. A high ASER represents a high degree of educational participation of the population of the particular age. The theoretical maximum value of ASER is 100 percent. An increasing trend indicates a higher rate of school participation of

the particular age. ASER at each level of education should be based on total enrolment in all types of schools and education institutions both public and private. However, it should be kept in mind that ASER is not an indicator of the level of education in which students are enrolled unless it is calculated by individual levels of education.

Percentage of Private Enrolment (PPE): Due to the deteriorating quality of education in the publicly funded schools in India, there is a great demand in private schools. Even the households from the lower strata in semi-urban localities prefer to send their children to the private schools. Hence, enrolment of the students in private schools is important for analysing school participation in India. PPE measures the relative weight of private education in the overall enrolment. It is calculated as:

$$PPE_h^t = \frac{NEp_h^t}{TE_h^t} * 100 \quad (12.5)$$

where, PPE_h^t is the percentage of pupils enrolled in private institutions at level of education 'h' in school year t, NEp_h^t is number of pupils enrolled in private institutions and TE_h^t is total number of pupils enrolled in all types of institutions (both public and private) [both at level of education 'h' and in school year t]. PPE can be disaggregated by gender, location and levels of education. A higher value of PPE can be interpreted as a stronger involvement of the non-governmental sector in the educational sector. The word 'private' refers to all educational institutions not operated by a public authority regardless of whether they receive financial support from such authorities or not. A realistic assessment of the share of enrolment in private education is important for an overall assessment of the state of school participation and the actual role played by the private sector in this regard.

12.3.2 Indicator of School Dropouts

Despite the progress made in improving the school participation rates in India, school dropout is a major problem in the Indian education system. The reasons behind this wastage are poverty and social backwardness, child marriage, migration of families, lack of adequate school infrastructure, etc. Socio-religious background of the families and gender issues are also significant contributor to school dropout.

Dropout is defined as a situation where a child who enrolls in school fails to complete the relevant level of the educational cycle. For instance, dropout at the primary level means that a child failed to reach the final grade (i.e. Class V or VI). On the other hand, a repeater is a child who has to repeat the same grade/class. Dropout represents a permanent loss to the society. Incidence of dropout is more crucial at the primary level although it is a loss to the society at all levels of education. Higher dropout at primary education level increases the incidence of child labour particularly from poverty-stricken families. Parents, schools and the society need to be supportive in making the

education system more inclusive in nature in order to tackle the problem of dropout.

From the measurement point of view, dropout by grade refers to the proportion of pupils from a particular cohort enrolled in a given grade at a given school year and who fail to qualify and proceed to the next year of school. It measures the phenomenon of pupils leaving school without completion of an education cycle. This is one of the key indicators for analysing (and projecting) pupils flow from grade to grade within the educational cycle. Dropout rate by grade is calculated by subtracting the 'sum of promotion rate and repetition rate' from 100 in the given school year. The cumulative dropout rate, say for primary education, is then calculated by subtracting the survival rate from 100. Thus:

$$DR_i^t = 100 - (PR_i^t + RR_i^t) \quad (12.6)$$

where, DR_i^t is the Dropout Rate at grade 'i' in school year t, PR_i^t is the promotion rate and RR_i^t the repetition rate (both at grade 'i' in school year t). Dropout Rate can be disaggregated by grade, gender, location and type of educational institution (public and private). From an ideal societal point of view, dropout rate should approach to '0' percent. High dropout rates indicate deficiencies in the internal efficiency of the educational system.

Check Your Progress 1 [answer within the space given in about 50-100 words]

- 1) Distinguish between effective literacy rate, youth literacy rate and adult literacy rate.

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- 2) Mention two significant aspects of literacy rate in India.

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- 3) In which respect India's literacy levels differ most when compared to that in developed countries?

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- 4) How is GER a useful indicator of school participation? Can its value be more than 100?

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- 5) How is dropout defined? In what way it is useful?

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12.4 SCHOOL QUALITY AND EFFICIENCY

The learning environments in the school comprise of physical, psychosocial and service delivery components. Physical learning environments consist of well-equipped buildings, furniture, teaching aids, laboratories, libraries, wash rooms and clean water supply. Psychosocial learning environments comprise of the competency and attitude of the teachers and administration, a welcoming and non-discriminatory school ambiance, progressive outlook, etc. Direct teaching hours, personal interaction, co-curricular development, healthcare centres, facilities for extra curricular activities are the important elements of school service delivery which have direct consequences on quality of education. According to UNICEF (2000), a school is considered to be a quality school if it provides:

- **Environment** that is healthy, safe, protective and gender-sensitive with adequate resources and facilities;
- **Content** that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life and health awareness;
- **Processes** through which trained teachers use child-centred teaching approaches in well-managed classrooms and skilful assessment practices to facilitate learning and reduce disparities;
- **Outcomes** that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in the society.

12.4.1 Indicators of School Quality

School quality depends on the local and national values. Thus, value education should be an integral part of national educational curricula. Further, teachers' working conditions affect their ability to provide quality education to a great extent. However, many of the school quality aspects are subjective in nature and not directly measurable. Based on considerations of empirical feasibility for measurement of school quality, the following measures of school quality are generally used in practice.

Pupil-Teacher Ratio (PTR): Pupil-Teacher Ratio is defined as the average number of pupils (students) per teacher at a specific level of education in a given school year. It measures the level of human resource input (in terms of the number of teachers) in relation to the size of the pupil population. Each country has its own established national norms on the number of pupils per teacher for each level or type of education. PTR is calculated as:

$$PTR_h^t = \frac{NE_h^t}{TT_h^t} \quad (12.7)$$

where, PTR_h^t is the Pupil-Teacher Ratio at level of education 'h' in school year t, NE_h^t is number of enrolment (students) and TT_h^t is total number of teachers (at level of education 'h' in school year t). It may be disaggregated by level of education, type of institutions (private, public) and location (region, urban, rural). A high teacher pupil-ratio suggests that each teacher has to be responsible for a large number of pupils. So, a low PTR is good in the sense that it allows teachers to pay individual attention to students and there is scope for better school performance. However, PTR does not take into account the factors which could affect the quality of teaching and learning.

Percentage of Trained Teachers (PTT): PTT represents the country's commitment to invest in the development of its human capital involved in teaching activities. PTT is calculated as:

$$PTT_{h,p}^t = \frac{T_{h,p}^t}{T_h^t} * 100 \quad (12.8)$$

where, $PTT_{h,p}^t$ is percentage of teachers of level of education 'h' having the required teacher training of years t, $T_{h,p}^t$ is total number of teachers (with the required training 't' at the level of education h) and T_h^t is total number of teachers (including both trained and untrained) at the level of education 'h'. A high percentage of trained teachers with necessary pedagogical skills to teach and use the available instructional materials in an effective way imply a better school quality. However, this indicator also does not take into account the differences in teachers' experiences and status, teaching methods, teaching materials and variations in classroom conditions.

Gender Parity Index (GPI): GPI is a gender sensitivity indicator which measures the progress towards gender parity in educational participation and

learning opportunities available to women in relation to those available to men. GPI is calculated by dividing the female value of a given indicator (e.g. dropout rate by grade) by that of the value for males. Thus:

$$GPI_i^t = \frac{F_i^t}{M_i^t} \quad (12.9)$$

where, GPI_i^t is Gender Parity Index of a given indicator i in year t , F_i^t is its corresponding female value and M_i^t its male value. GPI may be disaggregated by level of education, type of institution and geographical location. A GPI value equal to 1 indicates absolute parity between females and males for that aspect. A value less than 1 indicates disparity in favour of men and greater than 1 indicates disparity in favour of women.

12.4.2 Indicators of School Efficiency

The environment, content and processes that learners encounter in school lead to diverse results. School efficiency largely revolves around the quality of production and productive capacity of a school in terms of the ultimate production of human resources employable and useful to nation building. Like school quality, many of the qualitative aspects of school efficiency (such as school administration and their functional management) are not directly measurable. Following are some of the indicators of school efficiency.

Transition Rate (TR): TR refers to proportion of students who get promoted to a higher level of education from a lower level in a particular year. TR is thus an indicator of performance for the academic institutions. It is defined as the percentage of pupils admitted to the first grade/year of a higher level of education in a given year to the total number of pupils in the final year of the immediate lower level of education in the previous year. Transition Rate conveys the information on the degree of access (or transition) from one cycle or level of education to a higher one. Thus, Transition Rate is calculated as:

$$TR_{h+1,h}^{t+1} = \frac{E_{h+1,1}^{t+1} - R_{h+1,1}^{t+1}}{E_{h,n}^t} * 100 \quad (12.10)$$

where, $TR_{h+1,h}^{t+1}$ is transition rate from a level of education h to $h+1$ in school year t , $E_{h+1,1}^{t+1}$ is number of pupils enrolled in the first grade at level of education $h+1$ in school year $t+1$ and $R_{h+1,1}^{t+1}$ is number of pupils repeating the first grade at level of education $h+1$ in school year $t+1$ and $E_{h,n}^t$ is number of pupils enrolled in final grade n at level of education h in school year t . The number of new entrants is thus obtained from fresh enrolment minus repeaters. Transition rate may also be disaggregated by gender, location and by level of education. A higher TR indicates a high level of access or transition from one level of education to the next and higher intake capacity of the particular institution. On the other hand, a lower TR implies lower performance of the academic institution. However, incorrect separation

between new entrants and repeaters, repeaters from more than one year, migrant students, etc. would affect the quality of this indicator.

Repetition Rate by Grade (RR): RR by grade is defined as the proportion of pupils from a cohort who enrolled in a given grade at a given school year and study in the same grade in the following school year. It thus measures the rate at which pupils from a cohort repeat a grade and by projecting the pupil flows from one grade to the next within the educational cycle. The calculation of RR requires the division of the number of repeaters in a given grade in school year $t+1$ by the number of pupils from the same cohort enrolled in the same grade in the previous school year t . Thus:

$$RR_i^t = \frac{NR_i^{t+1}}{NE_i^t} \quad (12.11)$$

where, RR_i^t Repetition Rate at grade i in school year t , NR_i^{t+1} is the number of pupils repeating grade i in school year $t+1$ and NE_i^t is the number of pupils enrolled in grade i in school year t . The repetition Rate should ideally approach zero percent. A positive and higher repetition rate is an indicator of internal inefficiency of the educational system with possibly a poor level of instruction.

Survival Rate by Grade (SR): SR is the percentage of a cohort of students enrolled in the first grade of a given level or cycle of education in a given school year who are expected to reach the successive grades. This is thus a measure of the retention capacity and internal efficiency of an education system or school. It illustrates the magnitude of dropout by grade. To calculate the Survival Rate we divide the total number of students belonging to a school-cohort who reached each successive grade (of the specified level of education) by the number of pupils originally enrolled in the first grade and multiply the value by 100. The survival rate is calculated using the data on enrolment and repeaters for two consecutive years. Thus:

$$SR_{g,i}^k = \frac{\sum_{t=1}^m P_{g,i}^t}{E_g^k} \times 100 \quad (12.12)$$

where, $SR_{g,i}^k$ is the Survival Rate of pupil-cohort 'g' at grade 'i' for a reference year k , $P_{g,i}^t = [E_{g,i+1}^{t+1} - R_{g,i+1}^{t+1}]$ is the aggregate of students enrolled for grade 'i' (1, 2, 3,...,n) in the year 't' (1, 2, 3, ...,m) for the pupil-cohort 'g', E_g^k is the total number of pupils belonging to a cohort 'g' at a reference year k . $P_{g,i}^t$ are thus the promotees from E_g^k who would join successive grade 'i' in the successive years t and R_i^t is the number of pupils repeating grade 'i' in school year t .

For the calculation of SR, one needs to have data on enrolment by grade for two consecutive years (t and $t+1$) and number of repeaters by grade for year $t+1$. The result may be disaggregated by gender, geographical location and type of institution. Survival Rates approaching 100 percent indicate a high level of retention and low incidence of dropout. The distinction between survival rate, with and without repetition is necessary to compare the extent

of wastage due to dropout and repetition. The survival rate to the last grade of primary education is of particular interest for monitoring universal primary education – a central objective for Education for All under the Millennium Development Goals.

Coefficient of Efficiency (CoE): CoE is a summary measure of the consequences of repetition and dropout on the efficiency of the educational process. CoE is defined as the optimal number of pupil-years required (in the absence of repetition and dropout) to produce a number of graduates from a given school-cohort (for a cycle or level of education). It is expressed as a percentage of ‘optimal number of pupil-years required’ to the ‘actual number of pupil-years spent’ to produce the same. It is thus the reciprocal of the Input-Output ratio of a production unit. Thus:

$$CoE = \frac{\text{Ideal Number of Pupil-years required}}{\text{Actual Number of Pupil-years spent}} \times 100$$

$$\text{Or, } CoE_g = \frac{\sum_{j=n}^{n+k} G_{g,j} * n}{(\sum_{j=n}^{n+k} G_{g,j} * j) + (\sum_{j=1}^{n+k} D_{g,j} * j)} \times 100 \quad (12.13)$$

where, CoE_g is the Coefficient of Efficiency for a pupil-cohort ‘g’, $G_{g,n}$ is the number of pupils graduating from cohort ‘g’ in final grade ‘n’ after ‘n’ years of study without repetition, $G_{g,j}$ is the number of pupils graduating from cohort ‘g’ in final grade ‘n’ after ‘j’ years of study, $D_{g,j}$ is the number of pupils of the cohort ‘g’ dropping out after ‘j’ years of study, k is the number of repetitions allowed, n is the normal duration of study for a cycle or level of education, g is the pupil-cohort, and j is the number of years of study.

The data requirements for calculating CoE are the number of graduates and dropouts by length of study. One can have disaggregated CoE by gender, location and school type. A CoE value approaching 100 percent indicates a high overall level of internal efficiency with no wastage due to repetition and dropout. Coefficient values below 100 percent represent inefficiency due to adverse impact of repetition and dropout.

School Life Expectancy (SLE): SLE is an aggregate measure of school efficiency. It shows the overall development of the system in terms of the average number of years of schooling that it offers to the eligible population. SLE is thus defined as the total number of years of schooling which a child of a certain age can expect to receive in the future, assuming that the probability of his/her being enrolled in school at any particular age is equal to the current enrolment ratio for that age.

For a child of age ‘a’, SLE is calculated as the sum of the age-specific enrolment rate for the particular level of education. The part of the enrolment not distributed by age is divided by the school-age population for the level of education they are enrolled in and multiplied by the duration of that level of education. The results are then added to arrive at the sum of the age-specific enrolment rates. Thus:

$$SLE_a^t = \sum_{i=a}^n \frac{E_i^t}{P_i^t} + \sum_{l=level_education} \frac{E_{unknown}^t}{P_{age_of_level_l}^t / D_l} \quad (12.14)$$

where, SLE_a^t is the School Life Expectancy at age 'a' in year t, E_i^t is the enrolment of the population of age i ($i = a, a+1, \dots, n$) in school year t (where n denotes the theoretical upper age-limit of schooling), P_i^t is the population of age i corresponding to school year t (with level l denoting the total school age population of that level) and D_l is the total duration of level 'l'. A higher SLE indicates greater probability for children to spend more years in education and higher overall retention within the education system. Since SLE is an average based on participation in different levels of education, children who are in school may have the benefit of some more years of education than the average due to the children who never go to school. Cross-country comparisons of educational efficiency by SLE is difficult as neither the length of the school year nor the quality of education is the same across countries.

Check Your Progress 2 [answer within the space given in about 50-100 words]

- 1) How is PTR a useful measure of quality at school level? What is its limitation?

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- 2) Which one is a gender sensitive index used in measuring the quality of schools? How?

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- 3) What does Survival Rate approaching 100 percent indicate?

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12.5 LET US SUM UP

The unit introduces several empirical indicators helpful in analysing the quality of educational outcomes. The outcomes considered are literacy rate, school participation, dropout, school quality and efficiency. Used for policy planning the indicators covered in the unit are expected to serve as instruments for making required corrections to minimise distortions and enhance quality of teaching and learning in the education sector of an economy.

12.6 KEY WORDS

- Literacy** : The ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts.
- Human Resources** : The educated and skilled personnel employable in the job markets and essential for the progress of the economy.
- School Quality** : An educational environment that is healthy, safe, protective and gender-sensitive with adequate resources and facilities.

12.7 SOME USEFUL BOOKS AND REFERENCES

- 1) Blaug M (1972). *An Introduction to the Economics of Education*, London: Penguin.
- 2) Hanushek, E. et.al (2006-2011). *Handbook of the Economics of Education*, Elsevier (Different Volumes).
- 3) Majumdar, T. (1983). *Investment in Education and Social Choice*, Cambridge: Cambridge University Press.
- 4) Psacharopoulos, G. & Woodhall (1986). *Education of Development*, Washington DC: The World Bank.
- 5) Romer, Paul M. (1990). *Human Capital and Growth: Theory and Evidence*, Carneige- Rochester Series on Public Policy 32: 251-86.
- 6) UNESCO Institute for Statistics (November, 2009). *Education Indicators: Technical Guidelines*.

12.8 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) Considered age-group wise, the three respectively refer to the percentage of literates in the three age groups of 7 years and above, 15-24 years and

15 years and above where the denominator is the respective total population in that particular age group.

- 2) One, India is home to nearly 37 percent of global illiterates. But the inter-state disparity is so huge that some of the advanced states are comparable to developed countries of the world.
- 3) Besides far higher functional literacy crossing 90 percent levels, the proportion of population with tertiary level of education is very high in developed countries. On educational spending, while India's spend has increased over the decades touching 4.1 percent around the year 2000, it has stagnated at that level in the recent years.
- 4) GER is useful to assess whether the country has in principle reached a level enough to accommodate to all children of school going age group. Its value can increased the 100 percent mark due to factors like inclusion of over-aged and under-aged students due to factors like late entrance and repetitions.
- 5) Defined by levels of education, at the school level, dropout refers to a child enrolled into class I but who did not complete the expected years of school level education. It is useful as a key indicator for analysing pupils flow from one grade to the next.

Check Your Progress 2

- 1) By measuring the level of human resource input in teachers to an ideal number of students, it provides input for planning of teacher requirement. A higher PTR points out to the limitation of teacher to attend to students optimally. PTR does not take into account factors affecting quality of teaching.
- 2) GPI. By revealing the disparity against female children, it provides an indication of need for correction to be effected into the system.
- 3) High level of retention and low level of dropout.

UNIT 13 GOVERNMENT POLICY AND FINANCING OF EDUCATION IN INDIA

Structure

13.0 Objectives

13.1 Introduction

13.2 National Education Policy (NEP)

13.2.1 NEP, 1968

13.2.2 NEP, 1986

13.2.3 NEP, 2020

13.3 Financing of Education

13.3.1 Rationale for Public Financing of Education

13.3.2 Public Financing of Education in India

13.3.3 International Perspective on Public Financing of Education

13.4 Public Private Partnership (PPP) Models in Educational Financing

13.4.1 PPP in School Education

13.4.2 PPP in Higher Education

13.5 Compensation and Recovery of Funds

13.5.1 Educational Grants and Loans

13.6 Let Us Sum Up

13.7 Key Words

13.8 Some Useful Books and References

13.9 Answers/Hints to Check Your Progress Exercises

13.0 OBJECTIVES

After reading this unit, you will be able to:

- outline the structure of Indian educational system;
- delineate the policy thrust accorded in the major 'national policies of education' of India;
- state the rationale behind the public financing of education;
- analyse the trend in the public financing of education in India over the period 1980s to 2010s;
- discuss the various public private partnership (PPP) models in general and the initiatives taken in the financing of education programmes through the PPP modes in India in particular; and

- explain the concepts of educational ‘grants’ and ‘loans’ with their impact on the issues of educational subsidy and compensation.

13.1 INTRODUCTION

India has one of the largest education systems in the world with more than 15 lakh schools and 80 lakh school teachers. There has been a huge expansion of the Indian education system at all levels after independence. This fact takes into consideration the social externalities associated with education owing to its characteristic of being like a public good. Despite this, the public expenditure on education in India, as a proportion of GDP, has been low (below 4 percent of GDP) for many years except for some specific years when it has managed to cross the 4 percent mark.

Owing to the increasing financial requirements of the hugely expanding education sector, the government has gradually adopted private financing of education under the ‘public private partnership’ (PPP) mode. Thus, on the one hand, there has been a huge expansion of public educational services, particularly at the levels of primary, middle and secondary levels of education. On the other hand, there is an increasing trend in self-financing and PPP models, particularly in higher education. Such an approach is owing to the empirical evidence that the social externalities (or spill over benefits) of education are maximum with respect to primary or school level education and that externalities of higher education are not as high as that of school level education. School level education (i.e. primary, middle and secondary levels) is thus regarded as public good and higher education as a quasi-public good.

13.2 NATIONAL EDUCATION POLICY (NEP)

Educational services in India are provided by both the public and the private sector. The system can be classified into general education and technical education (the latter including professional education). General education covers Class I to master’s degree and research. Technical and professional education covers: (i) vocational education and training, (ii) diploma in polytechnics, (iii) bachelor’s and master’s degree in engineering and medicine, (iv) diploma, degree and master’s degree in management courses and research. The general structure of the Indian education system is therefore as follows.

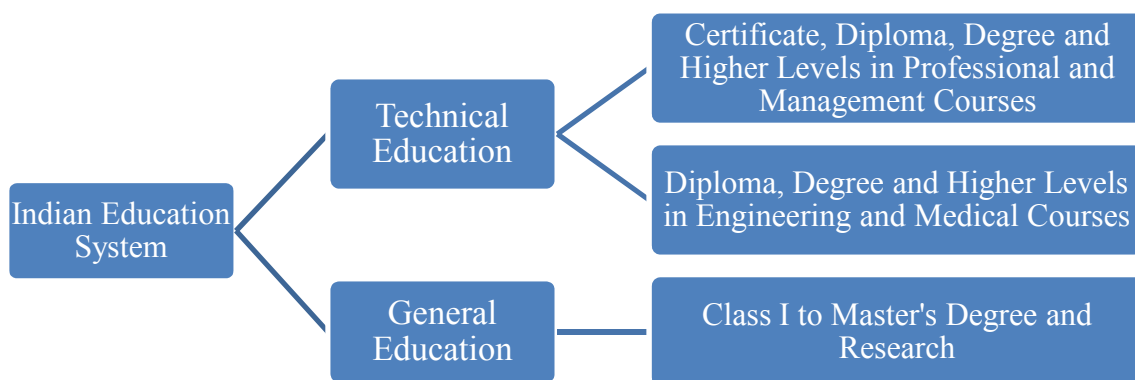


Fig. 13.1: General Structure of Indian Education System

For the school and first graduation levels (spanning the primary, middle, secondary, higher secondary and a 3-year first degree levels), there is a system of 10+2+3 followed in India. This pattern was adopted following the adoption of the first ‘national education policy’ (NEP) in 1968. The thrust of education system in the country has been guided by the different NEPs and other commissions set up for the purpose from time to time. We shall in this section note the policy guidelines issued by four major NEPs/commissions in India.

13.2.1 NEP, 1968

Apart from recommending the 10+2+3 pattern, the first NEP (1968) [Khotari Committee] recommended a 3 language formula. This included the study of a ‘modern Indian language’ (MIL) [for Hindi speaking states, preferably any of the southern Indian languages and preferably Hindi for the southern and non-Hindi speaking states] in addition to the two languages of English and the respective regional language. The inherent idea of encouraging learning of languages, aimed at facilitating free movement of labour (or educated workforce) within the country, is evident in this policy. In keeping with the needs of the country of that time, and with a vision of future decades to come, it recommended an investment of at least 6 percent of GDP on education. Other major recommendations of the first NPE were:

- **Sectoral Development:** There should be at least one agricultural university in each state. Practical training in industry must be an integral part of technical education. There should be a continuous review of agricultural, industrial and other technical manpower needs of the country.
- **Non-Formal Education:** Part-time education and correspondence courses should be developed on a large scale at all levels of higher education. Correspondence courses must be given same status as full-time (formal) education.
- **Work Experience, National Service and Science Education:** Schools and local community should work closely in programmes for mutual

service and support. There should be emphasis on work experience, national and community service. Research should have priority.

- **Literacy and Adult Education:** Teachers and students should be actively involved in literacy campaigns and adult education. This should especially be a part of 'social and national service' programmes with a focus on young practicing farmers and self-employment.
- **Education of Minorities:** Interests of minorities and their rights must be protected with the promotion of their education.
- **Books and Examination System:** Text books and education material should be of high quality for which best writing talent must be attracted with a liberal policy of incentives and remuneration. Goal of examination reforms must be to improve their reliability and validity for which a system of continuous evaluation process must be evolved.

13.2.2 NEP, 1986

The NPE, 1986 emphasised on elimination of intra and inter regional disparities in education and quality of public education. Its other salient features were as follows:

- **Public Funded Common School System:** To promote equity, there should be public funded common school system with a common educational structure at '10+2+3' level. A national curricular framework should be developed by involving institutions of national importance at all levels (i.e. general, professional, technical, etc.). It reiterated investment on education to be taken up to a minimum of 6 percent of GDP as envisioned in the NEP, 1968.
- **Equality:** Special emphasis on equality aimed at empowerment of women, SCs, STs, religious minorities, differently able persons, etc..
- **Technical and Management Education:** Development of technical manpower informal system with programmes on computer literacy, community polytechnic system, establishing networking between technical education and industry for cost-effectiveness and promotion of excellence.
- **Teacher Education:** Establishment of 'district institutes of education and training' (DIET), up-gradation of teacher training institutes, strengthening of 'national council of teacher education' (NCTE), etc.
- **Holistic Role of Education:** Education to be considered essential for all round development i.e. both material and spiritual as per the national perception.
- **Resources:** Investment on education to be gradually increased to a level of national income as envisaged in the NEP, 1968. It also envisaged mobilising donations, role for beneficiary communities to maintain

schools and provide supplies of consumables, raising fees at higher levels of education, etc.

13.2.3 NEP-2020

Before the NEP, 2020, a 'national knowledge commission' (NKC) was formed in 2009. It emphasised quality education driven by a central legislation to affirm the 'right to education' (RTE). It recommended teaching of English as one of the languages along with the first language of the child from class I onwards. It emphasised on more access to ICT (information and communication technology) tools to teachers, students and administration. This was followed by a draft NEP, 2016. This draft laid emphasis on: (i) addressing gender discrimination, (ii) a common curriculum for science, mathematics and English, (iii) promotion of private venture in education, (iv) pre-school education for children in the age group of 4-5 years, (v) ensuring 'education and learning outcomes' by limiting no-detention policy up to class 5, (vi) making ICT an integral part of reporting system to monitor school management and performance, (vii) inviting foreign universities and self-generated resources for 'financing education' and (viii) adoption of performance based funding for higher educational institutions. The NEP-2020 lays emphasis on value education, intellectual satisfaction, creativity, etc. by giving importance to a multi-disciplinary and inter-disciplinary approach. Such an approach is aimed at enabling the universities to evolve as research oriented or teaching oriented institutions. The NEP-2020 also accords importance to global intra-university and inter-university collaborations.

13.3 FINANCING OF EDUCATION

Educational expenditure includes public expenditure from the government's budget and private expenditure incurred directly by the beneficiaries (students/parents). It can be classified into 'capital expenditure' and 'recurrent expenditure'. Capital expenditure refers to investment made in infrastructure i.e. buildings and resources of long term use like play grounds, computers, etc. Recurring expenditure includes all payments like wages and salaries, employer contributions to PF, interest payments on loans taken and subsidies and transfers. The funds for education can thus be said to come mainly from three sources viz. government, fees from students and other sources (i.e. philanthropy, industry, etc.).

In recent years, for higher education there has been experimentation with several sources of finance like substantial raising of student fees in government funded institutions bringing them on par with the comparable institutions in the private sector, making available student loans at concessional rates of interest to cope with increased fees, graduate tax, private sector investment, etc. The sources of finance for education can be alternatively classified as 'internal sources' and 'external sources'. External

sources do not form a significant part of educational finance in India.

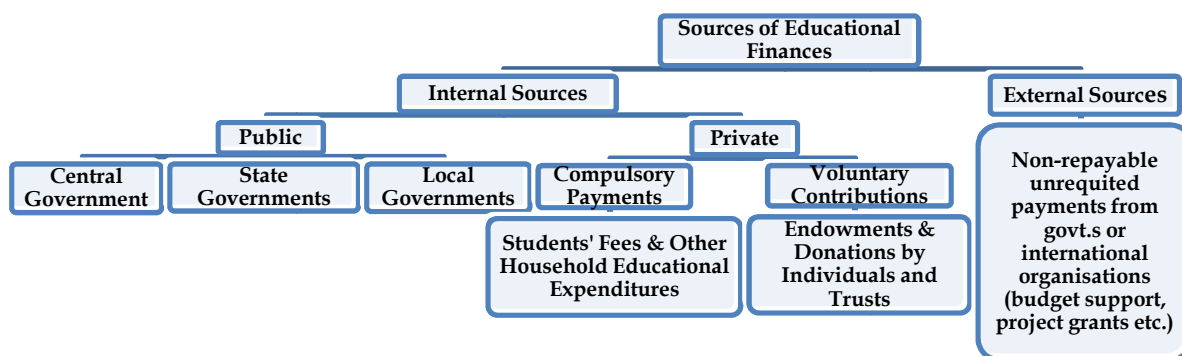


Fig. 13.2: Sources of Educational Finance in India

The domestic or internal sources of funding can be further classified into public and private sources. Public sources include contributions made by central, state and local governments in the form of revenue expenditure, capital expenditure and transfers. Private or non-governmental sources include expenditures by households or direct beneficiaries (students/parents), endowments and donations by individuals and trusts, etc. Educational loans by banks, repayable in easy instalments, are an important source of self-generating fund for education today.

13.3.1 Rationale for Public Financing of Education

Educational institutions can be treated as an industry that produces economically productive human resources (or human capital) essential for further production and economic progress. Educational outcomes are in a strict sense non-rivalrous and non-excludable in nature i.e. the benefit that an individual derives from education does not diminish the benefits of others. From this standpoint, education is like a public good which produces many positive externalities to the society. However, this view is particularly true for elementary levels of education (i.e. entire school level education). For higher education, the marginal cost of availing is much higher and many individuals/families cannot afford it. Their establishment requires far higher capital expenditure relative to school education. In view of this, financing of education by public expenditure is considered justified although the same factor is also used to point out that the resources of government alone cannot be adequate to establish institutions of higher education. Thus, the grounds of positive externalities and excessive marginal cost for the provision of higher education cut into each other. They make it both a rationale for higher public spending as well as suggest private expenditure should be more forthcoming for their establishment in case of higher education.

There have been much evidence of ‘spill over’ effects of education that transform individual gains into social gains. With improved human capacity endowed with knowledge and skills, private benefits of a good education confers significant benefits to the society at large. The storing of human

capital in the form of knowledge, innovations and technological up-gradation provides intergenerational positive externalities. Education in general, and higher education in particular, serves as a catalytic factor for the development of the society in terms of higher efficiency, equity, ethics and integrity. It is widely accepted that education helps in social mobility and acts as an effective instrument for promoting national integration. Therefore, public financing of education is an 'investment' in national interest. Other arguments made in this light are on the fronts of 'basic needs' and 'capability'. The former in its enlarged version defined as 'basic human needs' is put forth by ILO and the latter propounded by Amartya Sen.

The 'basic needs' approach to development is one that emphasises on the meeting of certain basic needs of *all* the people to lead a decent standard of living. The contents of 'basic needs' at the minimum, is defined to include the fulfilment of certain standards of nutrition (food and water considered as the core of basic needs) with universal provision of health and education services. ILO (international labour organisation) defines 'basic human needs' to include food, clothing, housing, education and public transportation. Such a wide array of factors are considered necessary to 'secure and sustain decent employment' serving both the 'means as well as the end'. The principle of 'basic minimum/human needs' stems from the simple view that development should be concerned with removing absolute deprivation as a first priority. The basic needs approach has been criticised for its excessive consumption-orientation with the rationale that 'poverty eradication is not so easy'. This criticism is effectively countered by Prof. Sen with the argument that the basic needs enhances the 'capabilities' of the individuals and not merely serve as means of consumption. Viewed in this sense, the basic needs serve as means of empowerment of the deprived. It is education, particularly quality education, which makes people employable helping them earn a decent standard of living.

13.3.2 Public Financing of Education in India

With the enactment of 'right to education' (RTE) Act in 2009, India has legalised the basic minimum needs approach to include schooling of elementary and secondary levels. Universalisation of elementary education has approached 100 percent in terms of enrolment at the primary level (96.7 percent in 2014). The 'annual status of education report' (ASER, 2014) observes that the RTE Act and the Sarva Shiksha Abhiyan (SSA) have together resulted in an improvement in infrastructure in government schools. However, it registers serious concern over the standard or quality of education particularly in government schools where most children in higher classes could not perform learning abilities meant to have been picked up in the lower classes. Such a devastating situation in the status of public schools is contributing to shifting a large section of the students into private schools (with the enrolment in private schools having increased from 16 percent in 2005 to 31 percent in 2014). For the eleventh plan period of 2007-12, the

proportion of public expenditure in different levels of education (i.e. from the total expenditure in the education sector) is as follows: elementary, 47 percent; university and technical education combined, 27 percent; secondary education, 20 percent; and 'adult education and others', 6 percent. The trend in the public financing of education in India, over the period 1980-2012 (i.e. between the seventh and the eleventh plan periods) shows that: (i) for school education (elementary + secondary) the proportion of expenditure (in the overall expenditure made on education) has consistently been more than 50 percent throughout the period of 1980-2012 with the highest allocation of 78 percent in the ninth plan (1997-2002) period; (ii) for higher education (university + technical) it has varied between 17 to 32 percent during the corresponding period of 1980-2012; and (iii) expenditure on the 'others' segment (which includes adult education) has consistently declined from 17 percent in the sixth plan to 3 percent in the tenth plan (where after there is a slight increase to 6 percent in the eleventh plan) [Table 13.1]. Such changes in the trends is in keeping with the shifts in the relative priority for public funding which has witnessed an increasing leaning towards school education and away from higher education particularly over the period 1980-2002 in India. However, over the period 2002-12, there has been an increase in the public funding of higher education owing to an expansion of institutions and thereby the intake capacity in the management (IIMs) and technology (IITs) institutes.

Table 13.1: Public Finance (%) Over Different Plan Periods by Level of Education: 1980-2012

Period	Elementary	Secondary	Elementary + Secondary	Higher Education (University + Technical)	Others	Total
1980-85	31	20	51	32	17	100
1985-90	37	24	61	30	9	100
1992-97	48	24	72	20	8	100
1997-02	57	21	78	17	5	100
2002-07	57	20	77	20	3	100
2007-12	47	20	67	27	6	100

Source: Annual Reports, CBGA (Centre for Budget and Governance Accountability).

Note: The periods correspond from the sixth to the eleventh 5-year plans of Government of India.

13.3.3 International Perspective on Public Financing of Education

There are many countries spanning both the developed and developing countries in the world whose percentage of public or government spending on education is above 5 percent of their GDP [e.g. Cuba, 12.9 percent, 2012; Denmark, 8.7 percent, 2012; Djibouti, 8.4 percent, 2012; Bolivia, 7.6 percent, 2012; New Zealand, 7.2 percent, 2012; Norway, 6.9 percent, 2012; Kenya, 6.7 percent, 2012; Israel, 6 percent, 2012; UK, 5.6 percent, 2015; Canada, 5.5 percent, 2012; Australia, 5.2 percent, 2014; and South Korea, 5.1 percent, 2014]. Thus, countries irrespective of their state of development have realised the importance of spending large share of their public funding on education. However, since both the GDP and the population vary across countries, the position on per capita spending would be much different across countries. Thus, for international comparison it is necessary to take 'proportion of public funding as percentage of GDP' measured in 'purchasing power parity' (PPP) terms and expressed to a standard currency like the US dollars. Viewed from this PPP term, the per capita spending by the government varies from 1500 (per head per year) dollars in India to 30,000 dollars in Norway. An yet another measure of public spending on 'education' is to consider the percentage of 'total budgetary allocation' by sectors. Trends in this respect for some of the countries show the following: Malaysia (21.3 percent, 2010), Nepal (20.2 percent, 2010), Vietnam (18.7 percent, 2010), Brazil (18.1 percent, 2010), Kenya (17.2 percent, 2010), New Zealand (16.1 percent, 2008), Norway (15.2 percent, 2010), Bangladesh (14.1 percent, 2009), Australia (13.5 percent, 2008), US (13.1 percent, 2009), China (13 percent, 1999), Sri Lanka (12.9 percent, 2011), UK (12 percent, 2010), Bhutan (11.5 percent, 2011), **India (11 percent, 2011)**, Germany (10.7 percent, 2010), France (10.4 percent, 2010), Pakistan (10.1 percent, 2011) and Japan (9.4 percent, 2008). Thus, although India is spending higher than many advanced countries, its public spending is also falling short of many developing countries like Vietnam, Brazil and Kenya. As a percentage of GDP, over the period 1951-2013, India's share of public spending on education sector has consistently hovered around below 4 percent [except for three years viz. 1989-90 (4.2 percent), 1999-2000 (4.3 percent) and 2000-01 (4.4 percent)].

Check Your Progress 1 [answer within the space given in about 50-100 words]

1) How is education classified as a good? Why?

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- 2) What is the basic thrust behind the first NPE, 1968? What would you identify as its aim?

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- 3) State any five specific recommendations made and adopted by the first NPE, 1968.

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- 4) What was the basic thrust of the second NPE, 1986? What were its other specific recommendations?

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- 5) Why is public funding of higher education regarded as essential? Why is it also argued at the same time that encouraging private funding is essential?

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- 6) How does the definition of 'basic human needs' provided by ILO and the view advanced by Amartya Sen stand out in the debate on 'education for consumption versus education for investment'.

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- 7) What is a critical observation made by the ASER, 2014? What is its consequence?

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13.4 PUBLIC PRIVATE PARTNERSHIP (PPP) IN EDUCATIONAL FINANCING

Immediately after independence, India mostly emphasised on public ventures for her economic and social development. However, the public ventures revealed inefficiency and dismal performance on several counts over time. On the other hand, pure private ventures were performing well despite domestic policy constraints. With the opening up of the economy in the early 1990s, combined with the fiscal constraints being faced, considering public-private-partnerships (PPPs) ventures as an alternative began receiving the attention of policy planners in India.

PPPs are a form of long-term agreement between public sector agencies (central, state, or local governments) and private sector entities with concurrent involvement and understanding to share both the costs and the benefits. PPPs were initially applied in sectors like infrastructure, transportation and energy. Various models of PPPs and their operational methods are as under.

Table 13.2: Models of PPPs and their Operational Procedure

Model	Description	Operational Method
OM	Operations and Management	Public sector owns the establishment and equipments of the enterprise. However, service design and delivery, operations, labour management and equipment procurement are partnered to the private sector. Usual contract period is for 1 to 5 years where the private player is paid a performance based fee.
BOT	Build-Operate-Transfer	Private sector builds an infrastructure project, operates it and eventually transfers ownership to the government. Public sector assumes ownership but contract out the operational responsibility to a private partner. Based on the nature of agreement BOT can take several forms [e.g. build-transfer-operate (BTO),

		build–own–operate (BOO), design–build–operate (DBO), and design–build–finance–operate (DBFO).
BOOT	Build-Own-Operate-Transfer	The private partner implements the project by providing equipments and manpower (e.g. computer hardware, educational software, faculty for teaching teachers and students and providing programme support). In return, government makes periodic payments over the life of the BOOT (usually for 3-5 years).
Lease	Leasing bond for a tenure of 10-20 years	All capital investments would be made by the public sector and risk and expenses of service provisions are taken up by the private operator-cum-service provider. Tariffs etc. are collected by the private operator and a part of that is transferred to the public authority to service loans raised to finance the facility.
Concessions	A concession contract for a period of 5 to 30 years	Public authority hires the private operator for delivery of services, including construction, operation, maintenance, management and rehabilitation of the project. The private player is responsible for the capital investment but ownership lies with public entity during the concession period. The private player pays the public authority for the concession rights.
Joint Venture	Public-private joint ownership and operation of the project with sharing of revenues, expenses and assets	The public and private sector agree to form a joint entity by contributing equity. Often a joint venture is developed where the public sector seeks technological expertise or technical service arrangements from a private player.

13.4.1 PPP in School Education

The Eleventh Five Year Plan (2007-12) proposed PPP as an important strategy for educational development in India. The plan proposed to set up 6000 new model schools (affiliated to CBSE) in secondary education of which 2500 are to be under PPP model. Each of these schools were to have 2500 students of which 40 percent were to be from deprived sections with only a token fee charged. Such schools will be free to admit anyone to the

remaining 60 percent of the seats and also charge higher amount of fees. For any additional cost, the schools are allowed to access to relevant funds from the central and state governments under different schemes. Corporate companies with a minimum net worth of Rs. 25 lakh are eligible to apply for setting up schools under this model with each of them allowed to set up, up to 25 schools. Many states in India who have launched ICT programmes in schools have adopted the BOOT model of PPP (as recommended by the draft policy on 'PPPs in school education'). For instance, the BOOT model of ICTs in Karnataka and the 'integrated' BOOT model in Kerala are two popular PPP models. Another popular scheme under the PPP model is the voucher system where the state issues vouchers to the students. The vouchers are used by the students to pay for fees and other items in private or in privately managed public schools (e.g. a scheme of school vouchers has been implemented in Uttarakhand, Rajasthan, Uttar Pradesh and Delhi). Further, the fee reimbursement schemes introduced in higher education in a few states like Andhra Pradesh and Maharashtra in the recent past also belong to the same category. Their success would be evaluated on the basis of their efficiency, equity and sustainability criteria.

13.4.2 PPP in Higher Education

In recent times, there has been an increasing trend of Public Private Partnership in Indian higher education. This is on the grounds of huge requirements of capital investment, technical expertise and actual assessment of cost benefit analysis. It is argued that higher education does not possess the characteristics of pure public good and hence governments can gradually withdraw themselves from higher education and move towards PPPs. The huge increase in the number of private engineering, medical and management institutions in India, especially after 1991, charging of competitive fees in public institutions, the recent foreign university bill are evidences of PPPs in higher education. In this connection, four models of PPP are proposed. These are:

Basic Infrastructure Model: Private sector invests in infrastructure and government runs the operations and management. In turn, government makes payments to the private investor.

Outsourcing Model: Private sector invests in infrastructure as well as operates and manages the institutions. Responsibility of the government is to pay the private investor for the specified services.

Equity or Hybrid Model: Investment in infrastructure is shared between the two sectors while operation and management is vested with the private sector.

Reverse Outsourcing Model: Government invests in infrastructure and private sector takes the responsibility of operation and management.

A resource gap of about Rs 2.2 trillion was identified in higher education during the 11th Five Year Plan. It was further estimated that India needs about 1000 more universities and 45000 more colleges to attain the targeted GER of 30 percent by 2020. In addition, for achieving these goals and making the Indian higher education sector competitive and self-reliant, there have been policy initiatives on certain other fronts. These include: (i) inviting foreign universities to set up their campus in India (Foreign University Bill, 2010), (ii) setting up of an agency to promote self-generation of resources (Higher Education Funding Agency, 2017), and (iii) adoption of 'performance based funding for higher educational institutions'. The HEFA is registered as a company under the Companies Act with the Canara Bank made as the partner to mobilise money from market as per the requirements of the institutions. HEFA provides interest free loans to the institutions who agree to escrow a specific amount from their internally earned resources (i.e. not from govt grants) to HEFA. A consequence of the pressure on generating resources has been to charge competitive fees from the students at par with the market.

13.5 COMPENSATION AND RECOVERY OF FUNDS

A subsidy is a form of financial aid or support extended to an economic sector by a public authority. It is generally extended with the aim of promoting economic and social welfare. An educational subsidy is a form of grant given by the state or a public body to support an educational institution. The underlying objective is to keep the affordability of education within the reach of the people from economically weaker sections of the population. The rationale is that education, particularly primary education, is a public or quasi-public or merit good. It is a kind of compensation for the private institutions in recognition of their public welfare activity by participating in the education sector. Compensation are extended for components like salary, wages, bonuses etc. Such compensation is expected to provide motivation to those engaged in the educational system to perform efficiently.

Since educational institutions incur huge cost, the question arises as to whether a part of the cost (or full cost) should be recovered? If yes, from whom? Cost recovery in education is defined as 'a proportion of expenditure incurred by the users of educational service'. The users could either be the students or sometimes the employers of educated manpower. Such cost recovery may take the form of full cost recovery or partial cost recovery. Partial recovery is in recognition of the fact that education being a merit good with lot of positive social externalities, should not be subjected to full recovery of cost particularly in developing economies. Compulsory school level of education being like a pure public good assumes no cost recovery. Therefore, the debate of cost recovery centres around recovery of fund for only higher education. The 'neo-liberal' economists, who believe in the

philosophy of welfare state, support only subsidy and compensation for social sectors like education.

13.5.1 Educational Grants and Loans

Educational grants and scholarships are respectively the financial aids given to the institutions and stakeholders (students). They are not repayable. Educational grants are usually disbursed by the public authority to the institutions whereas scholarships are awarded to the students on the basis of their merit. Most of the grants are need based. The governments provide funds to the educational institutions in the forms of grants, compensations and subsidies. Some of the examples of grants in the educational sector in India are for: (i) mid-day-meal scheme, (ii) schemes for 'infrastructure development of private aided/unaided minority institutes' (IDMI) engaged in elementary education, (iii) grants under 'rashtriya madhyamik shiksha abhiyan' (RMSA) for secondary education, (iv) the project of setting up of 374 degree colleges in 'educationally backward districts', etc. Generally, institutions which come under the purview of grants-in-aid are given recurring grants (for salary, hostel and maintenance) and non-recurring grants (for building, equipment, etc.). The institutions receiving grants-in-aids are subject to government inspection and might demand its refund if the grants are not properly utilised or remain unutilised.

An educational loan, on the other hand, is the money borrowed by the stakeholders (student or parents). It is expected to be repaid with interest. Educational loans are adopted as the alternative source of financing higher education in India since 2001. Some of the educational loan schemes initiated by the government to encourage higher education among the needy and meritorious students are: (i) loan for disabled persons to pursue higher education in India and abroad under the 'national handicapped finance and development corporation' (NHFDC), (ii) loans for ST candidates by the 'national scheduled tribes finance and development corporation' (NSTFDC) at a nominal rate 3 percent, (iii) loans for the SC candidates by the 'national scheduled castes finance and development corporation' (NSFDC) for studies in engineering, management, pure sciences, agricultural science and medicine, (iv) loans by the 'national education finance corporation' (NEFC) at the rate of 4 percent to the relatively affluent sections, (v) loans by the 'national minorities development and finance corporation' (NMDFC) for job oriented education to poorer sections of the minority community, etc.

Check Your Progress 2 [answer within the space given in about 50-100 words]

- 1) In which FYP, PPP was first proposed for school level education in India? What did it envisage?

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- 2) Distinguish between the concepts of ‘subsidies’ and ‘cost recovery’ in the context of educational finance?

- 3) Differentiate between educational ‘grants’ and ‘loans’.

13.6 LET US SUM UP

Discussing the salient features of the major national policies of education in India, the unit explains the philosophy and rationale behind government finance for school level education and higher education. Various forms of educational finance under the PPP modes of joint ventures are explained. Outlining the concepts of subsidies, education loans and grants, the unit indicates schemes for attracting and retaining children in schools as an essential component of public finance. The rationale behind the cost recovery of higher education and the many efforts initiated in this regard are explained. A comparative profile of public expenditure on education in an international perspective is also provided.

13.7 KEY WORDS

Public/Merit Good : Education is generally regarded as a ‘public good’ and a ‘merit good’ in view of a variety of externalities it confers on the society. School level education is regarded as a public good whereas higher education is regarded as a quasi-public good. They are also merit goods since they generate positive externalities to the society.

Educational Expenditure : Educational expenditure consists of both public and private components. Public expenditure on education covers budgetary allocation, grants, subsidies and compensation. Private expenditure implies expenditure by households (students/parents) incurred on education.

13.8 SOME USEFUL BOOKS AND REFERENCES

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13.9 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) School level education, because of significant positive externality, is regarded as public good. Higher education, because of significant private benefits rendered, although its social benefit also is significant, is regarded as a quasi public good.
- 2) The basic thrust are two: (i) a uniform 10+2+3 formula till the first graduation level; and (ii) infusing a 3-language skill comprising of English, Hindi and a regional language. The policy was aimed at national integration and free movement of educated labour force across the country.
- 3) (i) At least one agricultural university in each state; (ii) close interaction between academia and industry with a sectoral thrust; (iii) expansion of correspondence programmes of education with the emphasis on there should be no discrimination between formal education and non-formal (correspondence) education; (iv) literacy and adult education program to be promoted; and (v) interest of minorities to be promoted by education.
- 4) Elimination of intra and inter regional disparities in education and quality of public education. Specific recommendations were: (i) a common curricular framework with a public investment of 6 percent of

GDP as envisaged in the first NPE, 1968; (ii) equality in education among all classes and gender; (iii) thrust on computer literacy, community polytechnics and networking for academia-industry collaboration; (iv) resource mobilisation with increase of fees at higher levels of education.

- 5) Due to high positive externality to society and high marginal cost of meeting the expenses of higher education, it is considered both necessary for the government to be in the lead for establishing institutions of higher education as well as to throw it open for both domestic private investment and foreign investment. The demand for higher education is far higher than what can be met only by public funding.
- 6) The ILO definition extends the components of basic minimum need to cover the ability to acquire decent employment and sustain it. Sen, argues that education makes the marginalised people capable and empowered. Sen's rationale thus supports the ILO definition rendering the resources spent on education the status of an investment (and not merely restricted to consumption as argued by the critics).
- 7) That the quality of education in public schools, despite higher enrolments achieved, is very low. And in view of this, there is a near 100 percent increase in the enrolment of private schools from 16 percent to 31 percent over the period 2005-14.

Check Your Progress 2

- 1) XIth five year plan. A private investor could invest in a maximum of 25 schools and was obliged to admit 40 percent of students from economically weaker sections charging them low token fee.
- 2) Subsidies are a non-repayable amount given to motivate and compensate private institutions taking part in the educational sector. 'Cost recovery' is a term used to indicate a 'proportion of education expenditure recovered by the beneficiaries' who could either be the students themselves or by the employers engaging educated manpower.
- 3) Grants are also non repayable amounts to given to institutions. They could be either recurring or non-recurring. Examples for recurring grants are for salaries of teachers and staff and that for non-recurring grants is for construction of infrastructure in schools and institutions. Educational loans, on the other hand, are extended to students to meet the expenses of education. They are repayable but are charged concessional rate of interest.

- Adverse Selection** : Individuals in poor health have a greater incentive to purchase health insurance than those in good health. Individuals in poor health make greater utilisation of healthcare than the healthy, leading to higher payouts by the insurance company. This is termed as Adverse Selection in healthcare market.
- Catastrophic Healthcare Expenditure** : Whenever the health expenditure is equal to or exceeds 40 percent of a household's non-subsistence income, it is considered as catastrophic health expenditure. Here, subsistence income is defined as income required to meet the minimum requirement of household for maintaining the basic life needs like food, shelter and clothing.
- Concentration Curve** : Concentration Curve (CC) plots the cumulative percentage of health variable against the cumulative percentage of population ranked by socio-economic status.
- Concentration Index** : The concentration index (CI) is directly related to the concentration curve, and quantifies the degree of socio-economic related inequality in a health variable.
- Co-Payment** : A '**co-payment**' is a term associated with health insurance where the insured has to pay a fixed amount (as out-of-pocket expenditure) of total hospital bills or fees claimed by the healthcare institution. Co-payment discourages the insured to visit frequently the doctors. If people (who have health insurance) have to pay a small amount at each visit to a doctor, they will only go to the doctor when they actually need.
- Cost Benefit Analysis** : Based on the human capital theory of Becker (1964), it aims at estimating the monetary value of health improvements on the basis of cost of illness averted.
- Cost Effectiveness Analysis (CEA)** : This is an alternative approach in which instead of valuing the method aims at quantifying the health outcomes of program interventions.
- Cost of Illness Approach** : Under this, both the cost of continuing the existing treatment and the value of the foregone earnings due to illness are taken into account.

**Cost Utility
Analysis**

: This is an extension of CEA which permits comparison of programmes with qualitatively different health outcomes.

Counter-factual

: Epistemologically, counterfactual refers to a conditional statement, the first clause of which expresses something contrary to the fact (e.g. 'if I had known'). In impact evaluation, the unit in one state, if would have belonged to the other state, is a counterfactual. This one unit cannot be observed simultaneously in two different states (in other words, with and without the programme). It remains unobserved, though it can be constructed statistically.

Deductible

: A **deductible** is the amount that a policyholder must pay each year toward his/her medical expenses before the insurance company begin to pay its share. The purpose of the deductible is to help keep premiums low through cost-sharing and by reducing the number of small claims and unnecessary doctor visits.

**Demographic
Dividend**

: During the process of demographic transition, for a certain period of time, the growth of working age population (between the age group of 15-60) would be higher than the non-working population (i.e. population below age 15 and above age 60). This is basically due to falling fertility and stable mortality. This gives a 'window of opportunity' to the economy. This is known as 'demographic dividend'. For India, this is expected to reach its peak during 2020 to 2030, roughly around 2025, and is expected to last up to late 2060.

Derived Demand

: Refers to a demand for a commodity which is a consequence of demand for something else.

**Economics of
Externality**

: An externality is said to occur if a person's activity (consumption or production) affects the well-being of an uninvolved person. The term externality implies that: (i) someone external to the action or transaction (neither a buyer nor a seller) is affected by the production or consumption of a good and (ii) neither the buyer, nor the seller bears the cost of coping with that.

**Educational
Expenditure**

: Educational expenditure consists of both public and private components. Public expenditure on education covers budgetary allocation, grants,

subsidies and compensation. Private expenditure implies expenditure by households (students/parents) incurred on education.

- Envelope Curve** : The 'long-run average cost' (LRAC) curve is a lower 'envelope' of short run average cost curves (SRAC). This means that since any change in inputs in the short run will carry over into the long run as well, it is impossible for average costs to be driven down more in the short run than the long run.
- Equally Distributed Equivalent Achievement (EDEA)** : An optimum trade-off between higher achievement and gender equality is achieved by an Equally Distributed Equivalent Achievement variable, XEDEA for a positive inequality aversion parameter ε , $\varepsilon > 0$.
- Externality** : Refers to positive or negative impact of consuming or producing a good or a service on a third party not connected to the good or service or transaction involving these. These could be called as social benefits or social costs.
- Fuzzy Demand Curve** : Refers to a demand curve when price and demand do not have exact relationship. In this case, the demand curve looks like a thick band rather than a line.
- Health as Human Capital** : Good health and nutrition enhance workers' productivity. Healthier people who live longer have stronger incentives to invest in developing their skills since they expect to reap the benefits of such investments over longer periods. Better health increases workforce productivity by reducing incapacity, debility and number of days lost due to sickness.
- Health Equity** : Refers to minimising disparity in health outcomes in respect of gender, caste, religion, occupational groups as well as different geographical regions.
- Healthcare Finance** : Refers to methods by which funds to set up and run healthcare services are raised.
- Healthcare Utilisation** : Refers to the willingness of people to seek healthcare services overcoming by institutional arrangements the barriers for it due to economic and social factors.
- Human Capital** : Human capital refers to (i) stock of knowledge measured by literacy rate and years of schooling, (ii) health status of the population measured by

	life expectancy and quality of life index, and (iii) talent, skills and abilities brought-in by the employee to the organisation.
Human Capital	: Refers to (i) stock of knowledge measured by literacy rate and years of schooling, (ii) health status of the population measured by life expectancy and quality of life index and (iii) talent, skills and abilities brought in by the employee to the organisation.
Human Development	: Human development is a process of enlarging people's choices – the three essential choices identified as: a long and healthy life, with knowledge or skill acquired by 'years of schooling' and with ability to access resources needed for maintaining a decent standard of living. In Human Development, human beings are both the means and the ends in the development process.
Human Resources	: The educated and skilled personnel employable in the job markets and essential for the progress of the economy.
Impact Analysis	: Unlike the CBA based approaches which assume that the beneficiaries opt for a health programme announced, IA aims at providing evidence on performance i.e. whether a particular programme has achieved its targeted outcomes. They are thus useful to test innovations in program design or service delivery.
Incidence Rate	: Used to measure frequency of illness, this is defined as the number of new cases occurring in a defined population during a specific period of time.
Isoquant	: Refers to the efficiency frontier representing all possible efficient ways to achieve a certain production level.
Labour Market Turnover	: It refers to the ratio of number of employees that leave a firm because of lay off or quitting to the number of employees on pay roll at a particular point of time.
Lerner's Index of Degree of Monopoly Power	: Lerner's Index gives an indicator of the degree of monopoly power. It is the reciprocal of the numerical coefficient of price-elasticity of demand for the product or service. The less elastic is the demand for the product or services, the more

would be the degree of monopoly power and vice versa.

- Literacy** : The ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts.
- Marginal Product in Labour market** : Marginal Product or Marginal Revenue Product is the change in the marginal revenue as a result of employing an additional unit of labour. It is equal to the marginal physical product i.e. additional unit produced as a result of a new employment, multiplied by price.
- Marginal Productivity of Health (MP_H)** : If we consider, health stock (say, life expectancy at birth) as capital, then MP_H is interpreted as the incremental change in total output due to one year increase in life expectancy at birth.
- Marginal Productivity of Human Capital (MPH)** : If we consider, human capital as literacy rate or years of schooling, MPH can be interpreted as the incremental change in total output (viz. Y) due to one percent increase in literacy rate or years of schooling.
- Marginal Rate of Technical Substitution (MRTS) of Healthcare Production** : MRTS is defined as, 'keeping the total output of health desired to be produced as constant, how much of input 1 (H_1) has to be decreased if input 2 (H_2) increases by one extra unit'? It shows the relation between inputs, and the trade-offs amongst them, without changing the level of total output of healthcare services. MRTS is the negative slope of the isoquant.
- Marginal Revenue Product (MRP)** : MMP is defined as the product of 'marginal revenue' (of the product) and MPP of an input.
- Market Failure** : Inefficient allocation of resources due to asymmetric information.
- Merit Good** : Consumption of a good, which generates positive externality to the society at large, is defined as merit good. In such cases, social benefits exceed private benefit and such a good either can be produced by the private as well as public sector.
- Merit Good** : When the consumption of a good by some, generates positive externality to others, resulting in a situation where the social benefit is larger than the private benefit, it is defined as a merit good. Such a good does not unconditionally obey

**Monopsonistic
Exploitation**

the dual characteristics of a public good i.e. being non-excludable and non-rivalrous in consumption. But they are important for accumulation of human capital and economic development.

: Refers to the gap between MRP and the wage paid. It is given by: $\text{Gap (G)} = (\text{MRP} - \text{Wm})/\text{Wm} = 1/\varepsilon$ where ε stands for elasticity of supply of labour with respect to wage.

Moral Hazard

: In health insurance market, individuals covered by insurance tend to use more healthcare and they might not take necessary precautions to stay healthy because of the knowledge of their insurance coverage. This leads to inefficient use of resources. The situation is termed as Moral Hazard.

NRHM

: In order to address the health needs of under-served rural areas in India, the government of India has launched National Rural Health Mission (NRHM) in 2005. NRHM, particularly lays emphasis on states that are weak in respect of public health indicators compared to other developed states.

**Out-of-pocket
Expenditure**

: Refers to the private healthcare expenses incurred by persons seeking healthcare. Its higher ratio indicates lower levels of public healthcare expenditure.

**Prevalence
Elasticity of
Private Demand
Prevalence Rate**

: Provides a measure of the changes in prevalence demand in response to disease outbreak which differ across countries and sub-regions.

: This refers to all current (old + new) cases of illnesses existing at a given point of time or over a period of time in a given population. Prevalence rate is of two types a) point prevalence and b) period prevalence. The first one considers all current cases of a specific disease existing at a given point of time. The second one considers the same during a given period of time.

Public Health

: The science and art of preventing disease, prolonging life and promoting human health through organised efforts and informed choices of society, communities and individuals.

**Public/Merit
Good**

: Education is generally regarded as a 'public good' and a 'merit good' in view of a variety of

externalities it confers on the society. School level education is regarded as a public good whereas higher education is regarded as a quasi-public good. They are also merit goods since they generate positive externalities to the society.

- RCH** : The RCH was launched in 1997 and includes four major components viz. (i) family planning, child survival and safe motherhood, (ii) need based cliental approach to healthcare, (iii) prevention and management of sexually transmitted diseases (STD) and AIDS and (iv) reproductive tract infection (RTI).
- Risk Selection** : Refers to the insurance market designing its policies to cover only the low risk (called cream skimming) or a situation of 'adverse selection' in which only the high risk individuals buy insurance.
- SAHS** : Health status is first ordinarily recorded for certain health related functions like walking, breathing, digestion, hearing, chronic health disorder etc. An individual can the self-assess to obtain a pre-specified score as a cardinal number for each of specific health related functions. The score or index so obtained by the individual is known as self assessed or self reported health status (SAHS).
- School Quality** : An educational environment that is healthy, safe, protective and gender-sensitive with adequate resources and facilities.
- Social Marginal Benefit** : This is defined as the sum of the direct benefit to consumers (i.e. private marginal benefits: PMB) plus the cost associated with the consumption of the good imposed on others (i.e. negative Marginal Cost or expense for others). Thus: $SMB = PMB + MC$.
- Social Marginal Cost** : This is the sum of producer's marginal cost plus marginal damage i.e. $SMC = PMC + MD$.
- Solow Residual** : Refers to an empirical expression developed by Solow to explain the contribution to growth besides that by explicit accounts of two factors of production viz. labour and capital.

Supplier Induced Demand : Driven by profit motive, and taking advantage of a situation of information asymmetry, a doctor might order more services than necessary. This leads to a situation of market failure termed as 'supplier induced demand'.

Value of Marginal Product (VMP) : VMP is defined as the product of 'price' and 'marginal physical productivity' (MPP) of an input.



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