Wastage in Indian Higher Education

Despite some improvement in enrolment rates over the decades, at the end of 2002 hardly 9.28 per cent of boys and 6.71 per cent of girls belonging to the relevant age-group population in the country had been enrolled in higher education institutions. It is against this background that this study has made an attempt to examine whether it is the demand-side constraint in terms of lack of demand for higher education or the supply-side constraint in the form of inadequate access to higher education that is more important in explaining the low level of enrolment. This has been examined particularly in the context of women as the female student rate of participation in India has been much lower than that of the males at all levels of education.

SUGEETA UPADHYAY

The education system in India has undergone fundamental change following the transformation of socio-economic structure of society through various stages. In fact, education throughout the developed world has been viewed not only as a means to elevate individuals by helping them realise the ability and perfection hidden in them, nor it is viewed simply as a means to create a mass of socially conscious people needed for the smooth and efficient functioning of a democratic system. Rather education is viewed as a means to create an efficient mass of human capital essential for achieving a rapid rate of economic development. In modern day society, the system of education not only has a social, cultural and political dimension, it has also an economic dimension. It is this economic dimension of education which brings in the question of the economic efficiency and productivity of a particular education system.

The new economic policy (NEP) initiated by the government of India (1991) supported the view that public expenditure in the social sector should be lowered, including in areas like education. Mainly realising the growing budgetary constraints, and partly by conviction that public subsidies in education are inherently inefficient, it strongly advocated a drastic cut in public subsidies and its privatisation in this area. It was also contended that there is the ability to pay and also a willingness to pay on the part of the people, which need to be tapped. As a result, the government of India (1997) identified a large set of social and economic services, classified them into public goods, merit goods and non-merit goods, and proposed to reduce subsidies to non-merit goods. In case of the education sector, education up to the elementary level is considered as a merit good, and because secondary and higher education has been labelled as a non-merit good it is proposed to reduce the scale of subsidies at these levels, including higher education, by about 50 per cent through phased increases in user charges or cost recovery rates.[1]

In this particular paper, the objective is to take up the question of public expenditure on higher education from a particular viewpoint. We think instead of reducing the public expenditure on higher education, the government should revise its policy on the basis of rational estimates of relative efficiency of different streams of higher education. Usually, efficiency in education is judged by productivity of education or with the help of cost-benefit analysis of education.[2] Our method would be to base our argument on the estimation of wastage in higher education.

In the past few years, several committees have been set up which have pointed out the problem of overcrowding in universities and the consequent incidence of wastage, but the suggestions and recommendations made by them to reduce cost and wastage were not based on any rigorous analysis of the existing situation or statistical estimation of wastage. In addition to a few analyses on the particular question of dropouts at the school level done by some researchers,[3] a statistical estimation of wastage in university education in India may have been an important addition in this literature. In this paper, to assess the value of existing structure of education from the point of view of its impact on growth, we use a particular viewpoint with regard to wastage in education. The part of education which does not contribute to the process of economic development may be considered ineffective as human capital. Similarly, we hold the view that the part of expenditure on education which is spent on students who do not complete the course and cannot join the labour market may be considered as a wastage of human capital. Secondly, a part of expenditure on higher education on the students who join the labour force but cannot manage to get a job with higher earnings can also be considered as a marginal wastage, when we consider education as human capital.

We think estimation of such wastage would help us have a somewhat more concrete idea about the efficiency of investment in higher education and also enable ourselves to judge in more specific terms the effect of the recent changes in policy to make higher education in India more efficient.

The higher education system (rather the whole education system) in India has been drastically reformed since the mid-1980s. A cut in government expenditure and increase in private initiative in education as a field of profitable investment means that education is considered more a marketable product than a social facility. As the available information goes, both "probability of getting a job" and "life-time earning" are lower for women in India.[4] So expected benefits from expenditure on women's education are particularly low. It is in this context that we have examined the dropout and wastage in higher education in general and women's education in particular.

One would argue that unemployment tends to discourage enrolment in higher education as it lowers the expected private returns to schooling when graduates end up unemployed. But two counterarguments can be made. First, unemployment rates among skilled workers are typically lower than among the unskilled.

Schooling can thereby help to escape (or at least reduce the possibility of) unemployment. Second, the opportunity cost hypothesis predicts that human capital accumulation tends to be counter-cyclical. Schooling becomes more attractive when times get bad, as the associated opportunity cost in terms of foregone labour market earnings are relatively low during a recession period. The study has made an attempt to examine whether it is the demand-side constraint in terms of lack of demand for higher education due to its low market value or the supply-side constraint in terms of inadequate access to higher education, that is important in explaining the low level of enrolment in higher education. Obviously, the quantitative analysis presented in this study by itself is not meant to be definitive, but is intended as an initial effort which may stimulate a more thorough analysis when better data becomes available.

The study has been divided into two sections, and the period under consideration has been divided into pre-liberalisation and post-liberalisation periods. Following the human capital approach, an attempt has been made to define wastage in higher education in terms of student-waste and expenditure-waste, in the pre-liberalisation and post-liberalisation periods separately with the help of time series data. The findings help us draw some conclusions on the education policy that has been adopted by the government of India from time to time and that has resulted in the problems of increasing numbers of educated unemployed, dropouts as well as wastage in Indian higher education.

I
Some Aspects of Expansion of Education System

We know that the pattern of demand for different types of education emerges with the continuous process of economic growth. To gain insight into the factors behind the development of Indian higher educational expansion in terms of enrolment, we should remember at least three important facts: First, before independence, India was an economically backward country particularly in terms of industrial growth. An overwhelming majority of the population depended on agriculture. Secondly, the pattern of industrial development after 1965 was also associated with the growth of the service sector and the size of the educated unemployed has been increasing thereafter. Thirdly, we should also remember that the period from 1985 onwards remain somewhat special due to the new education policy (1986) and the policy of economic liberalisation (1991) which resulted in a cut in government expenditure and encouraged private initiatives in the social sector. All these policy changes might have had their own effect on the enrolment decision in higher education. Mention may be made of at least two important features of higher education since independence based on GoI reports.

First, considering the whole period, there has been a continuous growth in females as well as general enrolment in India since independence.[5] But importantly enough, the rate of growth of females per 100 males enrolled at the primary level has remained the lowest compared to other stages of education (Table 2).

Again, with regard to the spread of education, women's enrolment at professional/vocational education has increased at the college level whereas it has decreased at the school level, but male enrolment at school level professional/vocational education (in absolute numbers) has increased (Figure 1).

On the other hand, a graphic representation of the percentage of women enrolment to total enrolment in higher education

Table 1: Average Annual Rate of Growth of Enrolment in Higher Education

Year	Growth Rate in Per Cent
1951-1961	12.38
1961-1971	13.41
1971-1981	8.82
1981-1991	6.04
1991-2000	5.98

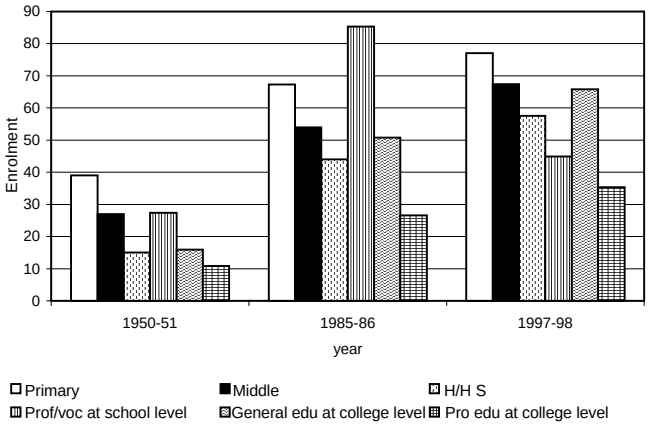
Source: Annual Reports, UGC, different years.

Table 2: Comparison of Increase in Enrolment of Females Per Hundred Males at Different Stages

Time Period	Primary Level	Middle Level	Secondary/ Higher Secondary Level	Vocational/ Professional Education at School Level	General Edu-cation at College Level	Profes-sional Edu-cation at College Level
Between 1950-51 and1985-86	1.72 times	2.00 times	2.91 times	3.12 times	3.17 times	2.44 times
Between1985-86 and1997-98	1.14 times	1.25 times	1.31 times	Negligible	1.29 times	1.33 times

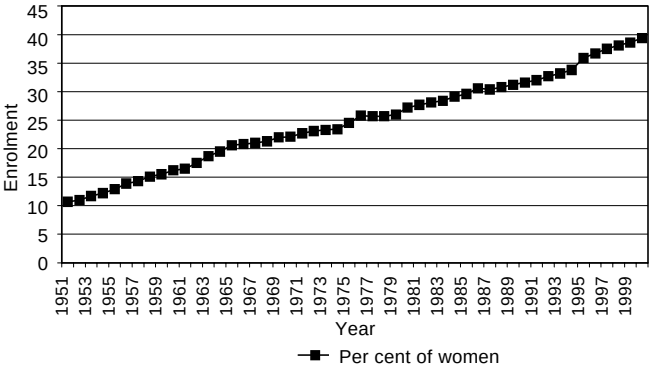
Source: Statistical Abstract, CSO, different years.

Figure 1: Female Enrolment Per Hundred Males at Different Stages of Education



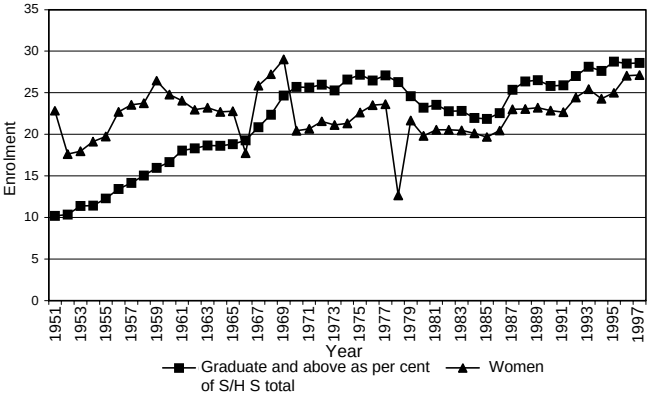
Source: Statistical Abstract, CSO, different years.

Figure 2: Percentage of Women Enrolment in Higher Education (Out of Total Enrolment)



Source: University Development in India, different years, UGC.

Figure 3: Ratio of Graduate and Above to Secondary/ Higher Secondary Enrolment (1951-1997)



Source: University Development in India, different years, UGC.

(Figure 2) shows a steady increasing trend throughout the period under consideration.

Lastly, considering the relative enrolment at higher education in India in terms of ratio between graduate or above and secondary/ higher secondary enrolment of the same year (Figure 3), it is seen that in the case of general enrolment there has been an erratic but increasing trend over the period 1951-1997, but in the case of female enrolment the trend reveals more or less a static situation.

Secondly, if we examine the growth in enrolment from a different point of view, besides the fact that average annual growth rate of enrolment in higher education has started to decline since the 1970s, we get the picture that it has been a general feature that enrolment itself declines sharply as one moves from the primary to secondary level and from the secondary to higher level education. Dropouts from any particular course in addition to the existence of this discontinuity between different levels of education have remained one of the major problems of low gross enrolment ratio in India as well as the education system being inefficient. With the help of NSS data (52nd round) it is seen that during 1995-96, 21 per cent had dropped out before completing the primary level, another 28 per cent completed the primary but did not attain the middle level, etc (Table 3). From the last column of the table it is seen that about half of those discontinued had either completed only up to primary level or failed to complete even that. About three-fourths have a maximum qualification of middle level and nine out of 10 have not completed the school system.

This huge wastage occurring at different levels of education in terms of dropout and stagnation are the important problems which our education policy must address. Another problem area is that of women's education and utilisation of that education. It is in this context that in the next section we have carried out factual and statistical investigation into the magnitude of the problem and its nature.

II
Wastage in Higher Education

In this section we have considered wastage in education in terms of the magnitude of expenditure on education, which remains ill-spent due to non-utilisation, or improper utilisation of education.

We have defined wastage as being of two kinds. First, wastage for the course due to stagnation and dropout. Students who complete the course after some years of failures contribute to the wastage due to stagnation. And students who drop out of the course without completing it give rise to the wastage. Secondly, there is wastage due to the non-utilisation of training. The students, who after completing the course either do not utilise the training knowledge or are not able to utilise the training due to lack of opportunities, give rise to the second kind of wastage.

We have used the following formula for measuring the first kind of wastage, i e, wastage due to stagnation and dropout. The first kind of wastage has been measured in two ways. In terms of student-waste and also in terms of expenditure-waste. Here we have used the following formulae:

For student-waste per unit of enrolment for different courses, W_s

$W_s = (3B-C)/3B$ and

For expenditure-waste per unit of enrolment for different courses, W_E

$W_E = (3B-C).\ A/3B$

Where B is the total initial enrolment in the first year C is the total number of current students for the whole course

A is the total direct expenditure for all the years in a particular course.

Data has been collected from a publication of Ministry of Human Resource Development called *Education in India* (various years) on total direct expenditure on education, total enrolment and number of current students in higher education in different consecutive years at both graduation and postgraduation levels. Thus for each batch of graduate students we have taken up three consecutive years and for postgraduate students we have taken up two consecutive years starting from 1950-51 to 1985-86. We have taken up the total enrolment in all these three years for graduate courses, which gives us "B". Now 3B gives us the number of students that should have obtained the bachelor degree if total enrolment was equal to the actual number of students and "C" gives the actual number of students. Therefore, the first formula gives us an estimation of student-waste per unit of student enrolled. Similarly, the second formula gives us the total expenditure-waste incurred per course. For the postgraduate level we have considered two consecutive years (2B) and calculated student-waste as well as expenditure waste due to student-waste.

The data on pre-liberalisation Indian higher education shows that there had been a continuous gradual fall in the proportion of dropouts between the first and third years at the graduate levels and this was true for both boys and girls. However, it is interesting to note that in both graduate and postgraduate levels the proportion of dropouts for girls was always lower compared to that of the boys. Even the proportion of candidates appearing at examination who could not succeed are always lower for the girls compared to the boys.[6]

This may be placed against the fact that at the school level (Table 4) girls' dropout rates were always higher than that of the boys. Average dropout and wastage for girls were much higher

Table 3: Percentage Distribution of Persons of Age 5-24 Years Who Were Ever Enrolled But Are Currently Not Attending (Completed) by Level of Education

Completed Level of Education	Per Cent	Cumulative Per Cent
Below primary	20.5	20.5
Primary	28.5	49.0
Middle	28.1	77.1
Secondary	13.8	90.9
Higher secondary	6.0	96.9
Diploma, graduate, postgraduate	3.1	100.0

Source: NSS, 52nd round, October 1998.

in primary and secondary levels than in the university level. This contrasting picture with regard to girls' dropout at the school level vis-à-vis college and university levels lead us to conclude that it is the parents who are the decision-makers regarding minor girls' education and when economic pressure compels the household to consider education as less basic a need and relegate it to secondary importance compared to other basic needs like food, shelter and clothing, it is the girls' education, which receives the first blow. The girl children have to bear the impact of poverty more than boy children. By contrast, when girls are in a position to take up decisions regarding their education, they prefer to stick to their duties as students more often than the boys. Therefore, the findings that for schoolchildren, girl's dropout in the pre-liberalisation period has been much higher than that of the boys may be due to the fact that in most cases parents wanted their boy child to continue learning, in preference to their daughters. There may be an alternative explanation for the fact that at the college and university levels, boys' dropout was higher than that of the girls. It is that for the boys there is the necessity to find a job which leads them to drop out from higher education particularly when the probability of getting a job after passing examinations is not necessarily higher. It may also be indicative of the fact that for girls the necessity of finding jobs does not assume prime importance. We have further examined this, with the help of data on the educational profiles of male and female workers.

Now coming to the question of estimation of wastage in terms of expenditure in the pre-liberalisation period in higher education, as Tables 5 and 6 show, if all the students enrolled continued their study and completed the course the per head expenditure as granted by the authority would have been much less than what actually came to be, since the actual number of students were far less than the total capacity. It is seen that the actual expenditure incurred is 1.5 times the expenditure that should have been. A comparison between per head expenditure on full capacity utilisation and per head actual expenditure shows that the ratio between the latter and the former has been all along lower at the postgraduate level compared to the graduate level. While at the postgraduate level it varied from 1.1 to 1.2, at the graduate level it varied between 1.1 and 1.7. All these mean that capacity utilisation remained all along better in the postgraduate level compared to the graduate level, although the unit cost of education has been very high at the postgraduate level compared to the graduate level.

Now, we come to the measurement of expenditure wastage (Figures 4 and 5). The expenditure waste for girls in absolute figures was always far smaller than that of the boys. This is not only because the proportions of boys leaving education before completing the course at different years have been always higher than that of the girls but also because the total enrolment was always far greater for the boys compared to the girls.

We have not been able to conduct similar analysis for the post-liberalisation period due to a lack of comparable data. However, we have tried to have some rough and first-hand idea regarding wastage in higher education due to dropouts for the period on the basis of available NSSO (52nd round) data, which provides us the data on dropouts at different stages of educational level.

The NSS data shows that (Table 7) at the higher educational level out of 1,000 students almost 71 students in the rural area and 109 students in the urban area are still dropping out due to various reasons. Incidentally, the dropout rate is more prominent in the urban area both for males and females separately. And it is higher among males than female students in the post-liberalisation period too. In order to have an approximate idea of monetary wastage due to student dropout at the graduate and higher levels on the basis of the survey which refers to 1995-1996, we start with the fact that on an average at the higher level, 80 students per 1,000 dropped out (Table 3). According to the estimate provided by GoI, per student public expenditure in higher education was Rs 5,812 during the year 1995-96 (in 1993-94 prices), and the *Statistical Abstract* gives us the estimation of total enrolled students for the same year as 65.74 lakhs. On the basis of these figures we estimate the approximate monetary wastage due to a student dropout at graduate and above levels in 1995-96 to be Rs 305.66 crore. This has been estimated as 8 per cent of public expenditure spent for higher education for the single year 1995-96.

Wastage as has been analysed so far due to stagnation and dropout mainly indicates that the direct expenditure incurred in higher education of the country has not been fully utilised. And here we have enough reason to question the problem of "scarcity of budget" or "growing budgetary constraints" as an unavoidable problem. After analysing the huge amount of monetary wastage in the pre-liberalisation period solely due to student dropout and the existence of dropout among students at the higher education level in the post-liberalisation period we would like to suggest

Table 4: Dropout Rates at Different Levels of School Education (in Proportion)

Class	(I-II)/I	(II-III)/II	(III-IV)/III	(IV-V)/IV	(V-VI)/V	(VI-VII)/VI	(VII-VIII)/VII	(VIII-IX)/VIII	(IX-X)/IX
Year	1950	1951	1952	1953	1954	1955	1956	1957	1958
Boys	0.35	0.16	0.14	Not found	Not found	Not found	0.11	0.18	0.08
Girls	0.42	0.21	0.20	Not found	Not found	Not found	0.14	0.30	0.11
Year	1955	1956	1957	1958	1959	1960	1961	1962	1963
Boys	Not found	Not found	0.14	0.16	0.16	0.90	0.01	0.17	0.11
Girls	Not found	Not found	0.19	0.20	0.25	0.12	0.12	0.22	0.56
Year	1960	1961	1962	1963	1964	1965	1966	1967	1968
Boys	0.38	0.16	0.13	0.12	0.12	0.13	0.09	0.16	0.11
Girls	0.42	0.20	0.17	0.16	0.30	0.14	0.15	0.24	0.17
Year	1965	1966	1967	1968	1969	1970	1971	1972	1973
Boys	0.40	0.17	0.17	0.14	0.12	0.12	0.12	0.17	0.12
Girls	0.43	0.21	0.21	0.21	0.26	0.14	0.14	0.18	0.14
Year	1970	1971	1972	1973	1974	1975	1976	1977	1978
Boys	0.37	0.16	0.16	0.12	0.13	0.12	0.12	0.16	0.13
Girls	0.39	0.18	0.18	0.19	0.23	0.13	0.17	0.18	0.18
Year	1975	1976	1977	1978	1979	1980	1981	1982	1983
Boys	0.27	0.21	0.16	0.11	0.06	0.11	0.05	0.14	Not found
Girls	0.32	0.24	0.16	0.16	0.15	0.10	0.09	0.20	Not found

Source: *Education in India*, MHRD, Government of India, different years.

Figure 4: 'Expenditure-Waste' in Higher Education at the Graduation Level (in Rs in Lakh) in the Pre-liberalisation Period

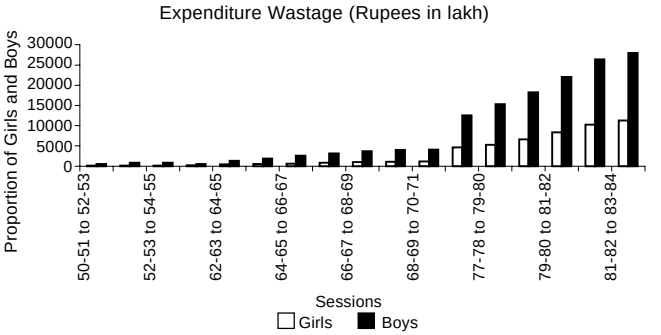
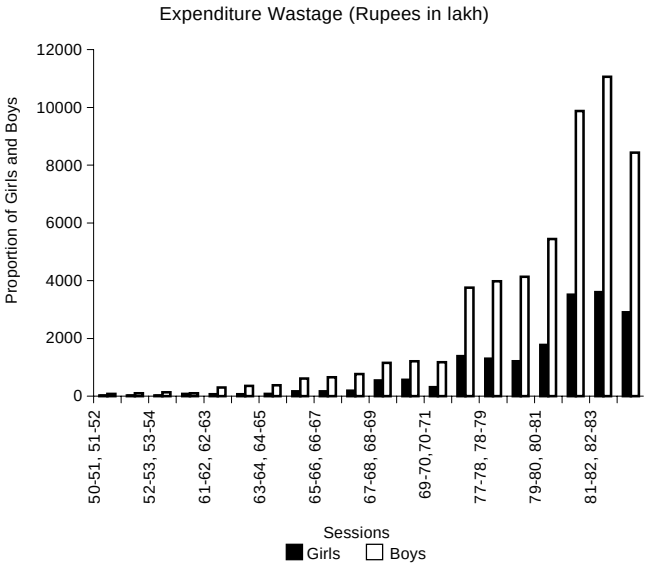


Figure 5: 'Expenditure-Waste' in Higher Education at the Postgraduation Level (in Rs in Lakh) in the Pre-liberalisation Period



the restructuring of education system with special emphasis on professional and vocational education both at the school and college levels. It should be remembered here that there are various other fields of training which can fill the gaps between the school final stage and the university and would benefit a large number of people who would otherwise be applying to the universities simply because they have no suitable alternatives to turn to.

Thus we have seen that a huge amount of wastage occurs both at the primary school level of education and higher level of education. Obviously, the wastage that occurs at the primary level has to be analysed by completely different factors from those which can explain wastages at the higher levels. While schoolchildren's decision regarding dropping out from the education system is mostly guided by poverty and factors that are completely out of control of the students themselves, for higher level students such a decision is often taken out of compulsion such as the low probability of getting a remunerative job after completion of their education. The probability of getting opportunities of gainful engagement after completing the course is so low that it is often pointless to get higher education. For women, a lack of employment opportunity which is combined with traditional views regarding women's purpose in life induce the girl student to drop out of the education system.

Now, let us examine the second kind of wastage, i e, wastage due to the non-utilisation of training. We have mentioned that students who after completing the course either do not utilise the training knowledge or are not able to utilise the training due to lack of opportunities, give rise to this specific component of wastage. The analysis has been done on the basis of data received from the Census of India.[7] If we analyse the distribution of total workers as a percentage of total population with different educational levels, it is seen (Tables 8 and 9) that in 1970-71, almost 50 per cent of the "illiterate" males and 12.94 per cent of the "illiterate" females and 70 per cent of the "graduate and above" males and 24.44 per cent females were recognised as workers. Therefore, there has been a direct relationship between an increase in the educational level and the possibility of getting employment for both males and females. Secondly, proportions of males and females in the educational category, "technical diploma or certificate not

Table 5: Cost of Education and Capacity Utilisation at Graduate Level

Session	A/B x 3 (in Rs)	A/C (in Rs)	3 B: C	C/3B Capacity Utilisation (in Per Cent)
50-51 to 52-53	399.34	613.22	1.5:1	67
51-52 to 53-54	519.80	883.67	1.7:1	58
52-53 to 54-55	527.50	724.00	1.4:1	72
61-62 to 63-64	578.67	635.00	1.1:1	91
62-63 to 64-65	529.48	653.00	1.2:1	84
63-64 to 65-66	521.70	680.30	1.3:1	77
64-65 to 66-67	526.78	723.88	1.4:1	71
65-66 to 67-68	536.65	747.27	1.4:1	71
66-67 to 68-69	561.51	773.29	1.4:1	71
67-68 to 69-70	586.63	784.37	1.3:1	77
68-69 to 70-71	645.32	821.30	1.3:1	77
76-77 to 78-79	1397.13	1806.70	1.3:1	77
77-78 to 79-80	1673.66	2128.45	1.3:1	77
78-79 to 80-81	1705.96	2265.85	1.3:1	77
79-80 to 81-82	1855.11	2537.41	1.4:1	71
80-81 to 82-83	1900.55	2654.82	1.4:1	71
81-82 to 83-84	1996.88	2760.05	1.4:1	71

where A = the total direct expenditure for all the years in a particular course.
B = the total initial enrolment in the first year.
C = the total number of current students for the whole course.

Source: Education in India, MHRD, different years.

Table 6: Cost of Education and Capacity Utilisation at Postgraduate Level

Session	A/B x 3 (in Rs)	A/C (in Rs)	2B: C	Capacity Utilisation (in Per Cent) (C/2B)
50-51, 51-52	2747.23	2996.97	1.1:1	90
51-52, 52-53	2730.00	3034.00	1.1:1	90
52-53, 53-54	2715.22	3046.00	1.1:1	90
53-54, 54-55	2910.42	3175.00	1.1:1	90
61-62, 62-63	3321.93	3677.00	1.1:1	90
62-63, 63-64	3620.49	3979.30	1.1:1	90
63-64, 64-65	3807.58	4224.00	1.1:1	90
64-65, 65-66	3942.67	4447.00	1.1:1	90
65-66, 66-67	3988.69	4497.30	1.1:1	90
66-67, 67-68	3836.08	4404.00	1.1:1	90
67-68, 68-69	3621.90	4495.00	1.2:1	84
68-69, 69-70	3794.03	4601.00	1.2:1	84
69-70, 70-71	3872.10	4398.00	1.2:1	84
76-77, 77-78	8022.66	9618.21	1.2:1	84
77-78, 78-79	9270.09	10665.59	1.2:1	84
78-79, 79-80	10084.29	11452.51	1.1:1	90
79-80, 80-81	11845.78	13628.40	1.2:1	84
80-81, 81-82	14322.78	16478.16	1.2:1	84
81-82, 82-83	15332.93	17634.64	1.2:1	84
82-83, 83-84	15323.80	17708.96	1.2:1	84

Source: Education in India, MHRD, different years.

equal to degree" who were workers were the highest, i e, 93.34 per cent for males and 71.43 per cent for females (Table 9).

This means while 30 per cent of the "graduate and above" males and 75 per cent of the females remained without any gainful work, less than 7 per cent of the "technical diploma holder" males and less than 29 per cent of such females remained without work. These tables also show getting "middle" level education and "matriculation and higher secondary" education does not help particularly, for females remaining at work, though a "matriculation or higher secondary" education with even a "non-technical diploma" proves of greater help both for the males and females than a "graduation or above" degree.

More or less the same trend holds till 1980-81. "Matriculation and higher secondary degree" with "technical or non-technical diploma" still seems to provide the highest employment opportunity for both males and females. While the proportion of "graduate and above" males recognised as workers increased somewhat during the period, the proportion of such females recognised as workers was only 18.13 per cent in 1980-81. Thus in 1980-81 also the "technical and non-technical diploma" gives more chance for girls to find gainful work.

During the post-liberalisation period, i e, in 1990-91, the trend has changed to a large extent and along with the "non-technical diploma" the "graduate and above" degree provide highest employment opportunity for males. But this has not been true for the female worker. As for females, "non-technical" and "technical diploma" still give more chance (50 per cent) to find gainful work compared to the "graduate and above" (27.59 per cent). Again, total workers as a percentage of total population in the educational category of "technical diploma or certificate not equal to degree" has declined consistently between 1970-71 and 1990-91 whereas the "graduate and above" category has shown an increasing trend over the period. But females recognised as workers as a percentage of total population within the category of "diploma or certificate not equal to degree" is higher than that within the category of the "graduate and above" level throughout the period under consideration.

On the other hand, Table 10 shows that among "graduate and above" degree holder non-workers, in 1991, 70.57 per cent of females and in 2001, 62.65 per cent of females are associated with household duties, whereas for males this percentage has been 6.51 in 1991 and 2.80 in 2001. Thus, it seems to follow from this table that majority of the non-worker females with higher educational levels are associated with household duties. Again, among male "graduate and above" non-workers in 1991, 44.94 per cent were students, whereas in 2001, 35.39 per cent were students, for females the percentages were 16.45 in 1991 and 11.73 in 2001.

However, the picture emerging from Table 10 may be taken to be somewhat ambiguous since this does not give any age-specific distribution of the non-workers; Table 11 helps us to some extent. This table gives the distribution of sample of 10,000 non-workers (males and females separately) for the year 1970-71 and percentage distribution of non-workers by main activity, educational level and sex for 1990-91 and 2001. It can be seen from Table 11 that in 1970-71, of the total male non-workers, an overwhelming majority (more than 90 per cent) falls in the age group below 19 years. While for females this proportion is around 55 per cent indicating that while somewhat more than 9 per cent of the non-workers are adult males (20 years and above), more than 45 per cent of the female non-workers belong to the same age group. In the year 1991, the percentage slightly came down to 8 for male and 37 for female but in 2001 it again increased at 9.65 for male and 62.29 for female. If infants and dependents are excluded, among the "student" category of non-workers, majority (i e, more than 90 per cent) belong to the younger age-group i e, 0-19 years. But a majority of females (i e, 78.82 per cent in 1991 and 82.5 per cent in 2001) non-workers belong to

Table 7: Dropout at Different Educational Levels

Primary	Rural			Urban			Rural and Urban		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Middle	304	369	332	224	219	222	283	331	304
Secondary	274	264	269	238	246	242	265	259	262
Higher secondary	287	245	269	340	338	339	300	269	287
Graduate above	78	61	71	111	105	109	86	72	80
Total*	27	14	22	65	70	67	37	28	33

Source: NSS, 52nd Round, October 1998.

Table 8: Workers by Educational Level in India

Educational Level	Total Population (in Crore)		Total Worker (in Crore)		Total Worker as Per Cent of Total Population	
	Male	Female	Male	Female	Male	Female
Illiterate						
1971	17.16	21.48	8.56	2.78	49.88	12.94
1981	18.26	24.16	8.9	3.8	49.18	15.73
1991	20.56	27.35	9.59	4.99	46.64	18.24
2001	19.56	27.23	6.90	4.49	35.28	16.49
Literate (without educational level)						
1971	3.47	1.8	1.68	0.11	48.41	6.11
1981	4.97	2.78	1.95	0.19	39.24	6.83
1991	22.95	12.97	12.57	1.42	54.77	10.94
Primary						
1971	3.86	1.89	2.34	1.02	60.62	53.97
1981	4.67	2.61	2.74	0.23	58.67	8.82
1991	6.25	4.06	3.5	0.47	56.00	11.58
Middle						
1971	2.12	0.78	1.2	0.04	56.60	5.13
1981	2.88	1.34	1.67	0.08	57.99	5.97
1991	4.87	2.64	2.88	0.24	59.14	9.09
Matriculation or higher secondary						
1971	1.38	0.38	0.87	0.05	63.04	13.16
1981	2.03	0.74	1.36	0.08	66.99	10.81
1991	4.67	2	2.99	0.2	64.02	10.00
2001	7.60	4.13	4.63	0.46	60.97	11.12

Source: Classification of Workers and Non-Workers by Educational Levels in India, Census of India, General Economic Tables,1970-71a, 1980-81a, 1990-91a, 2001a.

Table 9: Workers by Educational Level in India

Educational Level	Total Population (in Crore)		Total Worker (in Crore)		Total Worker as Per Cent of Total Population	
	Male	Female	Male	Female	Male	Female
Non-technical diploma or certificate not equal to degree						
1971	0.03	0.0098	0.023	0.005	76.67	51.02
1981	0.01	0.0078	0.008	0.003	80	42.86
1991	0.04	0.02	0.03	0.01	75.00	50.00
Technical diploma or certificate not equal to degree						
1971	0.03	0.007	0.028	0.005	93.34	71.43
1981	0.1	0.037	0.088	0.025	80	66.67
1991	0.17	0.04	0.12	0.02	70.58	50.00
Graduate and above						
1971	0.2	0.045	0.0144	0.011	70.00	24.44
1981	0.54	0.165	0.3944	0.029	72.23	18.13
1991	1.48	0.58	1.1	0.16	74.32	27.59
2001*	2.19	1.07	1.60	0.25	73.43	23.51
Technical degree/diploma equal to degree or postgraduate degree						
2001	0.36	0.14	2.62	0.06	72.17	48.56

Note: * In 2001 "graduate and above" includes non-technical students only.
Source: Classification of Workers and Non-Workers by Educational Levels in India, Census of India, General Economic Tables,1970-71a, 1980-81a,1990-91a, 2001a.

the adult group, i e, 20-60 years and fall in the category of those doing "household duties".

Hence, our previous discussion provides ample support in favour of our starting proposition that women receiving higher education do not attach much importance to job prospects, which is confirmed by the fact that in a large number of cases highly educated females are mostly associated with household duties. Secondly, "matriculation and higher secondary degree" with "technical or non-technical diploma" still seems to provide the highest employment opportunities compared to other degrees, which may support the view that persons educated at different levels may drop out from education system in order to find jobs or some gainful employment.

All these seem to lead to the obvious observations with regard to the demand for higher education: first, higher education without a technical degree does not have much demand in the job market. In this particular field enrolment has occurred much beyond what is needed by the economy. Secondly, professional/vocational education both at the school and higher educational levels are much in demand compared to the general level of higher education and with the prospect of a growth of private investment and increasing use of technical skills, the demand for professional education at the higher level is expected to increase much more in future. Thirdly, regarding women's education, general higher education has comparatively little scope for utilisation in the economy. On the other hand, professional/vocational education seems to provide much more scope for getting remunerative employment.

Thus while demand side factors evidently have not been very important in generating the existing pattern of education, one may wonder if supply side factors have been more operative in giving rise to this pattern of education that has emerged over the years.

Table 10: Percentage Distribution of Non-Workers by Main Activity, Educational Level, Sex

Educational Level	Total Non-Workers		Students		Household Duties		Dependents	
	Male	Female	Male	Female	Male	Female	Male	Female
Total								
1991	100	100	42.59	18.55	1.43	42.81	51.66	37.66
2001	100	100	48.70	26.46	1.75	35.75	41.58	33.34
Illiterate								
1991	100	100	6.01	3.04	0.96	41.33	91.19	54.88
2001	100	100	13.45	7.45	1.40	32.76	81.48	56.75
Literate	100	100	88.9	70.43	1.2	22.49	8.25	6.63
literate below primary	100	100	83.05	42.51	1.96	50	10.22	6.69
Primary	100	100	80	38.13	2.35	55.33	9.08	5.01
Middle	100	100	68.84	27.28	2.75	65.14	11.42	4.68
Matriculation/secondary								
1991	100	100	80.48	43.91	1.93	49.12	7.87	4.17
2001	100	100	65.45	31.19	22.76	51.31	91.87	7.58
Higher secondary	100	100	53.13	19.37	3.68	60.93	15.34	6.79
Non-technical diploma or certificate not equal to degree	100	100	43.96	23.73	2.96	48.1	15	5.56
Technical diploma or certificate not equal to degree								
1991	100	100	56.33	21.03	3.44	68.89	14.53	4.72
2001	100	100	42.42	24.87	2.09	35.32	8.73	6.11
Graduate and above								
1991	100	100	44.94	16.45	6.51	70.57	17.64	6.59
2001	100	100	35.39	11.73	2.80	62.65	11.48	7.64

Note: Single year represents data for the year 1991 only. We have not mentioned percentage of retired persons, beggars, inmates of institutions and others.

Source: *Non-Workers in India: An Analysis of the 1991 Census Data*, Census of India, GoI, Non-workers by main activity, 2001 Census data.

Table 12 shows that both the number of institutions as well as the rate of growth of public expenditure have increased from lower to upper levels of education, which means the supply of educational facilities has received the least importance at the lower level compared to higher level of education. But we must remember that basic education and higher education share a symbolic relationship. If basic education is of poor quality then students going to higher education would be of poor quality too; if higher education is of poor quality, secondary school teachers would be of poor quality. In an extreme situation this would result in a downward spiral in both sectors.

However, the table shows that for vocational/professional education at the school level, rate of growth of institutions as well as direct expenditure have been negligible. Contrary to the pattern of demand in India among higher education, general education at the college level received the highest importance compared to the other levels. However, during the post-liberalisation period, professional education at the college level received more emphasis in terms of expenditure, though the number of institutions did not show a higher rate of growth. This factor may be taken to play an important role in generating relative huge enrolment at the general higher education level both for men and women irrespective of its market demand in terms of job opportunities. All these factors have also contributed to the huge dropouts and wastage as well as non-utilisation of training at the general higher educational level. From this the policy implications that seem to follow is that while there is not much ground for the government to reduce its expenditure on higher

Table 11: Distribution of 10,000 Non-Workers in Per Cent (1970-71)

Age-group	Total Non-Workers		Students		Household Duties	
	Male	Female	Male	Female	Male	Female
0-19	90	55	33.44	16.52	1.31	19.76
20-60	9	45	20.02	0.57	5.78	87.66
Percentage of non-workers in the population by age, sex (1991)						
Age-group	Male	Female	Male	Female	Male	Female
0-19	86.07	55.66	92.04	94.93	44.93	14.71
20-60	8.44	37.03	7.75	4.9	43.76	78.82
Total	100	100	100	100	100	100
Percentage of non-workers in the population by age, sex (2001)						
Age-group	Male	Female	Male	Female	Male	Female
0-19	78.99	58.39	93.37	95.29	48.89	11.97
20-60	9.65	62.29	6.07	4.08	24.25	82.5
Total	100	100	100	100	100	100

Source: Census of India,1971b,1991b, 2001b.

Table 12: Comparison of the Rate of Growth of Number of Institution and Public Expenditure at Different Levels of Higher Education (1950-51 to 1985-86 and 1992 to 2000)

(Per cent)

Category	General Education at School Level		Vocational/ Professional Education at School Level	General Education at College Level	Professional Education at College Level
	Primary	Secondary			
1950-51 to 1985-86					
Number of institution	1.20	6.27	negligible	`8.02	6.00
Direct expenditure (in real terms)	2.06	2.60	1.24	2.60	2.25
1990-91 to 2000-2001					
Number of institution	4.86	2.53	2.84	4	3.92
Direct expenditure (in real terms)	7.54	8.73	Negligible	7.57	8.29

Source: *Statistical Abstract*, CSO, different years.

education, it should allocate educational expenditure on the basis of more rational estimation of what is demanded by the economy and society.

Conclusion

The general conclusion that seems to follow from the entire study is that economic rationality demands, instead of graduate level general education, drives the expansion of the vocational and job-oriented system both at the school level and at the post school level. The policy of reducing public subsidy in higher education itself may not solve the problem of a lower rate of enrolment in higher education, an increasing number of educated unemployed, stagnation and dropout as well as wastage in higher education. It seems that instead of reduction of public expenditure in higher education, the government policy requires reorganisation of the educational structure in a way so as to create more scope for technical education and specially vocationalisation of women's education in place of expanding simple bachelor level general education. We have seen that there appears to have been a lack of consistency between the pattern of education that is available and the pattern of education that is demanded by the process of economic development.

In order to examine to what extent the Indian higher education system is wasteful, we have discussed in detail different types of wastages at higher levels of education. We have started such an exercise keeping in mind that public subsidies in higher education are inherently inefficient. While the system can be made more efficient by cost reducing adjustment, remoulding the pattern of education and redistributing student enrolment away from higher cost fields where the number of educated is already more than sufficient to meet any likely demand, can also do this. This would not restrict the scope of higher education either for men or women if it is accompanied by creation of new streams of education, in those fields where supply of educated personnel is less than demanded by society. For example, after men and women acquire a certain level of school education, they can be provided with the scope for education in primary medicine and primary healthcare, primary nursing, elementary training in handicrafts including agricultural practices and different other fields. Such education can create greater scope for self-employment and at the same time would create scope for supply of some services like primary health and basic education, which are so scarce and in demand in our society. EPW

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Notes

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1 For detail analysis see Tilak 2004.

2 In spite of the limitations of the measures, several quantitative studies have been undertaken by different authors on this particular aspect of economics of education in Indian context e g, H N Pandit 1969; P R Panchmukhi 1989; K S Chalam 1990; Sugeeta Tripathi 1997, etc.

3 A few literature is available on macro level analysis regarding measurement of dropout, stagnation and wastage in education, e g, UNESCO 1967; S N Mishra and J B G Tilak 1978; NSSO, 52nd round, 1998, Sugeeta Tripathi 1997, etc.

4 It has been discussed in detail in the PhD dissertation 'Economics of Higher Education for Women' by Sugeeta Tripathi mainly with the help of secondary data published by MHRD, GoI and Census of India.

5 During the post-independence era, the number of universities has increased from a meagre 28 in 1950-51 to above 300, and the number of colleges increased from less than 700 to more than 15,000 by 2004 [CABE Committee's Report 2005]. There was an explosion in student numbers, as the enrolments in higher education swelled from less than ten lakhs in 1950-51 to about one crore in 2003.

6 It has also been discussed in detail in the PhD dissertation 'Economics of Higher Education for Women' by Sugeeta Tripathi mainly with the help of secondary data published by MHRD, GoI. A brief analysis of the same has been available in Upadhyay (Tripathi) 2006.

7 We should mention here that the educational classification of 2001 has been somewhat different in 2001 Census than that of the earlier ones, i e, 1971, 1981, 1991. In 2001 first, we get the group "literate" as "literate but below secondary level", whereas in the earlier decades we get "literate" as "literate but without educational level". Secondly, in 2001we did not get "primary" and "middle" level or "non-technical diploma or certificate not equal to degree" separately, so we cannot compare this level's situation with the earlier decades. Thirdly, in 2001 we get "graduate and above" exclusively for non-technical level and a separate group as "technical degree/diploma equal to degree or postgraduate degree". Considering all these technical difficulties it seems that comparing 2001 with earlier decades do not produce much reliable result. Still we have mentioned the results wherever possible.

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