

THE CRISIS IN INDIAN EDUCATION

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**Training Division
Department of Personnel
Cabinet Secretariat
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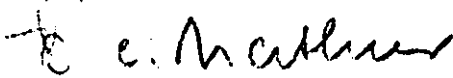
(Lal Bahadur Shastri Memorial Lectures delivered
on 10th and 11th March, 1970)

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Last year Professor A.K. Sen, formerly of the Delhi School of Economics delivered the Lal Bahadur Shastri Memorial Lectures on the theme 'The Crisis in Indian Education'. While Prof. Sen primarily discussed some of the important issues in the area of education, his analysis also brought out a few premises on which the whole question of training can be appreciated. Eminent experts are taking a position that to be meaningful, training should be considered as continuing education. This view point is finding support even within our own country. In this context, the remarks of Prof. Sen have great validity for any one interested in the development and promotion of training. The lectures are, therefore, being reproduced in our Training Abstracts series with the hope that they will promote a better understanding of this new dimension of training.

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(B.C. Mathur)
Director of Training &
Joint Secretary

Lecture 1

The growth performance of the Indian economy has not been spectacular, and while the Indian citizen is used to ambitious planning he is not accustomed to much achievement. Targets of planned growth have been typically underfulfilled in most branches of planning. In this over-all picture of frustrated growth and sluggishness, education is a field that provides a comforting contrast. Between 1950-51, when the First Five Year Plan was initiated, and 1963-69, enrolment in schools went up by more than three times, and that in Universities and institutions of higher education by nearly five times. These are impressively high rates of growth, and over-fulfilment of targets is a familiar story in educational expansion. If one wants to be comforted about growth in India and seeks consolation in cold statistics, one can scarcely do better than go through our official educational data.

And yet there is something fundamentally odd in our approach to educational planning, and there is a sickly picture behind the facade of robust statistics. That not all is well in Indian education has been frequently noted, and failures in one field or another have been pointed out by distinguished academicians, policy makers and political leaders. The problem cannot, however, be adequately discussed

in terms of failures here or shortcomings there; our entire approach to educational planning seems to be open to question. The difficulty is in the nature of a chronic disease that feeds on itself, and the ailment has now reached crisis proportions. It is to an analysis of the nature of this crisis that I would like to devote today's lecture, and tomorrow I shall try to discuss policy measures to deal with this crisis.

I should note at the outset that whatever may be the characteristics of the crisis of Indian education, governmental neglect is not one of them. The allocation of public funds to education has been substantial, and the share of education in the total government budget has been growing steadily. Furthermore, expenditures have been incurred not in a thoughtless manner but after a great deal of deliberation and discussion. Aside from a machinery of educational planning that is elaborate, there has been a series of distinguished committees and commissions taking stock and making recommendations. The pioneering Sargent Report on Post-War Educational Development in India was prepared as early as 1944. After that the University Education Commission of 1948-49 under the chairmanship of Dr. Radhakrishnan initiated a thorough reorganization of the university education system in India. The Secondary Education Commission, which reported in 1953, looked into

secondary schooling in detail and recommended many changes. The so-called Kher Committee Report of 1951 went directly into the administration of primary education. The Committee on Model Act for Universities, which reported in 1964, had the opportunity of going into issues that had arisen since the Radhakrishnan Report. There were a number of other committees as well which went into various aspects of Indian education. Finally the Education Commission of 1964-66 under the chairmanship of Professor D.S.Kothari provided a comprehensive study of education in India and suggested "principles and policies for the development of education at all stages and in all aspects". All these reports have been thoughtful and thorough. The Report of the Education Commission of 1964-66 has, in fact, gone through practically every conceivable question of the development of education in India, and its recommendations are, in general, full of insight and wisdom.

Aside from these periodic reports, the Ministry of Education and its agencies such as the University Grants Commission has had a galaxy of distinguished men to run its affairs. The general level of administrative efficiency is high, and public bodies like the University Grants Commission have established standards of devoted work, efficient operation, and unbureaucratic promptness, of a kind that is entirely rare in India.

It should, therefore, be evident that the crisis cannot be attributed to administrative neglect or to thoughtless action. We have to go more deeply into the nature of the Indian society and to evaluate the impact of our social structure on educational policy making. I would argue in these lectures that there have been grave failures in policy making in the field of education, but none of the usual suspects (such as bureaucracy, red-tapism, financial neglect, operational inefficiency) seem to be guilty. The nature of the policy failures requires an analysis of the characteristics of the economic and social forces operating in India, and the response of public policy to these forces! It is with this background that I should try to examine what, if anything, has gone wrong with Indian education.

One aspect of the crisis is the rapidly deteriorating standards of education, especially of higher education. This has been noted by many authorities and is certainly well-known to the teaching community. The Education Commission of 1964-66 summed up the position thus:

There is a general feeling in India that the situation in higher education is unsatisfactory and even alarming in some ways, that the average standards have been falling and that rapid expansion has resulted in lowering quality. The examination results, the reports of Public Service Commissions, the views of employers and the assessment of teachers themselves, the results of research done - all seem to support this conclusion, ...

... over a large area of education, the content and quality are inadequate for our present needs and future requirements, and compare unfavourably with the average standards in other educationally advanced countries. What is worse, the large gap between the standards in our country and those in the advanced countries is widening rapidly. Many of our educationists and public men, however, have not fully realized how serious are the actual conditions, academic and physical, that obtain in colleges and universities. Even those who are broadly aware of the situation, fail to notice its poignancy because they have become used to such conditions.¹

Much has been said already on this problem of deteriorating standards, and I need not go into this further at this stage. It is, however, important to emphasize the close link between this problem of declining academic standards and that of rapid growth of enrolment. With a rapidly growing education system the need for additional teachers is relatively large and for the success of the education system the teachers have to come from among the best products of the system. Given the nature of alternative job opportunities for the better qualified people, it is easy to run into a bottleneck of good potential teachers if the system is growing very rapidly. This is especially so when the rate of growth is itself speeding up. This is precisely what has happened in India, and [the shortage of good teachers] has characterised the exploding education system in this country.

¹ Report of the Education Commission 1964-66, Ministry of Education, Govt. of India, New Delhi, 1966, p.278.

If we wish to go deeper into this question we have to ask about the nature of the compulsion behind the fantastic growth rates of our educational system. Before we turn to that question a preliminary point of economics may be worth clearing up. When there is a shortage of skilled labour of a certain kind in some branch of the economy, one way of eliminating that shortage is to offer relatively higher salaries. Through this means skilled labour of the requisite type may be attracted away from other fields into the one in question. Since the problem of shortage of good teachers has been much discussed in India, it should be checked to what extent this has taken place here.

A simple test is to compare the rate of growth of national income per head with that of the teachers' salary levels.

The Education Commission provides calculations of changes in the average salary of teachers between 1950-51 and 1965-66, corrected for price changes. For the sake of comparison I may note that in this period the Indian national income per head at constant prices rose by 21 per cent.² Did the teachers' salaries go up by more than this proportion? The answer is not at all. Quite the contrary. In fact the salaries after correction for price adjustments in the University departments rose by only 5 per cent, that in professional colleges fell by 2 per cent, and those in

² Economic Survey 1966-67, Govt. of India, New Delhi, 1967 Table I.1.

colleges of arts and science fell by as much as ten per cent.³ Far from there being an attempt to move ahead of the economy, this sector fell far behind it, and in fact registered a declining real salary level in many crucial branches. The same picture emerges if we compare the movement of teachers' salaries with other indicators like the trend of real wage rate and the growth of salaries in other important professions.

The acute shortage of good teachers is, thus, only partly due to the fast rate of expansion; it is also the result of a refusal to pursue the economic implications of such an expansion. As the salary level of the teachers fell behind the general march of the economy, the ability of the education system to attract good teachers significantly declined. The general decline of the qualifications of the teachers in colleges and universities is partly a reflection of this. To put it sharply the crisis of standards is the result of the Government's attempt to make the education system expand at a fantastically high rate without carrying through the economic implications of such a policy.

It might be asked whether this is a matter of public policy only; what about the private colleges?

³ Report of the Education Commission 1964-66, p. 47

Why have they not tried to attract better teachers by offering higher salaries? This is an important question, but in answering it we must bear in mind the special characteristics of education as a branch of the economy.

*The influence of public policy is all-pervasive in this field. Most of the so-called private colleges are run partly or substantially on public support. The possibility of varying teachers' salaries or students' fees is very limited. Higher productivity of teachers does not automatically reflect itself in a rise of profits of the colleges. Students compete with one another ~~x~~ to get into colleges and there is a "sellers' market". A private college, therefore, has good reasons to enrol as many students as the university regulations permit and offer the lowest salary at which they can recruit teachers - good, bad or indifferent. There are of course distinguished colleges ^{which} which have not viewed the problem so mechanically, but ^{the} the general run of private ~~x~~ colleges have certainly seen ^{little} little reason for trying to offer higher salaries to ^{attract} attract better teachers. And as the standard of recruitment has declined practically everywhere, no individual college has been at a particular disadvantage on this score. The absolute levels of quality do not affect the colleges' measures of performance; all it need be concerned with is relative quality vis-a-vis other colleges. A general decline in quality leaves the college finance substantially unaffected.

The market mechanism is, therefore, totally ill-equipped to deal with this problem, and the responsibility for tackling this rests squarely on the shoulders of the guardians of public policy. In view of this it is remarkable how little discussion there has been on the economic questions surrounding the performance of the educational system. Instead the attention has concentrated on one magic formula after another which are floated with the promise of curing our ailing standards of teaching. The introduction of the "semester system" the use of "multiple choice questions" in examinations, the reliance on "internal assessment", and a host of other panacea have been brandished about. Our education system does undoubtedly need reform; and these and other suggestions should certainly be discussed. But what it needs most is a steady inflow of good teachers into the system, and in this context it is of paramount importance to recognize that educational institutions have to compete with other employers in getting talented people. The situation is particularly acute in the affiliated colleges where the overwhelming majority of lecturers work and students study.

I have concentrated so far on the failure of public policy in carrying out the economic implications of the extraordinarily rapid expansion of higher education. I turn now

to the question of the rapid expansion itself. How rapid is it? Is it too fast? What are its social, cultural and economic features?

University education has been growing much faster than school education. Of late this dichotomy has further sharpened. Between 1960-61 and 1968-69, while primary enrolment rose by 60 per cent, that in University and higher education registered a rise of 128 per cent, i.e., the latter rose more than twice as fast in proportionate terms. Indeed as we go from primary to middle school, from middle to secondary school, and from secondary school to Universities and institutions of higher learning, the growth rate goes up in each case. To put it in another way, the lower the level of education the slower is the rate at which we are progressing.

This fact in itself need not be disturbing. Once the country reaches a desirable level of education at the lower stages, the only expansion possibilities that remain open are in the field of higher education. Thus for a country like Britain, the Soviet Union, America, or Japan, primary education can hardly grow much since practically everyone already gets primary schooling. In evaluating Indian educational growth rates, therefore, we have to look at the level of performance already achieved.

There has been a considerable rise in the percentage of literacy since independence. In 1951 only 17 per cent of the population was literate, while today the proportion is thought to be 33. This is a rise of some magnitude, but the current ratio of literacy is still extraordinarily low, with a clear two-thirds of the Indian population unable to read or write. However, it might be argued that this level of performance should be better judged by the proportion of children attending primary schools. While this is not the whole story, since the possibilities of adult education are enormous in a country like India, nevertheless we may concentrate on primary enrolment among children. According to official statistics, 80 per cent of the children between six to eleven are enrolled in primary schools. This may appear to be a high ratio, and in some ways it undoubtedly is so. However, to achieve universal literacy within the foreseeable future it is necessary to make everyone go through the primary school system, and to leave every fifth child outside the school system altogether is no way of going about achieving universal literacy. However, given our earlier enrolment history, raising it to 80 per cent is not an achievement that should be pooh-poohed, if indeed this 80 per cent figure

can be accepted. Unfortunately, there are very serious reasons to doubt this piece of official statistics.

First of all, there are difficulties in deciding which set of official figures to use among the alternatives offered. The 80 per cent enrolment ratio in primary education that I quoted before comes from the Draft Fourth Five Year Plan (p. 280). The same document records the ratio to be 62 per cent in 1960-61. On the other hand the Report of the Education Commission identifies the ratio to be only 55 per cent for the year (p. 161). One source of difference is that the Planning Commission gives the enrolment ratio for Classes I to V, whereas the Education Commission figure refers to Classes I to IV. This would have, however, made the Planning Commission ratio lower rather than higher since the enrolment proportion goes down with later classes and the ratio for Class V must be lower than that for Classes I to IV. Thus the explanation of the higher Planning Commission ratio must be sought elsewhere.

The main difference lies in the definition of what is called a "pre-primary" class and what is called Class I in primary education. Some classes that the Education Commission treats as pre-primary are lumped into the primary category by the Planning Commission.

The source of the trouble is that while in most states the Secondary School Leaving Certificate follows ten years of successful schooling, the process takes eleven years in Andhra Pradesh, Bihar, Gujrat, Madras, Maharashtra and Orissa, and twelve years in Assam, Nagaland, and NEFA. But these certificates from different regions are taken to be equivalent to each other, and these are obtained at roughly the same age in all the regions. Hence the Education Commission classifies the earliest year or two as pre-primary in the States with 11-year or 12-year schooling, while the Planning Commission does not make use of such a distinction. The matter can be settled only after checking the exact content of education in the early school years in the long-schooling states, but there is no definitive study on this.

But this is not all. The Planning Commission figures and those of the Education Commission both have the same percentage, viz., the Education Ministry itself, including of course the Ministries of Education of the different states. There is, however, an alternative source of data on school education for the year 1961, viz., the Census of India.

The picture there is quite different. For 1961 the total enrolment of students in the age-group 6-14 was 41.7 million according to the Union Ministry of Education,⁴ while according to the Census the number of full-time students in that age-group was only 34.6 million.⁵ This difference of 7.1 million is more than 20 per cent of the Census figure and can hardly be dismissed as a minor discrepancy.

What is the source of the difference between the Census figures and the Ministry figures? Partly it is undoubtedly due to difference in the definitions used in the two studies. The Census figures refer only to students among non-workers, while the Ministry concentrates on the total enrolment. Part of the difference may be represented by workers who are enrolled in schools as full-time students. Does this explain away the whole difference? This seems extremely unlikely. The census does not break down the workers according to educational activity, but altogether there are only 14.5 million workers in the age-group 0-14.⁶ We don't know how many of

⁴ Education in India 1960-61, Volume II, Ministry of Education, Government of India, New Delhi, 1966.

⁵ Census of India 1961, Vol. I, Part II-B(ii). See also Primary Education in Rural India: Participation and Wastage, Agricultural Economics Research Centre, University of Delhi, May, 1969.

⁶ Census of India 1961, Vol. I, Part-II B(i), P. 86.

them went to school, but we do know that only 30 per cent of workers other than cultivators in this age group in the urban areas were literate.⁷ Since anyone going to school is likely to be literate, this gives us an absolute maximum of the number of workers going to school. Assuming the same proportion in the rural areas, the total number of workers in schools cannot exceed 4.4 million, which still leaves 2.7 million enrolment in the Ministry figures unaccounted for. In fact, the actual difference is likely to be very much more since literate workers are not necessarily in school. Much trust cannot be put on the Ministry's enrolment figures as representing the actual number of school students.

Indeed there are good economic reasons for expecting that the Ministry's enrolment figures will be biased in an upward direction. These data are collected by the State Ministries in the same complex of activities which includes giving grants to the Schools. The grants depend on the number of

⁷ Census of India 1961 Vol. I, Part II-B(iii), p.88. The Eighteenth Round of the National Sample Survey reports that only 17 per cent of the labour force aged 5-9 and 34 percent of the labour force aged 10-14 were literate in 1963-64 (N.S.S. Number 164, Table 3.b). The ratio of 30 per cent for 1961 is thus consistent with the N.S.S. data but is probably an over-estimate.

students enrolled, which provides a built-in bias in the process of reporting of enrolment. There is no comparable distortion in the Census figures, and much of the difference of the two sets of figures may arise simply from this.

One other difficulty in the enrolment ratios of the Planning Commission and the Education Commission lies in the fact that they represent the proportion of all students in certain classes to the population of the corresponding age-group. But in fact many students in a class are older or younger, as Shri J.P. Naik has shown ("Enrolment Policies in Indian Education", Manpower Journal, Vol. I April 1965). For primary education this tends to inflate the ratio since the number of older boys in primary classes is much more than the number of younger boys in post-primary classes.

Furthermore, the problem of drop-out is a serious one in rural education. People may drop out but may continue to be enrolled. So the enrolment figures may mislead. If we go by the Census figures and make the appropriate age corrections, the proportion of full-time students in the primary age-group (6-11) will appear to be only 44 per cent. This has to be compared with the Ministry's enrolment ratio of 55 per cent and the Planning Commission's claim of 62 per cent, all

relating to 1960-61. If a similar discount is applied to the Planning Commission's figure of 80 per cent for 1968-69, we shall get the ratio of full-time students last year merely as 57 per cent of the primary age group. This is, of course, a dismally low figure, and I would not argue that the view is really so dark. We have to wait for the 1971 Census for fresh figures on this. But there are good reasons to think that the picture is a lot less rosy than we would imagine from the Planning Commission's figures or the data of the Ministry of Education. The story of primary education looks more and more disquieting the deeper we go into the data.

Further there are major disparities both between sexes and among regions. The schooling ratio for girls is even less than half of that of the boys according to the Census figures. And the regional contrasts are very sharp indeed. While in Kerala there were very few non-school-goers, in Madhya Pradesh only 36 students in a hundred were full-time primary school students. The figure is slightly lower for Bihar, and for Uttar Pradesh and Rajasthan the number touches the low of 30 and 29 respectively. In these States the battle against illiteracy would seem to have hardly begun.

It is in this context of failure of our primary educational policy that we have to view the fantastic rates of growth of our higher education in universities and colleges. / The point is often made, quite correctly, that primary education is expensive, and to make a more ambitious effort towards expanding primary education will strain our educational budget. / But surely the problem of getting resources for different types of education cannot be viewed in isolation from one another. While viewing one of the most tantalizing growth pictures of higher education that has ever been seen in the world, it is worth bearing in mind that the average cost of educating an undergraduate in arts and science for one year is the same as educating 22 students in primary school for a year. The cost of giving someone one year's teaching at the M.A. level equals that of schooling 21 primary students; and one M.Sc. student cost us 89 primary students in equivalent terms.

⁸ These figures refer to 1965-66 and include actual expenditures by schools as well as those on books and imputed rent, as calculated by M. Blaug, P.R.G. Layard and M. Woodhall, The Causes of Educated Unemployment in India, Allen Lane, The Penguin Press, London 1969, Table 8.10, p. 206.

I commented before on the impact of the exploding numbers in higher education on the academic standards. We also noted that if growth rate of this kind has to be achieved without a decline of standards, a considerable raise in the salary of lecturer in higher education will be necessary to attract the required number of good teachers. Needless to say if any such adjustment takes place, the contrast between the cost of primary and higher education will be still more sharp. However, I do not wish to attach too much importance to this argument since the case for a rise in primary teachers' salaries is also strong though not based on exactly the same reasoning. On balance the cost ratios may or may not change, but what is worth noting straightaway is the enormous amount of primary educational sacrifice that is involved in the present policy of breakneck expansion in higher education.!

Before I move away from this topic two possible objections are worth discussing. First, these cost ratios are relevant only in so far as resources can be transferred from one field to another. It has been argued that the two types of education absorb very different types of resources, and that if the rate of expansion of higher education is made somewhat lower this will only release potential college teachers who may not be available for

school teaching. This is certainly so up to a point, even though some of the resources used are in fact precisely the same, e.g., building materials for constructing school houses or college buildings. More importantly there are possibilities of substitution of a more complicated nature. One reason for hesitating to expand the number of schools may be the inflationary impact of hiring more school teachers who will demand more consumer goods. The same inflationary problem is present with the expansion of colleges as well, and here a reduction in one field may curtail inflationary pressure so as to permit expansion in another field. Similarly both types of expenditure have foreign exchange implications, usually through indirect channels, and expansion of schools and colleges may to some extent compete for the use of foreign exchange allocation. If the total picture of the economy is taken into account, it should be clear that school education does compete with higher education for scarce resources.

* The second point which is some times made is that by cutting down the rate of growth of higher education the deficiency of primary education cannot be fully met. In substantiating this argument it may be pointed out that primary education in the form of Classes I-IV may ~~provide~~

absorb/about 20 per cent of total educational expenditure in India, whereas that for higher education may be about 17 per cent.⁹ However, these figures are not very telling, since in spite of the higher ratio of primary education a sizeable help to expand primary education substantially. Evidentially a reduction in the relative importance of higher education cannot bear the entire burden of raising the allocation to primary education, but it can be an important constituent of that policy.

But no such shift in policy seems to be in fact in sight, even though the failure of the Government's primary educational policy has attracted much attention recently. The explosion of higher education is not likely to slow down. It is relevant to enquire into the compulsions behind the public policies on higher education. It is not sufficient to argue that the Government policy has been preoccupied with quantitative expansion, and not with preservation of, or improvements in, the quality of that education. This preoccupation is undoubtedly a fact, but the question remains: why has the Government been so determined to push the quantitative expansion of higher education at such fantastic rates? The answer as far as I can see lies in a mixture of two considerations. First, there are upward biases in the Government's

⁹ The Report of the Education Commission, 1964-66, p.467.

method of estimation of the educated manpower requirements for economic growth, and second, the Government has been remarkably responsive to political pressures for the quantitative expansion of higher education.

As an example of the former we may refer to the manpower estimations that were done for the Education Commission 1964-66, on the basis of which the Commission drew up its enrolment programmes in higher education. The calculations, which were done by a joint team of the London School of Economics and the Indian Statistical Institute, treated the service and the non-service sectors differently. As far as the non-service branches were concerned it divided up the economy into a number of sectors and proceeded on the assumption that "as net output in each sector and in each branch of manufacturing increases, so proportionately will be the employment of educated manpower" (p. 94, italics mine). Different growth rates were assumed for the different sectors averaging 6.6 per cent a year for the economy as a whole during 1961 to 1976, and 7.0 per cent for the period 1961-1986. The pattern of manpower employment in 1961 was taken as the base, and manpower requirements were worked out on the basis of proportional growth of manpower and sectoral outputs. After calculating the manpower requirements of different types in 1975-76 and 1985-86,

the Commission drew up the enrolment policies for secondary and higher education.

As far as the services were concerned, certain more or less arbitrary "norms" were used. The requirements of doctors were calculated on the basis of the "norm" of one doctor per 3,000 people in 1975-76 and one doctor per 2,000 people in 1985-86. Similarly given teacher-pupil ratios were used for education. The educated manpower requirements of public administration and defence were assumed to grow at 4 per cent a year.

It may, first, be noted that the growth rates of the Indian economy that have been assumed are peculiarly high. The Indian economy is not used to growing at six or seven per cent a year. Already the economy has fallen much behind the projections that were used by the Education Commission. Thus the demands of manpower are over-stated. Second, the considerable volumes of unemployment of various types of skilled labour which characterize the Indian labour market were ignored. If explicit account were taken of this factor, the required enrolments would have been lower.

Third, it was overlooked that in a situation of educated unemployment many people with high qualifications may be ready to accept inferior jobs which do not require these qualifications on the ground that some job is better than none. This phenomenon of over-qualified appointment is quite common in India, and by assuming that educated employment will grow proportionately with the expansion of output, the perpetuation and indeed expansion of this wasteful phenomenon were built into the model. If a B.A. accepts a job for which Matriculation should be sufficient, the model demands a 7 per cent expansion per year of such misplaced B.A.s. In general, possibilities of economizing on manpower requirements by the use of other resources, or by rationalization, were not considered.

Finally, "norms" such as one doctor per 2,000 or 3,000 people are fine objectives to have, but they do not determine actual demand for doctors unless the Government intends to translate these "norms" into reality through the required expansion of public health services. Actual programmes of the Government as revealed to the public seem to be, however, much more conservative so that the production of doctors is also not geared to demand. I shall go into this question a little more tomorrow.

All these factors have affected the calculations. This might not have mattered if the errors worked in opposite directions tending to cancel each other. As a matter of fact, however, they all give an upward bias to the manpower estimates and the Education Commission's recommendations are, therefore, based on a definite over-estimation of the educated manpower requirements. In fact the over-estimation seems to be very substantial.

But biases in estimation are only part of the story. For even with these upward biases the Education Commission found that the actual expansion of higher education was too fast and the proportion of school-leavers who go into colleges and universities must fall. The Education Commission, thus, recommended a policy of relative deceleration of the rate of expansion of higher education and suggested a system of "selective admissions". That this should be so in spite of the upward biases in the estimation is a significant fact and throws some light on the state of things in higher education. However, the Parliamentary Committee that was appointed in 1967 to go into the Report of the Education Commission found the Commission's recommendations, high as they were, to be too restrictive. "We have therefore not agreed to the Commission's proposal that a system of selective admissions should be adopted at

the higher secondary and undergraduate stages. ... we believe that every effort should be made to provide admissions to institutions of higher education to all eligible students who desire to study further".¹⁰ The pressure is for providing everyone with higher education if he has successfully completed the earlier stages of education and if he wants to study further irrespective of his relative merits.

/Such a completely open-door policy would not have been so disturbing if higher education had not been so thoroughly subsidised by the State and had the progress of elementary education for the children not been held up for the lack of public funds. The pressure for higher education is, of course, basically a middle-class demand, but given the nature of Indian politics today, all political parties, including those of the Left, have been inclined to champion middle-class causes. The needs of the children of the poorer families, especially in the rural areas, are of course substantially sacrificed in the process. To put it provocatively, the right to higher education is the right of the educationally privileged to study further at the expense of the society irrespective of one's academic abilities, and it is a right that is exercised by throwing children out of schools.

¹⁰ Report of the Committee of Members of Parliament on Education, 1967: National Policy on Education, Ministry of Education, Govt. of India, 1967, p. iv, italics mine.

While this question of political pressures related to the class structure of the Indian society is crucial to an understanding of the present crisis of Indian education, there is a related economic question that deserves our careful analysis. 'Why is there such a rush for higher education in India today? If the system is churning out too many graduates and postgraduates, surely the employment prospects of the educated Indians must be rather bleak; why then this stampede to join the colleges and universities? To try to answer this question by referring merely to the social values of the Indian society and to the enhanced prestige and social standing of the man who receives higher education, is, I think, rather shallow. These social values may be there, but they are powerfully reinforced by rational economic considerations. *But if we are producing good engineers, the bad engineers will not get employment. even though cost is higher in the long run it is*

When a certain profession is overcrowded the gain for the society in training another man in that field may be little and may well be outweighed by the costs involved. The calculation for the private individual is, however, rather different. If he goes through the course he may have, say, only a 90 per cent chances of employment, or he may have to wait for some years before he gets a job, but he may still be better off after all this than he would have been had he never taken the course at all. By offering himself in the market with this training,

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While this question of political pressures related to the class structure of the Indian society is crucial to an understanding of the present crisis of Indian education, there is a related economic question that deserves our careful analysis. 'Why is there such a rush for higher education in India today? If the system is churning out too many graduates and postgraduates, surely the employment prospects of the educated Indians must be rather bleak; why then this stampede to join the colleges and universities? To try to answer this question by referring merely to the social values of the Indian society and to the enhanced prestige and social standing of the man who receives higher education, is, I think, rather shallow. These social values may be there, but they are powerfully reinforced by rational economic considerations.

But if we see producing good engineers, the bad engineers will not get employment. even with cost is higher in the long run if it is overcrowded the gain is not better!

When a certain profession is overcrowded the gain for the society in training another man in that field may be little and may well be outweighed by the costs involved. The calculation for the private individual is, however, rather different. If he goes through the course he may have, say, only a 90 per cent chances of employment, or he may have to wait for some years before he gets a job, but he may still be better off after all this than he would have been had he never taken the course at all. By offering himself in the market with this training,

he will of course reduce the probability of someone else getting the job; his educational decision incorporates this prospect of displacing another person. But this need not deter the new entrant from breaking into the market, if he finds this profitable to him.

This consideration is reinforced by the fact that with our heavily subsidized system of higher education the person concerned will bear only a small part of the society's cost in educating him. Further, since the probability of immediate employment may be low even if he did not go into higher education, there may not even be much sacrifice of immediate earning power as a result of going into further studies rather than looking for a job on the basis of qualifications already achieved. All these considerations make it sensible for people to flock to the institutions of higher education, and in our society this constitutes a formidable pressure group. The interests of the society at large may be at variance with these pressures for the reasons mentioned, but the ability of the leadership in the country to withstand such pressurization seems to be, alas, rather limited.

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The time has come to piece together the picture that emerges from all this. Immense pressures are generated for over-expanding the apparatus of higher education arising from the dichotomy of individual and social interests. Individuals try to rush for higher education even though the costs to the society may far outweigh the social benefits. This rush is sometimes reinforced by faulty economic calculations by Government agencies with upward biases of a cumulative nature. Given the structure of political leadership in the country this translates into a policy of maddening expansion of higher education. The economic implications of such an expansion in the form of salary adjustments are possibly not much understood, and if understood, are probably found too expensive. In any case, they are certainly not carried out. There is a general decline in the quality of teachers and consequently in the standards of teaching. Meanwhile the primary schooling system is starved of funds and expands at a modest rate, and a country that was in the past one of the least literate in the world continues defiantly to remain so. On paper, however, the primary schooling picture does not look so bad partly because of the fact that

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those who give grants to schools, based on the number of students, also collect data from them on enrolment. This provides an economic incentive for a systematic upward bias in the enrolment figures that are handed out by the Schools to the Government. The Government proceeds to print these figures and cold statistics help to hide the wound from public view. We get used to living with an over-conservative schooling policy and an over-heroic policy of higher education in one the numbers grow too slowly, while in the other the quality declines fast.

What is needed today is a radical shift in our approach to education. We have to reject the old policies which spring from a failure of leadership and which give all to the vocal and none to the mute. We have to take explicit account of the economic considerations that have been neglected for so long. In tomorrow's lecture I would like to go more deeply into these economic considerations, and I shall try to discuss policy issues in education in that light.

Lecture 2

In 1950-51 when the First Five Year Plan was launched, the total direct expenditure on education in India was a little over 1 per cent of the national income. It rose steadily and by 1968-69 this was well over 3 per cent. The question is asked from time to time: Is this enough, or should the share of educational expenditure in national income go up even further? Or is this too much already? From what we discussed yesterday it should be clear that this is not a very useful way of looking at the problem of allocating resources to education. The advisability of putting money into education depends clearly on the precise field into which it is expected to go. As we found yesterday, while there are sectors with severe shortage there are also areas with much slack within the education system in India. An expansion of the total educational budget may be a good thing, or may not be depending on precisely where the money is to go. It also follows that much may be achieved by reallocating the educational funds differently. Indeed, the scope for such adjustments is considerable, especially with the developmental part of the funds as opposed to the maintenance part.

For discussing this problem of allocation we have to go into the relative costs and relative contributions of different types of education. It is, of course, true that most people will concede the compelling social need for literacy and primary education. And it is also accepted that unemployment of highly educated people is an expensive waste of money. Further we found that educated unemployment was likely to grow even more with our present trend of expansion even if we did not exceed the limits ^{laid} ~~laid~~ down by the Education Commission. While the picture may look clear enough from these broad points of view, the requirements of policy-making should compel us to consider in detail the different types of gains and losses in pursuing different policies. And we also have to supplement general social considerations by detailed economic ones.

There has been much discussion in the recent years on the evaluation of the economic rates of return from investment in different fields of education. There have been various attempts in India to calculate these rates, in particular by Harberger,¹ Nalla Gounden² and Blaug,

¹ A.C. Harberger, "Investment in Men versus Investment in Machines: the Case of India," Education and Economic Development, eds. C.A. Anderson & M.J. Bowman, Frank Cass, London, 1966.

² A.M. Nalla Gounden, "Investment in Education in India," Journal of Human Resources, Summer 1967.

Layard and Woodhall.³ Before going into the actual numbers, some preliminary points are worth making.

First, the rate of return from the private individuals point of view will typically be different from that from the point of view of the society as a whole. For one thing some of the costs of education are borne by the Government rather than by the individual, since the fees represent only a small part of the total cost of running schools and colleges. For another, some of the benefits from education accrue not to the person being educated but to the society, e.g., the advantages that the people derive from having educated neighbours. On the other hand, as we discussed yesterday, some of the benefits may be purely personal without helping the society as such. For example, a person may improve his chances of employment at the cost of others by acquiring an additional academic degree, but from the point of view of the society the losses of the others have to be subtracted from the gains to this person. Considerations of this kind may be very important in an economy with unemployment.

A second preliminary clarification concerns the problem of measuring the impact of education on the

³ M. Blaug, P.R.G. Layard and M. Woodhall, The Causes of Educated Unemployment in India, mimeographed, 1968.

productivity of a person. It is, in general, very difficult to measure such differences in productivity directly, and the convention is to measure it indirectly through the rise in a person's salary or wages as a consequence of his acquiring the additional bit of education. If a person earns Rs. 300 per month in the absence of a certain training and his earning goes up to ^{Rs.} 400 when he does receive this training, then Rs. 100 is taken to be the productivity difference caused by the additional education received. This approach to the estimation of the impact of education on productivity is based on the notion that the operation of the market ensures that a person will receive a remuneration equal to his productivity at the margin. The limitations of this approach are, however, very serious since the market may fail to perform this precise function.⁴ The methodology here is based on a certain theory of market operations which are by no means universally accepted. It is possible to argue that salary differences do not represent differences in productivity but merely reflect certain conventional differentials. In any case, the wages may at most

⁴ I have discussed this problem in some detail in "Economic Approaches to Education and Manpower Planning" Indian Economic Review, New Series, Vol. I, 1966.

represent productivity from the point of view of the employers, without taking account of the impact of education on the rest of the society operating outside the market mechanism. All the estimations of returns to education in India that have been done so far are based on working on wage differences. It is worth remembering that this implies a certain view of the market mechanism which is very much open to question, even though it may be interesting to see what figures we arrive at if proceed on this line.

A third point concerns the interpretation of salary differences when one is looking at the salaries of different individuals with different educational attainments. Do we assume that but for the educational difference their other abilities are the same? It may be thought that when dealing with large groups personal variations may not be important, and this is indeed so if we expect that the process of selection for further education is unrelated to the person's abilities. If it is, however, thought that a more able person has a better chance of getting higher education, then an average group of more educated persons will have greater intelligence and other native talents.

This problem of isolating the contribution of education from productivity differences has turned out in general to be a major headache in calculations of returns to education, and the Indian case is not any less difficult. Indeed there are some additional complications in the Indian case compared with the cases of the more advanced countries. One of the major factors in the possibility of having higher education is the economic status of the family, so that even a very talented person may be left out of the system of further education because of economic pressures. This happens even in the more advanced countries, but it seems to happen much more often in India. Further, even when selection is on the basis of performance at the earlier stages of education, this performance may be a poor guide to native abilities. For the same level of intelligence and innate talents a person from a poorer family will tend to be at a disadvantage because of having poorer facilities for study in the shape of books, leisure, accommodation, and such things. While this is true everywhere, it seems to be, once again, a more important factor in India. It should also be added that the concept of innate ability is itself a rather complex notion to deal with. Abilities as student are not the same as abilities as a worker for the two may

require very different types of talents, and good students are often terrible flops in real life. Also the talents required vary from job to job. All this should make it clear why the problem of isolating the contribution of education is a rather difficult one to resolve. It is naive to assume that the different education groups have exactly the same talents, but at the same time it is difficult to pinpoint the exact differences and to decide precisely on the extent to which meritocracy has superceded traditional immobilities.

Herberger assumes that the entire salary difference reflects the contribution of education. Nalla Gounden, on the other hand, assumes that 50 per cent of the difference is due to educational difference, while the other 50 per cent is attributed to differences in ability. Blaug and his colleagues use two ratios, viz. 50% and 65%, as alternative assumptions of the share of educational differences in the salary differentials. This is a tricky problem and arbitrariness is difficult to avoid in this field. Luckily the broad conclusions are not much affected by the precise assumption we choose.

Of the various estimates made of the alternative rates of return those by Blaug and his colleagues are the latest and incorporate the important features outlined by the earlier authors. They also take explicit account

of certain other features such as the problem of wastage in the form of drop outs. I would very briefly state their results on the social rates of return on investment in education. There is a general decline in the rate of return as we move to higher stages of education. The rate of return of primary education for an illiterate person is found to be about 15 per cent, that of going through middle school after completing primary education is about 14 per cent, and the return on completing secondary school following middle school is 10.5 per cent. This decline continues at the next stage and the average rate of return on doing the bachelor's degree in Arts, Science or Commerce is estimated to be a little less than 9 per cent. If we use a rate of interest of 10 per cent as the minimum acceptable, then primary education would be found to be very profitable, middle school to be quite profitable though less so than primary education, and secondary school would be found to be worth it, though not by a big margin. In contrast general university education would appear to be decidedly unprofitable.

To avoid a possible misunderstanding I should explain that these rates of return relate to expansion of the different types of education in question. The intension is not to suggest that all university education is unprofitable at 10 per cent rate of interest, but only that the further expansion at this stage will be unprofitable, and a reduction up to a point will make things better. I should also explain

that what precise rate of interest we use to determine our policy choice is itself a matter of some considerable controversy and 10 per cent may not be necessarily accepted as the figure to choose. Blaug and others themselves use a set of assumptions which make them treat 12.5 per cent as the minimum acceptable rate of return in investment in education. If such a rate is chosen, then not merely university education but also secondary schooling will be found to be over-expanded. The important point to note is that the rate of return systematically declines as we go from lower to higher stages of education. The precise figures depend also on the assumption of the relative contribution of education to salary differential; the figures quoted assume a 65 per cent share of education. A variation of this assumption will alter the actual figures, but as long as we assume the same ratio for all levels of income the tendency of the rate of return to decline as we move from lower to higher stages will certainly remain valid.

There are two questions of educational investment which are worth separating out, viz. (a) the question of the comparison of rates of return in education with those in other fields and (b) the question of the relative rates of return within the broad area of education.

I have commented so far on the former by choosing a rate of return from outside, but we can also pose the problem of how best to allocate a given sum of money that may be available for educational expansion of all kinds. From the latter point of view, an expansion of primary education yielding more than 15 per cent return at the cost of reducing university education yielding less than 9 per cent return would appear to be socially desirable if the figures quoted are accepted. The general conclusion that we arrived at on the basis of broad reasoning in the last lecture seems to survive the more detailed argumentation using the rates of return approach.

These works on rates of return are extremely interesting, and Blaug and others have been careful and wise in their pioneering work. I would, however, like to express a general reservation about taking these numbers too seriously. Indeed, as I tried to discuss a little while ago the entire approach is based on a number of assumptions about market operations that may or may not hold, and while Blaug's may be the best estimates of rates of return they may not be generally accepted as sufficient for policy making. But it is interesting to note that if we accepted the general approach incorporated in these estimates of rates of return - and this is an approach that has been widely used in recent years in many countries of the world - then we would arrive

at conclusions rather similar to the ones we arrived at on the basis of broader reasoning.

X There is, in fact, one respect in which, in my opinion, Blaug and his colleagues tend to over-estimate the social rates of return. This concerns the question of corrections for unemployment. If there is 10 per cent unemployment in a certain category of jobs and 90 per cent of the people with that qualification are employed, then Blaug takes 90 per cent of average earnings in that field as the relevant productivity figure. This is based on a certain hypothesis about the operation of the economy and the determination of employment. An alternative assumption may be that adding another qualified person to the already available pool may not add to the jobs at all, and if that view is taken then the social gain from having one more man added to the pool would tend to be zero. Suppose there are 90 employed people and 10 unemployed in this category in the absence of a certain educational expansion, and when that expansion takes place one more person is added to the pool. If the number of jobs remains the same then we shall have now 90 employed people and 11 unemployed. The additional man would have produced nothing. Thus whether there is any social gain from having more educated people when some are already unemployed depends on how we expect the total employment to change as a consequence of an expansion of the number of job seekers in that category.

An expansion of job seekers can increase employment mainly through a reduction in the wage rate, and whether this will happen and with what effect will depend on a variety of economic and social considerations. Blaug's estimates assume an adjustment process such that when expansion takes place the probability of employment remains unchanged. The market is taken to be adjustable. But is this a fair assumption, since it is evidently not so adjustable that it can eliminate unemployment altogether? If such adjustability is not assumed and Blaug's figures are thought to be over estimates, this will reduce the overall rates of return to education.

The whole question of educated unemployed is a rather complex one in an economy like India. It has been pointed out that unemployment mainly takes the form of a long period of waiting before a person emerging from the education system finds a job. Blaug estimates the average waiting period of a graduate to be about 6.5 months, and the average waiting period of a matriculate to be about 17 months. It might, incidentally, be added that the tendency to remain unemployed for a considerable period of time after completing matriculation is a strong incentive for going into higher education. This is an important factor in India in adding to the demand for university education in contrast with countries where a matriculate finds jobs easily, thereby making

him relatively more reluctant to go in for further studies rather than having some immediate income. As I touched on this question yesterday, I shall not now go into it further, excepting to comment that unemployment of products of one stage of education increases the demand for going into subsequent stages of education. Malallocation in one field infects the next.

For the motivation of students, rates of return from a private (as opposed to social) point of view is relevant. As might be expected, the private rates of return are considerably higher than the figures of social rates of return which were quoted earlier. There is the same tendency for the decline of the rate of return as we move from lower to higher stages, but even at higher stages of education the absolute rate of return remains quite high, and for the general bachelor's degree (i.e., B.A., B.Sc., or B.Com.) Blaug and his colleagues estimate the average private rate of return to be 10.4 per cent. The private rates of return tend to be higher than the social rates largely because the student bears only a small part of the cost of education, since the Government subsidises education heavily. The vast demand for higher education in spite of its social unprofitability springs partly from this purely economic reasoning.

These figures take into account the actual probability of employment. It may be argued that a student contemplating further education typically tends to take a relatively more optimistic view of job opportunities than what the hard-headed statistician would estimate. If so, the student's subjective impression of profitability of higher education would tend to be more than what these calculations on rates of return yield. It may, therefore, be argued that just as Blaug's figures may over-state the social rates of return, they possibly understate the subjective private rates of return which motivate the students. If this is accepted, then the dichotomy between private demands and social needs would appear to be even more severe than what these rates of return indicate.

I have so far been concerned mostly with general categories of education. I should now look at specific fields such as engineering and medicine. Of these fields Blaug estimates the rate of return for engineering education and finds it to be rather higher than for B.A., B.Sc., or B. Com. This figure of 10.5 per cent is also higher than the rate of return in secondary education. If this estimate is accepted, then there will be relatively little reason to believe in the over-expansion of engineering education, at least compared with the more general branches

of higher education. This is probably right, but even here there may be problems. The reservation that we had about Blaug's treatment of unemployment applies here too, and from the social point of view adding to the supply of engineers may not easily add to the number of jobs as implied in these estimates. And if the number of jobs is taken to be given, then at the margin expansion of engineering education would hardly produce any social gain while it will certainly involve the economy in considerable cost. A more pessimistic view like mine seems to get some support from the steadily rising proportion of unemployment among engineers in India with the growth of the supply of engineers. It is, in fact, reported that the number of engineers without a job has increased in the last 3 years from 4,000 to 50,000 and it appears that the Union Minister for Education is advising the universities and State Governments to limit admission to engineering courses.⁵

But if our analysis is right the problem is not confined to engineers only. There is a general tendency of public policy to produce more highly educated and trained people than are necessary for growth and development of the economy. As I have argued earlier, this arises largely from a difference in social and

⁵ The Times of India, Delhi, Sunday, September 28, 1969, page 8.

private profitability of higher education, and from the Government's tendency to base educational policies on public pressures. In spite of the large number of the highly trained people who are unemployed, it may be worthwhile for a person to become an engineer or a lawyer or a doctor. He bears only a small part of the total cost of education, the society bearing the rest of it. Further, the society has to take into account the loss of others from the reduction in employment prospects as a consequence of an increase in the numbers of job seekers; the individual, in contrast, need be concerned only with his own prospects. I have already discussed this problem so that I shall not go into it further.

There are some evidences that a situation of widespread unemployment is developing in the field of medicine and may become more and more obvious as time goes on. Mr. P.N. Mathur, who is researching on this problem for his doctoral dissertation at the Delhi School of Economics, has gone into the demand and supply of doctors for the coming two decades in some detail.⁶ There are alternative assumptions that one can make about demand depending on the economic relationships that are held to be valid. There are also alternative supply projections depending on the expansion plans of the government. The extent of surplus or shortage should depend upon the precise estimates that one chooses from the set of alternatives. However, interestingly

⁶ P.N. Mathur, Supply and Demand for Critical Human Skills in India's Developing Economy: A Case Study for Doctors, Ph.D. thesis draft, unpublished.

enough even the highest estimate of demand for 1975-76 or 1985-86 seems to fall substantially short of the lowest estimates of supply, so that a surplus seems to be definitely developing. The lowest estimates of supply are based on the assumption of no expansion whatever of the number of and the size of medical schools, which is certainly very conservative. The extent of surplus is likely to be quite substantial, even though a precise estimate may be hazardous because of various possible alternative assumptions. The employment situation of doctors will thus become extremely disturbing in the not too distant future, unless specific actions are taken to counter this.

It is worth noting that unemployment of doctors is usually not visible. This is because many of them live on private practice as opposed to having a fixed job in a government hospital or in a private institution. One impact of unemployment is a reduction in the clientele and consequently in the level of earnings of the doctors, and it may not take the form of a number of people being fully unemployed. In this respect the unemployment of doctors is rather like that of peasants, and the theory of "disguised unemployment", which has been discussed much in the context of peasant agriculture, holds also for certain self-employing professions like doctors and lawyers.

/ This persistent tendency of over-producing highly educated people in several fields may largely arise from a difference in private and social profitability, but on top of that there is also the problem of miscalculation of demand by the Government. When I discussed the Report of the Education Commission yesterday, I mentioned that for the service sectors certain arbitrary "norms" were used. / In the case of doctors the demand was taken to be that required in having one doctor for 3,000 inhabitants in 1975-76 and one per 2,000 in 1985-86. The Planning Commission and the Union Government's Department of Labour and Employment⁷ have used a norm of one per 3,500 in 1973-74. Actual demand, however, will depend on other more concrete considerations like purchasing power of the people. The private demands are of course supplemented by the Government's own programmes of public health and community medication, and in India this is indeed a substantial portion of the total demand. The fact that these programmes as announced would not meet the gap between the supply of doctors and the private demand for doctors indicates a failure on the part of the Government to have consistent policy of medical education and utilization of doctors.

⁷ India's Manpower Requirements - Some Preliminary Estimates (1968-69 - 1978-79), Directorate General of Employment and Training, Department of Labour and Employment, 1969, p.p. 16, 45-46.

The normative considerations determining the medical expansion plans seem to be running ahead of the actual actions of the Government in terms of expanding hospitals and other medical services. If the normative figures are used to determine the expansion schemes of medical education then the Government should also carry through the hospital programme which will make these normative assumptions actually valid. If, on the other hand, the Government wants to stick to its hospitalisation programme, given the sluggish growth of private purchasing power, it must slow down the expansion of the supply of doctors. Which of these two alternative policies should be pursued is a matter on which disputation is possible since hospital programmes are expensive and may cut out other useful programmes of the Government but at the same time they are also extremely important for a poor inequitable society. But no matter which of these approaches are taken by the Government there is no argument whatever for gearing the education programmes to certain lofty ideals which bears little relation to the Government's own hospital programme.

I turn now to the problems of primary education. The discussion so far has had an urban bias. Even rates of return from primary education that I have quoted were based largely on employment opportunities in the urban areas. The impact of education on the rural economy, in particular on agriculture, has been a matter of debate for some time now.

This is a field where the amount of work done is still inadequate and much of public thinking is based on hunches of one kind or another. The traditional view is to regard formal education, including literacy, to be unimportant from the point of view of agricultural productivity and to argue that all that matters is the traditional wisdom of the peasant. This glib view has been successfully challenged by a variety of studies recently, notably in a Ph.D. thesis of Dr. D.P. Chaudhri recently completed at the Delhi School of Economics.⁸ Dr. Chaudhri uses inter-state data, inter-district data, inter-village data and inter-family data to see how differences in educational levels relate to differences in productivity and found in most cases a significant positive association. This association survives even when due account is taken of variations of other economic features. It would appear from this that educational differences do affect agricultural productivity and schooling is a relevant constituent of a programme of agricultural expansion.

In this context I should explain three special aspects of the impact of education on agricultural production that has not attracted much attention. First, in traditional studies of economics of education it is often assumed that education is another input like any other such as fertilizer, pesticide,

⁸ D.P. Chaudhri, Education and Agricultural Productivity in India, unpublished Ph.D. thesis, Department of Economics, University of Delhi, April 1968.

seeds, or water. On this assumption one might try to find out how output would increase if the educational level of the cultivators rose given the other factors of production and that would be a way of isolating the contribution of education to productivity. It might of course be the case that having more education would increase the profitability of applying other factors of production. But on this approach it is assumed that in each case all factors are applied up to the point that maximises profits so that in each case the additional costs and additional benefits from the use of each input are exactly balanced. This view, I would argue, is too mechanical to be used for observing the impact of education on agricultural productivity. Education affects a person's horizon of vision, it is not just like any other input. The main point is ~~not~~ that given other factors of production having more education increases the yield of output, though education may also do this. The real point is that education affects the way the cultivator thinks about everything, including production, and it also affects his attitude towards other inputs. For example, the profitability of using fertilizers may become clear to a peasant if he can read a handbill on it rather than relying solely on verbal communication. Furthermore, the thoroughness with which the cultivator can investigate the economic opportunities of

using modern inputs may vary greatly with the extent of education so that in viewing the impact of education a broader view will have to be taken. The impact of more education given all other factors of production may be small, but we are concerned also with how the other factors change in response to education.

My second observation concerns the use of inter-family data for studying the effect of education on the use of modern inputs. The evidence here is conflicting, though certainly the hypothesis that education affects the use of modern inputs get some support and certainly cannot be rejected on the basis of the available data. But what is more important is the necessity to consider this relationship not in the context of inter-family variations but in terms of larger groups and classes. The advantages of schooling, especially of secondary schooling, apply not merely to the person who goes through this but spread also to his neighbours. Treating families as completely isolated is not a very good assumption even for the rural communities in Europe or America, but in India it is fatal. The entire organisation of rural society and economy is such that on a variety of matters including the use of modern inputs and new varieties of seeds, communication between different members of the same village or community is extensive and the influence on one another is great. Therefore, the right units for study are not families but communities, classes, or

villages. In fact, sometimes even villages may be too small as units. The picture emerging from inter-family data should not, therefore, be taken too seriously even if they had been conclusive. It is very important to be careful about units of influence and communication in dealing with a factor like education. Neither is education an input in the mechanical sense in which it is sometimes taken, nor is it a factor that influence^s only its owner. Externalities, as economists call them, are significant aspects of the problem.

My third point concerns the impact of school education on economic operations through changes in social and political elements in the system. Administrative factors are becoming increasingly important in the operation of Indian agriculture; this may extend not merely to the channelisation of credit but also to the systematic use of irrigation water, the division of scarce fertilizers, the supply of new varieties of seeds, and other group activities. The administrative possibilities are, of course, substantially affected by the educational background of the villages. But more than this even the political organization of the village or of the society at large may depend substantially on educational factors. There have been observations on the correlation between literacy rates and the pattern of voting. These studies which seem to give positive results are, however, in their infancy. It is difficult to say how strong these considerations might be, but it is important to recognise that a study of the

impact of education must go into these broader considerations in order to be complete. If, for example, having a more literate or educated rural population makes it easier for the government to carry through a vigorous policy of land reform based on an active cooperation of the villagers in exposing evasion of the reform legislations, this is certainly relevant. If educational expansion helps social workers or political activities to mobilise the rural population into being more conscious of their rights and less tolerant of social inequities and of administrative abuse and corruption, that is relevant also. It would be idle to pretend that we know precisely how these factors work, but it would be foolish to assume that relations of this kind do not exist.

Coming back to rather more concrete estimations, it would appear that even in the absence of going into the details of these indirect features it can be said that education does have a substantial impact on agricultural productivity. The extent of the return is also significantly high particularly when the readjustment of other factors of production are taken into account in the light of what we have discussed earlier. It is, therefore, worth noting that the compulsion for the expansion of secondary school education is not based merely on social objectives; they relate concretely to economic production as well. In my last lecture, the main argument was largely from the point of view of the compelling social need for literacy and schooling; that argument becomes stronger if it is supplemented by the relevant economic considerations just outlined.

I concentrated yesterday on the neglect of primary education in terms of the low allocation of public expenditure into that field. There is a substantial possibility of expanding the level of expenditure on primary education by economising on wasteful investments in some branches of higher education. There is also scope for a general expansion of the budget. But this is not the whole story. There have also been significant non-financial failures, especially in the failure to relate rural schooling to the requirements of the rural economy. There has been a fair amount of discussion recently on the content of the curriculum on school education in the rural areas, and its remoteness to the life of the peasants has been widely noted. I would, therefore, not go into this here; the importance of these considerations (are) well known. I would, however, like to go into one particular problem of coordination that we have found to be very important in the context of a study undertaken at the Agricultural Economics Research Centre at the University of Delhi.⁹

It is generally known that one reason for the failure of primary education in rural areas is a very high ratio of drop outs. The ratio of drop outs in India is one of the highest in the world, and in some parts of India the figures are fantastic, especially for girls. It would appear from the Second All India-Education Survey Report¹⁰ that

⁹ Primary Education in Rural India: Participation and Wastage, Agricultural Economics Research Centre, University of Delhi, Delhi, May 1968.

¹⁰ Conducted by the National Council of Educational Research and Training.

while 70 per cent of the boys and 66 per cent of the girls in Kerala see their way through from Class I to Class IV in primary schools, only 27 per cent of the boys and 15 per cent of the girls do this in Bihar. The position varies greatly from state to state but the overall rate of drop out is very high. In trying to relate drop outs to various factors, including facilities provided in the schools it was found that the relationship was not very strong, so that the problem cannot be easily handled by the expansion of such things as playground facilities, nearness to the place of residence, etc. even though these may be desirable for their own sake. An important factor in drop out is the income level of the child's family; the poorer a peasant is the more likely he is to drop out, given other things. Caste also seems to be a relevant factor, and lower caste people have a greater tendency to drop out, which is probably partly a reflection of the relation between income and caste but may also be partly independent of income. The question thus relates to the general social and economic structure of the village community. On this, possibilities of change have well known hindrances. There is, however, one very simple factor that seems to be crucial to the question of drop out. There is fairly strong evidence that the tendency to drop out is very much sharper when the seasonal peaks of agricultural activity are reached. In Uttar Pradesh and Panjab, to which our study was confined, the drop out was significant both at the Kharif season as well as at the Rabi season during sowing and

Harvesting, though in Punjab the drop out seemed to be greater in Kharif than in Rabi. Some school teachers even reported 40 to 50 per cent drop out at the time of sowing and harvesting of Kharif crops. While drop outs referred to here may be of a short term nature to start with, nevertheless short term drop outs frequently trigger off a long run stay away. Thus, the agricultural activity peaks may initiate a departure from the school altogether.

Unfortunately, the timing of the academic year in the rural schools does not seem to be at all integrated with the agricultural activities. In fact, frequently the examinations coincide with peak harvesting activity, as for example in UP where examinations are held in April when Rabi harvesting is at its peak. In so far as the children of many families help out at the time of peak activities of agriculture there is a built in bias in the system towards a high proportion of drop outs and wastage. It is perhaps one more reflection of our inability to relate educational arrangements to the overall nature of the society and the economy, and the unfortunate results are very serious indeed. A re-arrangement of the school year and a change in the timing of examinations are typical ways through which education can be more fully integrated into the Indian rural economy.

I have moved over a wide range of issues in discussing problems of educational planning in India. It is not easy to summarise the results of our analysis in a few sentences. I would, however, list a few of the more important points that

seem to have emerged; this will be done in deliberately bald terms even at the risk of being misunderstood.

First, considerations of social profitability of education differ substantially from those underlying private profitability. An inadequate recognition of this distinction seems to have been a source of some confusion in public policy making in the field of education.

Second, another source of difficulty is the use of inefficient and antiquated techniques in forecasting manpower requirements of the Indian economy as a basis for educational policy. The Education Commission, which produced an otherwise excellent report full of insight and wisdom, did however make rather disastrous manpower estimates, which had several biases all working in the direction of overestimating the requirements of highly educated manpower. The use of inflated fixed coefficients, the inadequate recognition of educated unemployment, the total neglect of the current prevalence in the Indian economy of "over-qualified appointments", the assumption of unrealistically high growth rates, and the use of arbitrary "norms" for doctors and other professions, are cases in point. Similar criticisms apply to the estimation of the Planning Commission and the Union Government's Department of Labour and Employment.¹¹ All this has contributed towards a wasteful growth of expensive higher education in several fields.

¹¹ India's Manpower Requirements - Some Preliminary Estimates (1968-69 - 1978-79) pp cit.

Third, there has been a failure of leadership in withstanding political pressure for over-expansion of higher education. For a variety of reasons that I have tried to spell out, the individuals' demand for higher education tend to exceed considerably the requirements of the country, and rather than standing for social interests, public policy has been drifting in response to political winds. Even the Government's own calculations of educational implications of the manpower estimates, unnecessarily high as they are, have been systematically exceeded by actual expansion policies in several fields.

Fourth, primary education has been relatively neglected, both in terms of social needs as well as in terms of economic returns estimated through various methods. The allocation of public funds has been severely biased in the direction of catering to the vocal urban middle classes and neglecting the inarticulate requirements of basic education of the rural community. The relevance of primary education to the rural economy has tended to be ignored because of a narrow framework of economic analysis.

Fifth, there has also been a general failure in relating education to the economic life of the nation. An example of this is to be found in the arrangement of rural schools in many parts of India such that the vacations do not coincide with the busy seasons of agricultural activity and much of the drop out seems to originate then. Further, the timing of school examinations often coincide with a seasonal peak, as in the U.P. in

April which is the time of rabi harvesting. Education has been viewed as an activity governed by rigid rules unrelated to the economic life of the community.

Sixth, the growing unemployment of engineers is only a reflection of the tendency of public policy to over-expand higher education and specialized training on the basis of poor estimations of demand with a build-in upward bias reinforced by the failure of leadership to with-stand political pressures unrelated to social needs. As such, the problem is not peculiar to engineers and is present in other fields as well. With self-employed professionals unemployment is "disguised" rather than "visible", but is no less real, and for some professions such as doctors the situation is likely to get much worse in the coming decade or so unless drastic measures are taken.

The diagnosis of these ailments immediately points ways towards possible cure. Better estimation of manpower needs avoiding the existing biases, recognition of the dichotomy between private and social profitability of education, and relating educational organization to the economic life of the community, especially in the rural areas, are obvious recommendations to make. There has also to be a major shift in emphasis from over-expansion of higher education towards a more balanced pattern of educational growth with much greater emphasis on basic schooling.

The expansion policies in different fields must take a more explicit account of economic considerations, and the antiquated basis of the conventional estimates of enrolment requirements must be fully recognized. Economic arguments must, of course, be tempered by other factors, but as it happens the direction of change required by economic considerations, which we discussed today, is exactly the same as the pointer we got from our analysis yesterday of the ~~board~~ social considerations.

The most important characteristic of public policy on Indian education has been one of drift - a drift in response to the wind from whichever direction it might be blowing. The direction of the wind has been largely determined, naturally enough, by the existing stratification of the Indian society. Bending to the pressures of vocal groups and powerful classes has contributed to the perpetuation - and indeed intensification - of the social inequities. The rot in Indian education is, thus, ultimately related to the structure of the Indian society.

While I have tried to pinpoint the areas in which Indian educational planning requires better technical work, especially related to economic considerations, I have little confidence that correct calculation and efficient estimation can, on their own, save the situation. The most spectacular deficiency has been one of commitment. The failure of leadership in policy making is as much due to this deficiency as due to technical errors and mistakes. In the last analysis

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educational transformation in India is not merely a matter of clear thinking but also of courage and determination. A radical reorganisation of Indian educational structure, the need for which I have tried to demonstrate, will demand a lot more than technical expertise. To ignore this will be escapism.

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