

Human Investment Revolution in Economics

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INTRODUCTION

Economic growth can arise from a number of sources: from an increased supply of the factors of production, capital, labour, land; from a greater utilization of existing productive capacity; from a better allocation of economic resources; or from an improvement in the quality and efficiency of the factors of production.¹ Human resource development is the process of improving quality and efficiency of people (labour) which is one of the factors of production. In economic terms, it refers to the accumulation of human capital and its investment in the development of an economy. Human resources can be developed in many ways: by education, by health measures, and by improvements in nutrition.² This paper, however, deals with only one component of human resource development, i.e. education, with its concept of human investment which was never been incorporated, until very recently, in the formal core of economics. After introducing the concept of human investment revolution, this paper tries to investigate, in short, different approaches and their understanding put forward by different economists, and then conclude the topic, again in brief.

HUMAN INVESTMENT REVOLUTION

The appearance of the 'economics of education' on the economic horizon of social science faculty is relatively a recent phenomenon. Although a considerable amount of literature can be traced in this branch of economics, it is still in its infancy. Broadly speaking, a very negligible amount of materials appeared before the year 1950, and a few before 1960. However, an extensive amount of literature on this subject has been pouring out since 1960. The year of formal 'birth' of the economics of education can be dated in December 1960, when T.W. Schultz gave a presidential address in the annual meeting of the American Economic Association about the 'investment in human capital.' Since 1960, therefore, the economics of education has been incorporated into the systematic body of economic thought; and the idea of investment in human capital' has come as something of a 'revolution.' It has been in the last few years silently revolutionizing many related subjects, like, growth economics, labour economics, international trade and public finance.³ Hence, today, the economics of education stands at the forefront of development theories of economic growth.

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- Berreman, Gerald, D. (1963), Hindus of the Himalayas, Oxford University Press.
- Bista, Dor Bahadur (1972), People of Nepal, Ratna Pustak Bhandar, Bhotahity, Kathmandu.
- Blaikie, P.M. et, al. (1978), Nepal in Crisis, Growth and Stagnation at the Periphery, Oxford University Press, London.
- (1979), Peasants and Workers in Nepal, Vikas Publishing House Pvt. Ltd., Delhi.
- Bottomore, T.B. (1965), Sociology, A Guide to Problems and Literature, Blaikie and Son Publishers Pvt. Ltd., Blaikie House Bombay.
- Caplan, Lionel (1970), Land and Social Change in East Nepal, A Study of Hindu Tribal Relations, London Routledge and Kegan, Paul.
- David, L. Sills, ed., International Encyclopedia of the Social Science, Vol. 14, The Macmillan Company and the Free Press N.D.
- Gaige, H. and Frederick, H. (1975), Regionalism and National Unity in Nepal, Vikas Publishing House Pvt. Ltd., Delhi.
- Haimendorf, Christoph Von F. (1972), The Sherpas of Nepal, Sterling Publishing House Pvt. Ltd. Delhi.
- Herskovits, M.J. (1952), Economic Anthropology, The Economic Life of Primitive Peoples, Euroasia Publishing House (P) Ltd., New Delhi.
- Herskovits, M.J. (1974), Cultural Anthropology, An Abridged Revision of Man and His Work, Oxford and IBH Publishing Co., New Delhi.
- Malla, U.M.G. and Shrestha, C.B. (1983), Environmental Resource Management in Nepal, Bhimsen Thapa, Kathmandu.
- Netting Robert, M.C. (1977), Cultural Ecology, California, Comings Publishing Company.
- Proffenberger, Mark (1980), Patterns of Change in the Nepal Himalaya, The Macmillan Company of India, Madras.
- Regmi, M.C. (1978), A Study in Nepali Economic History (1768-1846), Manjushree Publishing House, New Delhi.
- Tung, Fei, Hsiao (1982), Towards People's Anthropology, New World Press, Beijing.
- Wake, C.J. (1980), Bikas, Evolution in Nepal, CNAS, Kirtipur, Kathmandu, Nepal.

The traditional view that only investment in physical capital can bring about economic growth has been disapproved recently. Investment in human capital now seems equally and sometimes even more important in the process of economic development. One of the sources of investment in human capital is through education. Education improves the quality of the labour force, and the 'qualified labour force', in turn, has a positive bearing on economic development. Education is regarded economically productive by assuming two progressive factors: (a) that education alters behaviour, and (b) that such changes in behaviour are developmental.⁴ It has been established beyond doubt that the effective use of physical capital itself is very much dependent upon human capital. "The economic quality of population remains low when there is little knowledge of the available natural resources, the alternative production techniques that are possible, the necessary skills, ... to favour economizing effect and economic rationality. An improvement in the quality of the human factor is then as essential as investment in physical capital."⁵ "Educated workers are more productive -- education makes the marginal worker of a given age, sex, native ability, and work experience more productive when he is furnished with the same quantity and quality of management, capital equipment and complement of all workers as before."⁶ Education enhances innovational ability by creating (a) worker effect, and (b) allocation effect. The worker effect is defined as the marginal product of education, i.e. the increase in output per unit change in the input of education, all other factors remaining the same. Increased education may influence the allocative ability of the worker, i.e. the ability to decode and use information about other inputs. This may lead to the use of techniques and inputs which would otherwise not be used, and thus to an increased efficiency in production.⁷

UNDERSTANDING HUMAN INVESTMENT

It is now widely accepted that education contributes positively to economic growth. This has led to the economists to incorporate investment in education into the mainstream of economic analysis. They attach very high importance to investment in man within the realm of economic development theory. There appears to be mainly four approaches to the theory of economic contribution of education as related to growth concept. They are:

1. Correlation approach
2. Residual approach
3. Rates of return approach
4. Manpower forecasting approach.

Correlation Approach

An inter-country correlation at a fixed point in time was made by Suennilson, Edding and Elvin. They tried to correlate school enrollment ratios to that of GNP per capita and found that there was indeed a positive relationship between the two. However, there appeared a considerable dispersion, particularly among middle range countries. This kind of comparative studies can be advantageous for a country in order to allocate its own resources in the field of education, by looking at the indices of educational attainment and the rate of economic growth of

other countries. But, in practice, countries vary so much individually in terms of human productivity (efficiency) and opportunity costs that the basis becomes of limited use. However, a positive view of such relationship can influence policy decisions in favour of devoting more resources to educational pursuits as a measure of increasing the GNP. Devotion of a higher proportion of the GNP in advanced countries may also be viewed as the income elasticity of demand. It may mean simultaneously as a 'seed' as well as a 'fruit'. Hence, it becomes more difficult to demonstrate the effect of education on economic growth quantitatively. Since education is both a sign of wealth and a source of it, it is difficult to say exactly how much and what kind of education leads to economic growth. Also economic growth of a country at a particular time cannot be associated with the enrollment numbers in schools at that time but could be a result of the numbers who passed through schools during the preceding 30-40 years ago.⁸

T.W. Schultz has done a pioneering study of inter-temporal correlation for the U.S. during the period 1900 to 1956. By analyzing empirical aggregate input-output series of education and GNP, he found that income-elasticity of demand for education as a consumer good was 3.5 times over that period, or alternatively education as an investment appeared to be 3.5 times more lucrative than investment in physical capital.⁹ But this approach is, as well, not free from spurious implication of two way causation. Education, after all, is a long-term resource, which also has the time lag problem. E. Rado, here, rightly points out: "The fact that education is an end in itself, as well as being a means to an end, makes quantitative studies of the historical relationship between education and economic growth of doubtful validity."¹⁰

Residual Approach

Economists have been trying for sometime, to measure the extent of contribution of education on the increase in national output through what is being called the 'residual' criteria. This approach measures the effects of inputs like capital and labour (easily measurable), and then what is left is assigned to some 'unidentified' (not explained clearly) variables. This 'residual' (leftover) increase of output is regarded as a product of, among other things, improvements in the quality of the labour force due to education. Kendrick had computed the residual figure of 42 percent for the U.S. between 1889 and 1957, by subtracting the figure of total increase in aggregate inputs from the total aggregate output.¹¹ R. Solow found a 'residual' of 87.5 percent of the increase in output per man hour in the U.S. between 1909 and 1949, using a linear, homogeneous production function and assuming a 'neutral' effect of technical change.¹² E. Denison estimated the effect of education on the U.S. economic growth by simply subtracting the rate of growth of all the other inputs from the total rate of growth. Thus, education was responsible for 23 percent of the growth of total real national income. While computing this, he also observed that additional education contributed only a little more than half as much to growth between 1909 and 1929 as between 1929 and 1957.¹³ Denison's estimate seems rather much smaller which can be attributed to his somewhat varying criteria of residual approach. He has made

separate estimates for formal education and economics of scale, and also formal education being related to direct returns to education criteria. Denison's work consists of an implicit estimate of the aggregate production function, and an attempt to resolve the 'residual' that always tends to emerge from statistically fitted aggregate production functions into its constituent elements. His conclusion is that the diffusion of education in the U.S. during 1930 to 1960 accounted for as much as 23 percent of the annual growth rate, more in fact than any other single source of growth, except the increase of the labour force itself.¹⁴ A recent attempt of isolating the effect of education to increases in GNP of the U.S. was made by Hector Correa, who estimated the figure of only 5.3 percent to 'increments in education of the labour force.'¹⁵

The proponents of the 'residual' approach have themselves expressed concern about the limitations and implications of the approach. Calculation of exact figures are by no means free from arbitrariness. The complexity of the approach also takes indirectly into consideration of some secular improvements in the quality of physical capital resources themselves.

Rates of Return Approach

This approach takes into account the stream of lifetime earnings of the individuals assumed to result from education and then measuring the present value of those earnings by the method of discounting at different rates. Among several efforts made in the U.S. to compute the rates of return from expenditures on education, the work of Gary S. Becker is most leading. He measured income differentials attributable to the cost of acquiring the college education and found that the rates of return for urban white males were 12.5 percent in 1940 and 10 percent in 1950. This calculation was also made in a different way, using Schultz's estimates of total earnings foregone and expenditures for different levels of education which estimated an average return to education between 5 and 10 percent over the period 1900 to 1950.¹⁶

Limitations of this approach are as severe as of others. It measures only the 'private' (individual's) returns, and 'social' (national) returns are not really estimated, except very indirectly (crudely). Even the private returns take into consideration of formal education only. But more fundamental disillusionment with many aspects of the formal education is going hand in hand with the possible values of informal education.¹⁷ Hence, besides formal education, income differential can be a product of several other contributing factors, such as, on the job training, experiences, ambitions, innate abilities, social backgrounds, family status, and so on. Traditional wage structures, market imperfections, non-monetary attractions, indirect and fringe benefits, and others may also distort the figures for individual's stream of earnings and then for return on education. Similarly, limitations on further education, resulting from some reasons, and unequal earning opportunities for different levels of education, particularly in developing countries, put further restrictions on the credibility of this approach. Again, this approach is limited by its own merit in that "it gives only 'directions' for expending education at different levels, but does not say anything about the 'rates' at which to do it."¹⁸

Manpower Forecasting Approach

This approach, associated with the study of the economics of education, does not really fall within its domain. However, a reference is often made indirectly while planning for education in overall context of national growth. Practically speaking, this approach is much more useful for persons engaged in policy decisions pertaining to educational and manpower planning. Since returns to education approach does not say much, except pointing out how much is being spent on education at a particular time, manpower forecasting approach can provide, to some extent, information regarding how much resources have to be devoted to education for future manpower needs of broad aggregate type or specific occupational categories. F. Harbison is rightly called the 'father' of manpower planning since his seminal work on the manpower needs of Nigeria. He, later, on the basis of a set of educational and economic indices for 75 countries around 1960, ventured to discover, through statistical analysis, the relationship between education, supply of manpower, and economic growth.¹⁹ However, it is a different matter altogether to question the accuracy of manpower forecasting, assuming constant changes in science and technology. The utility of this approach becomes very limited, for it cannot take into consideration the elasticity of substitution between capital and labour, and between different levels of trained manpower. A fundamental criticism is often made that this approach does not measure the economic contribution of education at all.

CONCLUSION

Although such a rapid growth of the economics of education has revolutionized the economic thought, it is still surrounded by numerous scientific controversies. In retrospect, it seems very frustrating to note that none of the approaches discussed earlier has been able to assess properly the economic contribution of education. Even what is known to date may be proved to be 'scant' in future because of mounting arguments of new dimension pouring day-by-day objecting the accuracy and credibility of approaches applied so far. In truth, nobody knows for sure, as yet, how much exactly and what part (if any) of education contributes to economic growth. It is virtually impossible to compartmentalize the components of 'investment' and 'consumption' in education. Although the recent economic analysis of investment in human capital represents a significant contribution to economic theory, it is of very limited use to practical planners of economic development. Even all the given approaches and analysis put together cannot provide adjustable 'steering' to control the process of economic development. "The economic analyses of investment in man which have been made recently, though representing a significant contribution to economic theory, are of little use as yet to planners, except perhaps to highlight the general importance of education and to suggest that some of the outlays for education could be considered as investment rather than simply current consumption or 'social' expenditures."²⁰

On the whole, it seems that we still do not possess sufficient and of the right kind of evidences to demonstrate clearly the impact of education on economic growth. The works done so far can be, broadly, termed as 'academic' which have not been able to establish positive evidences of

behaviour changes brought about by education. Therefore, a multitude of research is still due to be carried out before concluding the subject of economic contribution of education once and for all.

FOOTNOTES

1. Mackay, D.I., "Geographical Mobility and the Brain Drain", George Allen and Unwin Ltd., London, p. 33, 1969.
2. Harbison, F. and C. Myers, "Education, Manpower and Economic Growth", McGraw Hill Inc., New York, p. 2, 1964.
3. Blang, M., "Investment in Human Capital", Economics of Education (edited by M. Blang), Penguin, England, p. 7, 1968.
4. Rado, E.R., "The Relevance of Education for Employment", Education, Society and Development, D. Court and D. Ghai, Oxford University Press, London, p. 35, 1974.
5. Meier, G.M., "Leading Issues in Economic Development", Oxford University Press, USA, p. 599, 1970.
6. Blang, M., "Education and the Employment Problem in Developing Countries", I.L.O., Geneva, p. 28, 1973.
7. O.E.C.D., "Indicators of Performance of Educational Systems", OECD, Paris, p. 50, 1973.
8. Rado, E.R., "Manpower, Education, and Economic Growth", The Journal of Modern African Studies, Vol. 4, No. 1, p. 85, 1960.
9. Harbison, E., et al., op. cit., p. 5.
10. Rado, E.R., Op. cit., p. 85.
11. Bowen, W.G., "Assessing the Economic Contribution of Education", Economics of Education, op. cit., p. 74.
12. Harbison, F., et al., op. cit., p. 7.
13. Ibid, pp. 7-8.
14. Blang, M., "An Introduction to the Economics of Education", Penguin, England, p. 89, 1972.
15. Harbison, F., et al., op. cit., p. 8.
16. Ibid, p. 9.
17. Jolly, R. and C. Colclough, African Manpower Plans: An Evaluation, ILO Review, p. 208, 1972.

18. Rado, E.R., "Manpower, Education and Economic Growth", op. cit., p. 84.
19. Rado, Ibid, p. 84.
20. Harbison, F., et al., op. cit., pp. 11-12.

BOOK REVIEW

Pant, Raghav D. (1988): Sources of Inflation in Asia Theory and Evidence (Jaipur: Nirala Publications), p. 115, Price Rs. 100 (I.C.).

The problem of inflation is one of the significant and recurring issues of economic theory. One reason is that inflation as an empirically observable phenomenon appears to be very different in different time periods. During 1960s the discussion of inflation focused on cost-push and demand pull factors. During 1970s the problem of inflation required new perspectives and induced an enormous growth in the literature of inflation. During 1980s, the contemporary theory became more varied than the older theories especially in its Scandinavian Version of the Structural Model.

The book under review is a noteworthy work that highlights on theories of inflation and evidences from Asian countries. The book focuses on the causes of inflation in small open economies under fixed exchange rate regime. The model that has been developed by the author has been empirically tested in order to identify the sources of inflation, quantification of inflation by domestic and external factors and causes of variation in inflation rates among Asian countries.

The book, though could have been organised in fewer chapters, has seven chapters. A brief survey of inflation theories, the basic equations of the model and the properties of the model are the highlights of the first four chapters. Chapter four also covers a brief discussion on black market exchange rate and export subsidy. The empirical evidence for selected Asian countries (China, India, Nepal, Thailand and the Philippines) has been presented in chapter five. The sixth chapter is devoted to analyse the model empirically and presents regression results. The seventh chapter focuses on summary of findings and conclusion. Inflation in Nepal along with the structure of the economics, recent economic performance and empirical evidence of inflation in Nepal has been presented in appendix.

The subject matter of the book, according to the author, is to analyse the causes of variation in inflation rates among Asian countries. In dealing with the causes of variation in rates of inflation, the author concludes that in the presence of exchange restrictions export price, import price, money supply, real income and expectation explain the movements in price in Asian countries. While quantifying inflation induced by external and domestic factors the author concludes that except India, the external factors are largely responsible for domestic inflation.

The Scandinavian Model of inflation combines the essential elements of the structural explanation of inflation with a special transmission mechanism of inflation from the world market to a small open economy. In a system of fixed exchange rates the model links the rate of inflation of a small open economy with international price developments and also allows for the differences in the rates of inflation among countries. In its latest form, the model starts with the division of the economy into two sectors. The 'competing sector' produces tradeables (commodities that compete in the world market). The 'sheltered sector' produces non-

tradeables (commodities that are not traded internationally). With the empirical analysis the author concludes that the Scandinavian Model cannot be applied in Asia. The main reason as the author points out for this is the presence of trade restrictions that violate the basic assumptions of the model.

Though data are scarce in analysing process of inflation in Nepal, the author has made an attempt to present a model to explain inflation in Nepal in the appendix while analysing the factors responsible for generating inflation in Nepal, the author reaches to the conclusion that external factors, particularly Indian price movements affect the domestic price movement in Nepal. The author suggests to move towards flexible exchange rate regime in order to insulate the influence of foreign factors but the author does not explain the consequences of moving to flexible exchange regime on the Nepalese imports and exports and thereby the structure of the economy.

The selection of countries for empirical investigation is not truly representative of Asian developing countries. The divergence of economies of the sample countries do not allow the use of identical model. The book would have been rated differently if consideration was made separately for countries which are highly indebted like the Philippines. Finally, the book is small in size. It has only 82 pages devoted to the main text. It would have been better if Nepalese case was considered in a separate chapter instead of placing it in the appendix. The author deserves credit for at least attempting to initiate the perspectives for analysing the process of inflation in developing countries of Asia.

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