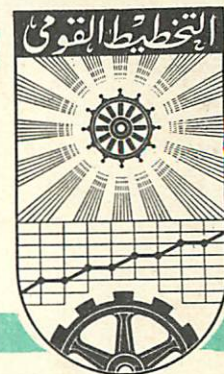


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EDUCATION, EDUCATIONAL PLANNING

AND

ECONOMIC GROWTH

IN THE

DEVELOPING COUNTRIES

BY

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The Economics of Education as the Science of Correlations between Education  
and Economic Growth

The economics of education achieved the status of a science as a result of the realization that the quality of manpower had grown into an important economic factor. As the quality of manpower is determined by the vocational skills and knowledge, the culture and general education applicable in work, this new branch of science was named the economics of education.

The time when a science is born is never simply a matter of chance. While the ability to perform the average job could be acquired through simple practice, without benefit of school or courses, there was obviously no scope for this discipline. At the end of the 19th century the majority of the labour force worked on farms with simple tools and implements both in Europe and in North America. There were at that time still an overwhelming number of people performing primitive physical work in industrial production, in transport and in trade, with animal and human toil supplying most of the energy.

The elapse of half a century was sufficient to transform the structure of labour radically. The proportion of manpower employed in agriculture dropped rapidly as the steam engines, electric power and the energy supplied by internal combustion engines, and machine-tools sharply reduced the need for unskilled physical work. The modern society that developed requires a certain degree of basic knowledge (reading, writing and arithmetic) from most



of the population, and so the special qualifications based on these 'three R's' and followed up by special instruction and drill, are at a premium. Earlier, the majority of people with secondary or advanced schooling gained employment in administration, education and in some typically non-productive professions (law, medicine, etc.); but today intensive agriculture, large-scale industry and construction, modern transport and conveying demand large numbers of qualified people in actual production work, and the need for people trained at the secondary or advanced level is growing in the non-productive service sectors as well.

Economic science soon recognised that knowledge is a means of production. The theory on the value of labour distinguishes between qualified work and simpler work, and in fact equates work of a higher quality performed for a unit of time with ordinary work of several units of time. This contains already the germ of fundamental ideas from which educational economy was to develop. In fact the thinkers of the 18th and 19th centuries could hardly have progressed farther than this, for in that period unskilled and unqualified manpower produced a very large part of the national income, and schooling was not regarded as an important factor in determining income even from the point of view of the ruling classes. The amount of property (land, real estate and capital) or its lack were the crucial factor. Schooling was required only for social prestige, and it was more a result than a cause of a favourable material position.

The first half of the 20th century brought rapid changes in occupational structure and stimulated the kind of economic thinking which was able to produce the economics of education. By the time the discipline came into existence in North America and Western Europe, educational planning and educational policy had been pursued for two decades in the Soviet Union. In fact, thanks to Strumiline's research, the founding of this new branch of science can be attributed to the first decade of the world's first socialist state.

The technical level of industry and of agriculture in the Soviet Union at the time does not explain why the significance of education was properly



appreciated sooner there than in Western Europe or North America. Three features of the socialist system were instrumental, namely:

- the forward-looking character of socialism,
- the democracy of the system, and
- the possibility, and in fact need, for central guidance in social economic development.

In the capitalist world, state concern in economic life was at that time still only a far cry from the wild. Later it was to become an idea to be toyed with - of course, even then only as short-time involvement to deal with occasional crises and recessions - even in the "best circles" (only as Keynesian doctrine began to gain ground in the wake of the great world crises that produced it. And yet, the Soviet Union was already practicing state planning. Decisions in regard to future requirements, among them the need for manpower and cadres, is what planning meant in that young state, and what it means everywhere else.

Marxist-Leninist ideology, which was rooted in the movement of industrial workers, conceived of a modern society with advanced technology, and the very nature of its tenets and their aim encouraged the realization that a revolutionary-scale expansion and improvement of schooling and training were essential for the viability of the new power. Economic and political necessity did in fact coincide with Communist views on human value. The ideal of the man of culture who views the world on the basis of what he has learned from modern social and natural sciences, the educated worker who understands and likes his job, who sees the need for it and finds satisfaction in doing it well, and who submits to community interests with a sense of political consciousness, made wider and better education imperative and pressed for speed in its expansion.

Centralized state power has made it possible for society to sacrifice a large part of its limited resources for future requirements. This means large-scale development in education as well as in industry. History has proven that this rate of development and the sacrifices it involved have certainly



not been in vain, and have not been given too much emphasis. Without its millions of cadres trained technically and administratively in the 1920's and 1930's, Soviet military technology could not have been victorious in World War Two, nor would the Soviet Union have been able to reconstruct her economy so rapidly after the war despite huge losses in people and materials.

The example of Soviet education started to exert a strong influence after the Second World War. The magnificent feat of victory demanded an explanation, and that could partly be found in the emphasis on the wide dissemination of human knowledge, vocational skills and expertise in the Soviet Union. It was then that the Western countries began to realize that education was one of the main fields of contest in the competition between the two social systems. The rivalry itself had been able to promote the significance of human knowledge as a factor of economic growth, but the real reason lay deeper: in the already mentioned changes in the technique or work. There was also another reason, though connected with this: educational expenditures had been considerably raised. At the turn of the century education used up less than one per cent of the national income, but today the training and instruction of youth consumes between 4 and 6 per cent of the national income of most countries. This spending raises educational activity among the significant items determinative of economic development and necessitates an extensive and thorough examination of the efficiency of input. At the turn of the century the study of the economic aspects of educational spending could be confined to the Treasury, but by the 1950's it became a macro-economical subject of great importance.

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After the above brief review of preliminaries, let us discuss how the educational-economic approach came to penetrate economic theory, what conditions worked to bring into being the economics of education as the discipline which regards the quality of manpower a factor in production that is just as important as the quantity of work.



The theory of educational economics assumed form in North America, but it was in the Soviet Union that an educational policy was consciously developed and employed to transform society and speed up its development.

The pioneer research done by S. Strumilin could have been the starting point. His book entitled Problems of Manpower Economy appeared in 1925. It published a survey commissioned by the Petersburg authorities on 24,528 workers in 33 plants and factories of various sizes and representing different industries. Strumilin grouped the workers according to schooling, practical training and percentage fulfilment of norms, and in this way he was able to demonstrate scientifically that output-performance was directly and significantly correlated with the number of years spent in school. This was the case for every category of workers, even for unskilled people engaged in the most primitive kind of work. A sudden sharp rise in performance could be observed in the case of those who had just learned reading and writing. The output curve went up steeply until the completion of the third schoolyear, and then slowed down its climb.

Strumilin's computations irrefutably demonstrated that for increasing the efficiency of work - in other words for the sake of overall social-economic interests - it was well worth to wipe out illiteracy and to introduce compulsory general education.

Although the new branch of science was not yet actually founded, Soviet practice in educational policy and educational planning put to good use what followed from Strumilin's findings: education was developed at a rate much faster than other resources, and, first in the world, educational programming was introduced as part of overall national economic planning.

The new area of science began to assume its distinct outlines only almost three decades later. What brought this finally about, was already mentioned. Technological development had reached a stage where the demand for qualified manpower became imperative. Indeed, it was not deductive theoretical



considerations that led to the birth of the new discipline - although they helped in its conception - but empirical calculations that analysed economic reality. A paper on the history of economic theory sums up the substance of these computations in the following words: "They provide convincing proof that the two production factors of work and capital together do not explain the long-term growth rate of national income. A substantial part of the increase rate remains inexplicable." <sup>1</sup>

The explanation according to Schultz <sup>2</sup> (a detailed discussion of his chain of ideas on the subject will follow) lies in investments in man, that is, in the first place the cost of education and training. The reason is that these expenditures rise in our times at a much faster rate than the value of real capital and the number in the labour force.

"Through the concept of intellectual capital, the quality of work appears in theoretical statements now for the first time as a production factor." <sup>3</sup>

There is also another explanation to the origin of the unclarified part of the growth rate, namely that it derives from technical progress. Robert Solow deduces it principally from technical progress as it is embodied in real capital, but he also assumes the existence of a so-called "organizational progress" independent of technical progress, which is partly embodied in manpower.

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<sup>1</sup> Reinhard Blum: Die Qualität des Produktionsfaktors in der Modernen Wachstumstheorie. Weltwirtschaftliches Archiv, 102/1969. No. 1. pp. 60-75.

<sup>2</sup> Th.W.Schultz: Investment in Man: an Economist View. The Social Service Review, III. 33/1959. p. 109.

<sup>3</sup> R. Blum: Die Qualität ... p. 67.



It is probably Denison who calls the most definite - and perhaps the most one-sided - attention to the quality of the human aspect as a factor in economic growth. We are going to return later to his basic study; here all we wish to say is that he is of the opinion that about one-fifth of the economic growth of the USA between 1929 and 1957 derived from the development of education.

Summing up, we can establish that the economics of education became an independent discipline when economists realized that the facts of economic growth demanded a new explanation. As once astronomers were able to deduce the existence of the as yet undiscovered planet Pluto from the orbital "irregularities" of Jupiter, so economists discovered the existence of an until then unrecognised production factor through the examination of the increase rate that was higher than could be explained on the basis of quantitative increase in capital and manpower. The economics of education began its existence with the naming of the new "planet" and with the parameters of its "orbit". The unknown production factor was identified as human knowledge and skill, and as this is chiefly produced by education and can be most easily measured by the yardstick of schooling, the new branch of science was given the name economics of education.

The conditions for measurements have been available only in the most advanced countries. Long-term statistics on national income, assets, manpower and education - these are the raw materials of the computations. The correlations between education and economic growth could be established only on the example of the developed countries, and therefore relatively little is said in the first part of the present study about developing countries. The founders of the new discipline formulated its laws as deduced from statistical data on advanced countries - in the first place of the United States - and yet they suggested that their deductions were generally valid, though these correlations should not be regarded as absolute even for the given country and period. Nonetheless, the fundamental thesis that there is a reciprocal cause and effect



connection between economic growth and educational development does hold for any group of countries, the developing countries included.

The measurement of correlations is in fact in the focus of interest for the theory of economics of education. The most important question is to what extent education contributes to economic growth.

Although the original function of measurements of this kind was to prove hypotheses, this is now regarded as a less important function. The more important one is to answer practical questions. We want to know how much social profit can be expected from a given amount of social sacrifice or input. This will tell us how much should be spent on educational purposes. Any planner of development will want to know how much educational input is required for achieving a given objective of economic development. The aim should be reached without either undershooting or overshooting the target. The increase rate can easily be put into jeopardy especially in the developing countries by both the error of too much and too little. (In the advanced countries the danger lies really only in spending too little on education; there the extra expenditure on more education and training than actually needed poses no danger to the rate of economic growth.)

#### Planning Educational Development

Educational planning is inevitable and essential. This follows from the interpretation of the economic and social function of education. The society of the future demands a complex distribution of labour, and therefore mankind will be forced to foresee the future and to make plans affecting the widest possible aspects of society's life. This new intellectual activity, for which there was neither need nor possibility in earlier centuries when technology and organization were far below their present level, is becoming prevalent throughout the world. Even though today not every country is making plans and arrangements for the next phase of its history, more and more countries are setting up organizations which encourage scientific thinking about the future.



The man of today must grapple with the great problems of generations ahead, problems in which all of mankind have a stake. Scholars and scientists are taking intellectual charge of this work and they receive help in their efforts from the international organizations which are in a position to think in regional and global terms.

An integral part of the image of future society is thinking about the knowledge, skills and education of the men and women who will form it. Such an image is, of course, far from being a plan; it becomes a plan only when the vision is supplemented with an ordered system and schedule of the acts required for its achievement. Obviously, the preparation of manpower - that is, education - must form a part of any plan. But to make educational plans, it is necessary to have a clear understanding of the planning methods already developed and a clear view of the general aims of educational policy.

In the present lecture I am treating the methods of planning. A paper like this is, of course, much too short to go into the problems of educational policy. At any rate, let me note, however, that it would be wrong to subordinate the educational policy to the plan. There is an educational policy even in absence of a plan, and where there is a plan, the educational policy is always something broader than the provisions of the plan. It generally deals with a longer period than the plan. The plan is official and unified, whereas the policy may be official or unofficial, and there may be several rival concepts or policies at work at the same time.

The social effects of education make educational policy a part of general government policy. Tribal, racial, minority and regional conflicts, and political interests which represent the vested interests of various social strata do influence educational plans. Politics will have their say in educational planning - just as in economic planning - and by the same token the reverse is also true: educational planning can assume importance in politics.



Any given policy will have its counterpart in educational policy. If any group, class, or social stratum wishes to carry out long-term social objectives, if it wants its ideology and system of values to come into play in the future, it needs an educational policy and a corresponding educational plan.

The arguments which support the need for an educational plan are not refuted by the fact that there are a number of countries which have no official educational plan. In those cases a semi-official or mutually recognised concept of educational policy functions as the plan. In reverse, even a definite and concretely announced plan may fail to become realized and be in fact suppressed by a different concept.

A bad plan, an erroneous, or an outrightly harmful one, or the fact that a plan is not announced officially do not mean that there is no need for planning or that planning is of no use. Educational planning is certainly a must in our times both in advanced and in developing countries, and so we think one of the first things to be planned is a forward-looking guideline for education.

Because of the interrelationship between education and economy, and between education and social life, it is important that the educational plan should be integrated with the socio-economic plans; in fact, without such integration there is no sense in making educational plans, for if we have no thoughts on the future of society and economic development, we can hardly expect to shape the future of education.

Certainly no one in the field of economics of education would argue against this; for practitioners of the new discipline it is a major premise that education and economics are inseparable. Why speak then so much about the need for this harmony if experts are so generally agreed about it? Why are we not satisfied with a mere "textbook statement", why do we insist on stating fully our arguments and want to be sure that they convince our audience? Obviously because educational planning is generally up to people who have not had training



in the economics of education. This is only natural, for if we seriously believe in integration, that is, in the inseparability of educational and social development, we ourselves must insist that "others", the economic planners and decision-makers should work for it. And these "outsiders" - the researchers in other fields, the planning economists, the statesmen - must be convinced about the need for integration.

As in the past there was no definite attempt made to foresee and predict social development and to guide society accordingly, it was not realized that education follows social requirements, and it was erroneously thought that it progresses according to its own laws. As the social requirements were not consciously formulated, progress was slow along these lines.

Let me illustrate this with two references to the Hungarian educational system. In 1945, at the end of the Second World War, the training of skilled workers - or apprentice training as it was then called - still reflected the requirements and the spirit of apprentice training by small tradesmen and artisans. In the secondary schools at the same time a disproportionate part of the curriculum was devoted to the study of dead languages, although actual social requirements certainly did not make this justified by the 1920s and 30s.

The inner forces of the educational system are always reluctant to give way to outside influence. It is the law of any system to strive for its own maintenance and expansion without any change. Any established system lacks momentum to go along with changes. What are we to do with Latin teachers, once Latin classes are no longer compulsory; how are we to increase the number of lessons devoted to natural sciences when it can be done only at the expense of the humanities, and anyway where are we going to get physics and chemistry teachers once we did not think twenty years ago that there would be such a great demand for them? - is the sort of logic involved. This sort of approach regards the plans and proposals from the outside as incompetent, declares that education must follow its own autonomous development and regards any kind of planning as interference.



The integration of educational plans is a problem even in the most advanced countries, as the dynamism of economic life and the rapidly changing requirements of the scientific and technical revolution pose a difficult task to the educational system. The demand for integration sets additional problems before education - when perhaps the requirements of an earlier era have not yet been absorbed. The economic and social plans are "impatient", they call for immediate changes and modernization, whereas the educational system finds any movement cumbersome and needs time for any modification. Training time is long - and is particularly long if the training of teachers is also counted. Important reforms are effective only if radical curriculum changes are made on one level or several levels of instruction, if the students are educated right from the beginning in the spirit of the reforms, and if the teaching personnel is also trained in the reforms. Unless it is capable to adapt to the needs of society, education cannot help deteriorating into an institution that is anachronistic in this period of scientific-technical revolution and rapid social development. This anachronism will show up not so much in the contents of the individual subjects (after all, knowledge of the latest scientific achievements can only be expected at the university level), as in the spirit and proportions of the individual subjects, in the relationship of forms and levels of instruction.

The requirements of the times also include the demand for greater democratism in education, a demand that is becoming increasingly prevalent throughout the world. Basic education should be made more general and longer in the developed countries, and the ideal of universal secondary schooling should be approached. Secondary school used to train the children of the ruling classes and the so-called middle class, preparing the young people of these strata for university studies. A secondary school that is to train and educate young people hailing from all sections of society must certainly be different if its aim is to prepare youth effectively for life and work at the end of the 20th century. Of course, the secondary schools of the developing countries must also undergo considerable transformation if they are to change from the schools for children of colonial officials and of the native elite that they used to be, into successful



workshops for the education of a new generation that will be fit to lead a newly independent nation. Nonetheless, the educational system is becoming integrated with less resistance in the Third World than in countries with a long educational history. The fact is that there is a clear interaction between the ambition to win independence and start independent economic growth on one hand, and the striving to educate the masses on the other. Historically these three things appear simultaneously, and it is hard to miss their interrelationship. Nor does the expansion of an educational system that is freer from traditions meet with so much prejudice in the face of deep-rooted customs and habit. Moreover, even the attitude toward planning is generally much more favourable in developing countries. They accept this method of social guidance without prejudice and in fact with confidence, for they had no need to overcome the illusion of laissez faire and did not consider it unwarranted "meddling" by the State. The public there has come to regard planning as a normal means of guiding society, and consequently integrated educational planning that satisfies the requirements of the economy does not have the sort of opposition it has among Western educationalists and economists who have been nurtured on the tenets of market economy.

Integration with a society and with a path of development that has had no precedent in world history does, of course, call for original and novel modern solutions in education too. These are not easy to achieve even in the Third World, for there too professional chauvinism and one-sided values occasionally act as a deterrent to modern efforts. Moreover, there is also a different category of difficulties which is especially characteristic of the Third World. There the majority of the leading educationalists and public administrators received their education in Western or western-type secondary schools and colleges and have adopted the spirit of these institutions. And now something different, something independent and original should be developed. This is no little task, and as the basic organizational, financial and personnel problems cause concern there too, it is not easy to shape something new while these have to be overcome. Finally the experts who come largely from Western countries