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A LECTURE DELIVERED AT THE JOHANNESBURG COLLEGE OF EDUCATION

education and economic growth

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FIRST OF ALL I would like to say thank you very much for having invited me. I have been honoured to have been asked to come and I have had an exceptionally good and busy time.

What I wanted to talk about this afternoon is concerned chiefly with the field of my own research over the last few years. I want to try and draw some general conclusions from that research about the relationship of education and economic growth. Naturally I think this is perhaps the most interesting question in education today. I certainly think it is a very important question. It is also a question which has been much discussed by people in different walks of life, and about which opinions are still fluid. Therefore if I, in the short time at my disposal, make assertions which seem rather bold and bald I hope that you will realise that they are intended to be surrounded by all sorts of qualifying phrases, which, for the sake of time, I have left out.

I think it is also particularly appropriate that I should talk on this topic in South Africa, for two reasons. First because the rate of economic growth in South Africa has been high by world standards and secondly, because you have this rather particular problem of separate development, with all sorts of complicating factors, and one of the arguments that I shall be putting forward has, I think, some relevance to the economics of separate development, although, of course, it is not a field in which I am either qualified as an expert or on which, as a guest in your country, I should feel free to speak. But I think there is a relevance and I think that we might perhaps draw it out in discussion afterwards.

Reciprocal relationship

It is quite clear that there is a reciprocal relationship between economic growth,. on the one hand, and education on the other; that economic growth gives more resources to be spent on education and, arguably, it accelerates the growth of the resources which are available for all purposes. Now it is easier to demonstrate the first proposition that it is to demonstrate the second. It is easier to demonstrate that the richer a country is the more it has to spend. You can do this over time. For example, if you take my own research on the United Kingdom, of the total flow of goods and services available in any one year for a country, that is of its GNP, in 1900 the United Kingdom was spending about 2% on education and things associated with it. In the inter-war period it rose to about 3%. It is now at about 7% and will rise and there are richer countries where the proportion is higher. So that the argument would be more has been spent on education. Furthermore, if you take a cross-section of countries while there is not a complete one-to-one corunassailable that as growth has taken place, relation, it is safe to say that if you know the level of national income per head, you have a fairly good guide to the proportion of the national income which is devoted to education. Now the reasons for this are fairly clear. First it is because the standard of living, of children especially and of young people, rises disproportionately with the standard of living of people as a whole. In a very poor country the children, so to speak, stand relatively at the back of the queue. In a very rich country, the civilisation moves on to a much more child-centred basis. This is particularly true, of course, of the United States, the richest country in the world. So you get a growing preoccupation with expenditure associated with the family. This is why you get such a vast increase of expenditure on housing, furniture and other things as well. That is one conclusion you can draw. That is to say, if you can predict a rise in national income, a disproportionate amount of the increase will be spent on education, thus raising the average amount that is spent on education. Also, of course, this means a rise in the expenditure per pupil because as the national income rises, after a certain point, the size of families diminishes. One of the features of economic prosperity is the move to the child-

centred family and one of the characteristics of the child-centred family is family limitation, a reduction in the number of children per family. But, of course, one of the major reasons why as a nation grows richer more is spent on education, is not only that this is a way in which you choose to use your surplus in creating a better life for yourself and your family, either through your own personal expenditure on school fees or, more usually, through the taxes which are levied on you. It is also because the young people are anxious to prepare themselves for careers and increasingly, as society becomes more complex and particularly as it becomes industrialised, or moves through the process of industrialisation to the post-industrial society such as we now have in the richer countries, then the way of acquiring qualifications to work lies through the formal education system. The process moves from the family process of acculturation in the work situation to apprenticeship and then away from apprenticeship to formal instruction and training which rests upon a broad basis of education.

The argument, therefore, would run — this is the second proposition of which I have slightly more doubt — that education is a key factor in determining the rate of economic growth. This is both an old and a new assertion. If you look at the great classics of economic literature, particularly at Adam Smith and Marx, you will find that the great economists of the 18th and 19th centuries laid great emphasis upon the need to have a skilled and resilient and highly educated population in order to achieve a satisfactory level of economic development. Adam Smith drew a contemptuous picture of English education in order to explain why at that time Scotland was the pioneering country in the industrial revolution and he drew a fairly close connection between the Scottish education system and the economy.

Broadly speaking I think it is true to say that in the late 19th century and in the early 20th century this kind of emphasis diminished and attention was drawn increasingly to the fact that economic growth was a direct consequence of physical capital, of hardware of one kind or another. Indeed at the time of my own training, at Cambridge, when the Asian nations were just recently independent, a great many Cambridge economists were (somewhat unhelpfully perhaps) recruited to the economic advisory services of India and Pakistan and other countries, and their emphasis was entirely upon the need to build up the capital structure of those nations. The national income per head was regarded directly as a result of that build-up of capital. This has also been the case, as you will remember, in the Soviet Union. The Soviet Union laid tremendous emphasis, under Stalin, on creating physical capital by pushing down the standard of living of the Russian people, and the demand for education, which had also been a feature of Soviet rule, was not directly for economic growth purposes, but for cultural, social and political purposes. But in the fifties two major developments took place in economic thinking. First was the discovery that quite often you could pour physical capital into a country and the consequences for economic growth were not particularly dramatic. The striking European example of this was Norway, which spent more of its national income on physical investment than any other country and had one of the lowest growth rates. And the other development was one which laid emphasis upon the need of a country which was going through a process of economic growth to have skills of all kinds. You may see in this a kind of clutching at straws. Once you had seen that your initial solution to the problem of low income had failed, you moved on to the next thing. But it was not only a straw. It was also based upon a series of chains of reasoning, some of which were quite powerful. I think it would be true to say that in the United States which, in terms of academic weight, is much the most dominant country at the moment academically in the field of economics, most economists interested in the process of economic growth would assign the highest single weight of all the factors concerned to education. I shall be discussing in the next part of this lecture why this should be so.

Changing manpower patterns

If we think about the pattern of economic growth there is, of course, one striking fact which always occurs: the shift out of primary production, out of agriculture and extractive industries into manufacturing industry and then from manufacturing industry into the so-

called service occupations, the occupations of personal service of all kinds, medicine, education, leisure activities, housing, and so on. But the crucial stage in economic growth is almost always through the great growth of the manufacturing sector. So therefore another way of describing economic growth is to describe the rapid diminution in the number of people working in agriculture. Indeed the problem in economic development is usually to get the people off the land and to get them into the towns and into the factories. This, as you will remember from your history, is the major story of the horrors of the industrial revolution in England and in Wales and Scotland. It was the major cause of Stalin's collectivisation of Russia — the attempt to drive people away from their peasant holdings by means of famine. It has been a major factor in all the developing areas. It remains a major factor in those European countries which still have quite large agricultural populations, like Italy, France and West Germany. The reason why the Common Market is a fairly bad deal for the United Kingdom, as it is at present structured, is because the Common Market hands out enormous subsidies to these large agricultural populations in Italy, German and France, basically in order to get them off the land without too much political protest.

The consequence of these shifts is a rapid change in the structure of the labour force, and rapid economic growth is always accompanied by an increase of people in the manufacturing sector and particularly in a rising demand for middle-level and high-level skiils. Indeed the faster the rate of economic growth and the higher the level of economic growth that you achieve the more rapid the demand for skilled manpower and the running down of demand for unskilled man-power. Thus in a country like the United States you can have simultaneously acute shortages of skilled workers, side by side with surpluses of unskilled workers. This is a common phenomenon, even in California, the most prosperous part of the United States, where the unskilled are concentrated chiefly among the minority groups, the blacks, the Puertoricans and the Mexicans.

Therefore, the argument runs, as economic growth takes place you get these acute shortages of skills. You get the need continually to up-grade skilled people. Most of the skills that people acquire in the economy are acquired either in industry in formal training programmes, but more usually in on-the-job training — picking it up on the job. The American evidence is pretty formidable about this, that most of the skills in a modern economy (despite the urgent requirement for very highly skilled people with formal training) have been picked up on the job. This on-the-job problem still rests, however, upon a very large demand for those skills provided through the formal training process. Obviously, in the service sector, if we think about the demand for teachers to service the vast expansion of education, or the demand for medical workers, social workers and other specialists to service the enormous demands for medical care, and if we apply this through the whole range of the economy, we get some idea of the orders of magnitude involved. These skills, particularly the middle- and higher-level skills, can only be provided on the basis of a fairly sophisticated and highly articulated education system. The argument runs that if you can predict the man-power pattern you will be able to plan the educational service in an economic fashion, to provide the skills that you need. Now the three countries in Europe which have done most in this field are France, the Netherlands and Sweden. Educational expansion in these three countries — and we must remember that the French educational expansion has been the most dramatic of all — has been based upon fairly carefully worked out man-power plans. One of the features of these plans has been that thye have always underestimated the likely demands for high-level skills and particularly for middle-level skills. It has also been very difficult to implement them for reasons which I will give later. But — and this is a certain point — there is no doubt at all that the evidence suggests that economic growth is accompanied by a changing man-power pattern and this man-power pattern is a fundamental influence on the education system.

Changing consumption patterns

The second consequence of economic growth is a rise in consumption levels. Quite frequently these rises in consumption levels

do not take place at the early stages of economic growth when most of the surplus is being diverted into investment. But at the higher levels there is a rapid rise in consumption per head, of which Japan, South Africa and Western Germany are fairly good examples. This rise changes radically the consumption pattern. There is a great deal of economic research on this topic; the most simple and the one most people know about is Engels's Law, the fact that as the level of expenditure rises, the proportion you spend on foodstuffs and other basic necessities drops because the actual amount you can spend on food is limited by physical considerations. The consequence of this is, of course, that your consumption pattern moves into a field of product, praticularly manufactured products and services, all of which require sophisticated productive processes. One thinks of the demand for sophisticated house room, the demand for motor cars, the demand for leisure activities of all kinds, all of which require a very much more intense use of skilled labour than the primary industries which they have replaced. If I may, again use education as an example: education is extremely labour intensive as a sector of the economy and is also extremely skill intensive. It is the largest single user of skilled manpower in a modern economy — and since one of the factors about rising consumption levels is a tremendous increase in the demand for education, and things associated with education, one of the consequences of the rise in consumption is the demand for more skilled people to provide a means to satisfy that demand for consumption.

There is also, of course, the increase in leisure which itself increases the demand for education because of people's demands to use their leisure time in complex and sophisticated ways. Indeed, one of the aspects of the increase in leisure in modern societies is precisely the rise in the demand for education. It just isn't true that part-time education, evening education and so on, goes to those who have missed out on education on the way up. The demand for part-time education in most countries is a direct function of the amount of education that you have had yourself previously. A man with a Ph.D. is far more likely to be attending night classes than the person who left school at 12 or 13. This is a continuous and fairly important element in the demand for education.

There are also, of course, the rapidly changing social patterns which are associated with economic growth. I have time only to mention one of them. It is the changing social status of women, which is associated with the changes in economic patterns though not necessarily caused by them. This has a tremendous effect on the demand for education for girls and part-time education for women generally. There are many other changes in social patterns which, of course, one could mention — the rise in the demand for education and which are pretty closely correlated with economic growth.

Education serves economic growth

For these and other reasons I therefore think that it is reasonable to assume that education plays a considerable part in servicing the process of economic growth. I am not one of those that believes it is a major cause. There I differ from my American colleagues. They and some of their British followers have attempted to analyse the relative weights of different causes of economic growth and, generally speaking, in the United States — of course this depends on the circumstances of the case — it is argued that something like 2/5th of economic growth is due to the education system itself and the furtherance of knowledge by research and technological development. This has become a popular sounding board for educators in the United States and it was actually mentioned in President Kennedy's first state of the union message. He quoted this research as part of his argument to Congress for substantial Federal support for education. I have always been slightly dubious of this kind of argument. Economics, like any other discipline, changes its views on any known question several times in the course of a working lifetime. It was always said that in any group of three economists you would get four opinions and two of them would be Keynes's and there is also the other story of Keynes going to advise President Roosevelt on how to cure the slump. Keynes said: "Have an unbalanced budget. Spend more money." And Roosevelt's own economic adviser said: "Have a balanced budget. Spend less money adn raise taxes." Roosevelt said: "Why don't

you two guys get together and get an agreed document?" I think one of the dangers of economists in education who provide arguments to people interested in education — arguments which seem to suggest that education must be supported because it is a necessary part of economic growth — might be the possibility that economists might discover that education actually handicaps economic growth. In which case I think the educators would be in a difficult position. That is why I tend to play it down, as a propagandist for education, which I value in and for itself.

Consequences for education

If we think about this process of economic growth and the changes that I have mentioned and its effect on education, it is fairly clear, I think, that you can divide the consequences into three parts. The first is that, increasingly, the actual preparation for a career becomes part of the formal education system. This we could call the cause of the great growth of vocational or technical education but it effects, of course, the whole education system, university education, secondary education, education at many levels. To give you a very good example of this, it is after all not so long ago — the first half of the last century — that doctors were trained purely by apprenticeship. It is only comparatively recently that a university degree or an equivalent thereof, has been a required certificate for entry into the medical profession. There is now a great debate going on in the United Kingdom as to whether or not lawyers should be required to have university degrees in law. Even now, some major professions, such as teaching and nursing, still don't require a university degree. I think it is fairly clear if you look at the richer countries that there has been a process of moving the process of qualification into the education system. The education system, therefore, has become a major supplier of skills. Now I must emphasise it is by no means the only source of skills. Even in a rich country like the United States there are still many appreticeship schemes, particularly at the semi-skilled level. Furthermore, few people are able to enter directly into their career just with the skills and qualifications that they have picked up in their education. There is a very long process of acculturation and experience which, in the American evidence, plays at least as great a part in the development of the career pattern of the individual as his formal training. Nevertheless there is no doubt whatever that, as the shortages of skills manifest themselves in every single country, the major factor determining the structure of a large part of the education system is the need to provide the skills for a modern society, for a modern economy.

The second consequence which I see in education is perhaps a somewhat more subtle relationship but one which may perhaps be the most important of all. This is that as economic growth takes place and social change occurs, the society becomes a much more consciously sophisticated structure and the education system itself becomes a more sophisticated form of social institution, a much more highly articulated system, a much more complex system, a system which is responding to pressures of various kinds, of a complicated nature. I think in order to understand the social and economic role of the education system you would have to have a subtle understanding of the way in which a modern society works. I think there is no doubt that if you compare the education system, say, of the 1970s in the United Kingdom with the education system of 70 years before, the chief difference that you would see would be in both the sophistication of its techniques and the complexity of its organisation. This, to my mind, seems to be a direct consequence of the fact that education has moved centrally into the argument and into the forum of economic and social change.

The third consequence that I see for education is this: If you were to seek to characterise the rich countries of the world in this part of the twentieth century you might take many views. You might, for instance, regard them as morally despicable, you might call it the age of total frontal nudity, or something of that kind, but I think that the characteristic that would strike you most about all of them would be that they are societies that are absolutely drenched or saturated with education. The phenomenon, I think, which strikes one most if you are looking at statistics or just at social patterns in countries like Sweden, the United States, Canada, to a lesser extent France, Belgium and the United Kingdom, is the extent to which the education

system has permeated every sector of society and involved so many people in it. It really is not accidental that out of the population of just over 200 millions in the United States, over 50 million people are engaged full-time as teachers and students. It is an activity which is extremely dominant. It isn't an accident, I think, that Ontario is spending 11% of its national income on education.

Now the consequences of this for the analysis of education seem to me to be important. I become irritated when I read books (like those by Professor Bantock, for example) concerned purely with the so-called maintenance of standards and values; I become slightly irritated because he always assumes that nobody else is concerned with standards and values but himself. He also assumes that the maintenance of standards and values rests necessarily upon a small education system. If he really believes this, I think this must mean that he believes that the maintenance of standards and values is completely incompatible with contemporary society, because one of the factors about contemporary society which most strikes any observer is the extent to which there is a thirst for education, a thirst which shows little sign yet of having been assuaged at all.

Implications for educational planning

Now, clearly, in what I have argued so far, the implications for educational planning are fairly important. There are two ways in which national planning bodies and education authorities have responded. The first has been to take seriously the role of the education system as a provider of skills, and to base the whole education system ultimately upon this role. This has undoubtedly been the way that the Soviet Union has planned its education system. There is also no doubt that the expansion of the education system in the USSR has been one of the most striking features of that unhappy country. There have been few Western countries which have carried out planning of education on this basis to such an extent, but it is certainly true, both of the Netherlands and of France — perhaps more of France than of the Netherlands — that these two are two countries which have based their education programmes upon man-power plans of all kinds. It has also been extremely popular in the developing nations. Every new nation has a flag, an airline and a man-power plan, as you know, and they have attempted to build their education system around the man-power plan. On the whole, except where you have a pretty tight control over the jobs that people go into, as clearly happens in the Eastern European countries and the Soviet Union, these man-power plans have tended not to be fulfilled for the very simple reason that if you train a man in one particular line, if he finds another line more interesting or paying better, he will go into it. I always annoy my man-power planner friends by pointing out that not a single one of them was trained as a man-power planner! Yet they are all earning extremely good livings as man-power planners.

The other response has been the so-called social demand response. This has been the attempt to make the education system respond to the expressed demands of the people. That is to say, if you get a surge of demand for places in higher education, you provide places in higher education. If you get a surge of demand for places in some particular field, you try and meet that demand, and for modified social demand, you try and stimulate the demand in areas where you feel it is necessary, among deprived groups, for example. The trouble with the social demand approach is, of course, that first of all the target which it sets is usually much above the immediate resources of the nation to meet, particularly in the developing nations. But, secondly, it does lead to a gross imbalance between the kinds of people you are producing, and the kinds of jobs which are usually available for them.

There are tremendous problems of planning here. It is much easier to provide places in the straight-forward humanities that it is in those subjects which require a huge amount of capital equipment. Therefore even in France where they have attempted to respond to urgent demands for more doctors and more engineers, they have not been able to fulfil their target because of acute shortages of equipment and buildings. But broadly speaking I think it is true to say that in most of the Western world the basis of educational planning has been the social demand approach. Now this is not necessarily wholly incompatible with the man-power planning approach, because when people are prepar-

ing themselves for a career, they usually have some idea, not necessarily a wholly good one, of what the market for labour is actually like. It is for this reason that you get switches, quite dramatic switches quite frequently, in the universities from faculty to faculty.

Conclusions

I want to draw, if I may, a broad conclusion about education from this brief perspective of education seen from economic eyes I draw four main conclusions, from what I have said and the work that I have done. The first is that the training of skills, not only the initial provision of skills but the re-training of people as the technologcal basis of the economy changes ever more rapidly, is likely to be an ever more dominant feature in the whole educational system, and it is in this area that we must expect the most dramatic developments. I am optimistic about this. I have a feeling that in many of these technical area that we must expect the most dramatic gogically speaking, seems to be going on. I am also optimistic in the sense that I believe that, as the occupational psychologists have indicated, the acquisition of skills, even of very complex skills, is much easier than people have hitherto thought. There is always the example of the training of women to do engineering jobs during the war in Britain when, within six months, quite a number of women were able to take up jobs which previously had taken men seven years to learn. This may tell you something about men and about women and about engineering. There is no doubt whatever that a great deal of the extreme length and complexity of much of our existing technical education does not bear any direct relationship to the needs of the people for those particular skills, but is, in fact, a tribute to strong trade union and professional attempts to limit entry. You don't have to wait until you are 30 to become a doctor, as you do in America. You may have to wait until you are 30 to become a doctor in order to be able to earn $75 000 a year, but that is a separate point.

The second point I would make is that you can only provide skills on a broad and flexible base. It is a general truth that in order to get x% people coming out at the top, you have to have 10% going in at the bottom, as it were. Wastage occures in every educational system. It occurs particularly in rapidly developing education systems and it is quite impossible to provide specific vocational skills from the education system unless you have a very wide educational base. Education systems of a wide variety of kinds — of the United States, the Soviet Union, of France — are now all based on this fact.

The third point that I would make is the necessity for flexibility in the educational system. The in-service training of teachers is an example of what I have in mind. Therefore the rigid age-grade link has broken at that level. I think, also, that since we have no means of forecasting, in the long run, what the likely occupational structure of a society is likely to be in detail — it is the detail of course which counts for vocational preparation — the more we have people who have a flexible kind of education behind them and are able, therefore, to move from one field to the other with comparative ease, the more fortunate we shall be. In this respect my own country of England is particularly handicapped because of our long and rather unhappy experience of very early specialisation. It is generally true to say that you don't have to decide in the United States what specialisation you are going to take up until the end of your under-graduate fourth year. It is quite common for people at that stage having specialised in mediaeval literature, to decide that they want to become psychiatrists, or whatever. Now this is something which would be impossible in England and difficult in continental Europe.

The fourth phrase that I would leave with you, and this will be my concluding point, is the tremedous importance of continuity in the educational process. It really doesn't make sense to divide it up in quite the way that we have been used to doing, because the argument that I have been presenting to you, both the demands for skills and also the fact that rich nations demand a lot of education because they like education, implies that the demands laid upon the education system will be increasingly complicated demands. It therefore means that unless you have an education system which maintains some kind of continuity between all its parts, the more likely you are to get discontinuities and an inability to meet legtimate requirements of people.