

EDUCATION AND THE IRISH ECONOMY

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Economic growth depends on investment in education as well as on the provision of physical capital, indeed, the former can be more important than the latter in accelerating growth. In Ireland, a good deal has already been done by way of providing physical capital, now more attention will have to be paid to education and to the creation of a general fund of skills in the population. This will require planning, so that educational developments may be geared to the future demands of the economy. In the face of mounting costs, it will also require a more efficient and effective use of resources in education.

By way of preamble I first want to issue a warning to my readers as to what my limits are. I would be the first to acknowledge that education has ends other than economic ones — religious, cultural and social — but I am writing here as an economist dealing with the place of education in economic growth and with some aspects of what economic and social change means for education.

There is broad agreement that education should take a high place in the Irish economy because the economy is already in some respects short of skilled manpower and it will become increasingly so over the next decade (8). The supply of skills depends in some way on the educational system. Secondly, of course, the quality and decency of life itself depends on an adequate educational system open to all. Thirdly, it is fair to say that Irish economic and social development is handicapped by the great inequalities which exist between urban and rural Ireland and education might have a large part to play in narrowing these inequalities. Fourthly, and this may perhaps not strike so sympathetic a chord, the nature of the Irish economy is such that it is closely linked to that of Britain, to other parts of Europe and to America, and the Irish when they emigrate, whether for good or whether, as we hope, for short periods stand to gain if they are highly educated. So do the countries that they go to — it is thus to the advantage of the Atlantic community that the Irish should be highly educated. Fifthly, it is quite certain that one of the implications of the higher economic growth rate which Ireland has sustained is a rising demand for education. Taking an example from the United Kingdom, in 1900 just over 1% of the national income was spent on education, last year it was over 5% (11). We can provide the same sort of figure for almost every country for which we have data. As people become better off they want more and better schools for their children. Finally there is, too,

in the Irish case the special instance of international emulation. What is done in Britain, what is done in the United States and, to a lesser extent, what is done in Europe, raises the expectations of the people of Ireland for better, longer or higher education (8)

Now, my task is not to concentrate on this aspect — that of the rising demand for education which is an aspect of the rising standard of living of the Irish people — though this has immense political and social implications. I want to ask a long term question, and to ask it in some detail what does education do for the economy? (9) In doing so I do not suggest that the provision of skills is the first and most important task of an education service. Nevertheless, it is clear that practically all that we can hope to do in improving the quality of life both here and in the poorer parts of the world depends on the country being richer. The Irish government acknowledges that the basic problem to which it has to turn the attention of the Irish people is the problem of maintaining a sufficiently rapid rate of economic growth. This is the chief economic reason, it seems to me, for wishing to change the present state of things in education (7)

Now what is the evidence to elucidate the fact that education plays a part in promoting economic growth? First of all, there is a shift in the structure of the economy as the general level of national income per head rises. The proportion of people engaged in basic industries, like agriculture declines, the proportion of people working in manufacturing industries remains constant, and the proportion of people working in the service trades and industries rises fast. And it so happens that as you move out of agriculture, through manufacturing into the service trades, so the requirements of skill per unit of output increase. In the service trades particularly you see a dramatic rise in the demand for new skills as a direct consequence of changing technologies which are being introduced throughout the world. You can see this, for example, in office work with the development of automation. You can see it in engineering. You can see it even in such professions as accountancy and the law where in the past an apprenticeship to an accountant or an apprenticeship to a lawyer was enough. In modern business this is not so. A full university course with legal training, a full university course in economics, becomes a necessary background for the kind of lawyers and the kind of accountants who are required in industry and business. And the size of the change in the requirements of new and basic skills in whole sectors of the economy is one of the most dramatic increases in an index number which you can find in the whole of economic phenomena (1)

Take an extreme example from Great Britain. This is the fact that

for the Atomic Energy Authority (responsible for nuclear research and the building and running of the Nuclear Power Stations in the United Kingdom) 40% of the total labour force (including the cleaning ladies and the people who wheel things around in factories) is graduate. This compares, of course, with the fact that in the average industry the proportion of graduates in the workforce is something between 3% and 4%. Therefore, if you take the most modern industry of all, atomic energy, the demand for education per unit of output is much greater than it is in the old basic industries. If you compare modern textile plants relying upon synthetic fibres with old textile plants relying on natural fibres, there is the same phenomenon (3).

So rapid is the rate of change of technology in contemporary economic life that many people have to face the fact that the skills which they at present use will become redundant and they will have to be retrained once, and perhaps several times, during the course of their professional lifetime. So enormously fast is the progress of medical research that a doctor who does not keep up by means of refresher courses with the progress of medical science increasingly becomes unable to cope with the sort of problem that he finds in his medical practice. What is true in medicine is increasingly true in other fields, for example, in education.

There is another argument which is relevant to a discussion of the part that education plays in economic growth. This is separate from the question of economics. Fashions sweep over economics faster, almost, than they sweep over many other fields of knowledge — almost as fast as they sweep over clothing. I have been an economist for enough years now to have been through nine major phases. We are at the moment emerging from the education phase into the technological one. The one constant theme which has run throughout modern economics is the important part that the accumulation of physical capital plays in the rate of economic growth. Fundamentally, if you want the economy to grow fast you have to add to the country's stock of machinery, to its stock of buildings, to its stocks of roads, to a whole stock of what the Americans call 'hardware'. This is the essential thing. And the more you can push the consumption of the people down, so that you can build more factories, more buildings, the faster will be your rate of growth.

But, three cases have caused doubt to be thrown upon the clear, simple doctrine that, in the phrase of Marx, accumulate, accumulate is the law of capitalist production. There is the case of Norway, which managed to get the highest rate of capital accumulation in Western Europe and the lowest rate of economic growth. Secondly, Britain managed to raise the proportion of the national income devoted to capital investment from

14% to 18% in four years and to get a falling rate of growth at the same time And the third one is the German Federal Republic, which managed to achieve an economic miracle, an incredible rehabilitation of the economy with, on the whole, a rate of capital accumulation which was rather lower than that of a number of other western countries And the German case, I think, is a particularly striking one, because in 1945 the country was in ruins and fifteen years later it was a country of great wealth And the reason, of course, was the enormous reservoir of skills and talents of the German people (2)

There is, in fact, it is quite clear, a complex inter-relationship between physical capital, the design of the machines and the products which the capital is used to produce, the new technologies which are developed in the Research Laboratories and the Design Centres, the new skills which the labour force requires and the new attitudes in the population at large and in the government itself to the whole question of growth, which fundamentally means absorbing new products and new ideas and rejecting old products and old ideas For example, in agriculture it is not sufficient just to have physical investment in putting up barns, putting up sheds for dairy products, and so on, you also have to develop new ways of processing the farm materials, you have to train farm workers in new techniques, and you have to prepare the population at large for a new attitude towards the way in which agriculture will be treated in the economy The building industry is an example where changes in techniques, changes in the training of the labour force, changes in the way in which building is actually done, are all closely interrelated

And training schemes, of course, rely upon the development of technical education, and the development of technical education in turn relies upon the development of basic general education You cannot have a high degree of technical education unless you have a wide general education available

There is, however, the awkward fact in economic history that education has been, more often than not, a conservative force rather than a source of revolutionary change Furthermore, most of us as citizens, as parents and as teachers would wish that education should, for the greater part, be a conservative force because the task of the schools in very great measure is to hand on to the new generation the values and the culture of the nation and of our whole western civilisation But we ought to make a distinction between education being a conservative force and education being an obstructive force There is no doubt that in certain instances, familiar in economic history, education has actually obstructed, prevented, slowed down economic growth Alfred Marshall, the great Cam-

bridge economist, said that the Public Schools would be the ruin of England because they had taken the sons of clever manufacturers, turned them into gentlemen, who then joined the Civil Service (1, 4)

And there is a great deal in that On the other hand, we can all think of examples where education — although conserving the culture of a country — has helped it to face up to the need for change and develop the economy The Danish High Schools or the Common High Schools of the United States have been powerful forces for enabling people in those countries to face up to change, to adapt themselves to change and develop themselves while retaining their essential culture But if we glide lightly over the possibility that education in certain cases may injure growth by teaching people that the things that lead to growth are bad and ought to be resisted, and if we concentrate instead on the examples where education has been a force leading to growth and helping growth to take place in a calm and constructive atmosphere, then we can consider another doctrine which perhaps fits the Irish case.

Economic growth also depends on the accumulation of social and 'human capital' and, as the destruction of Germany and its rapid construction shows, human and social capital can often be more important in accelerating growth than physical capital itself By trying to attach some measure to human capital it may be that we can give some guidance to policy makers as to the part that education can play in the process of rapid economic development Skills are an important bottleneck in development and it is possible by investigation to try to foresee what skills will be in short supply and what measures one ought to be able to take in order to provide skills in good time By Manpower Forecasting one attempts to estimate the skill structure of the economy ten or twenty years ahead in order to relate it to the pattern of educational growth which one expects to develop Educational planning consists, in essence, in providing an educational structure which will feed out skills in the right balance and in the right number to meet the forecast of requirements that you have made Manpower Forecasting has its dangers because you may make a miscalculation and you have to make many hazardous estimates But there is no doubt at all that in essence it has become one of the essential techniques of a modern economist in looking at education A particular instance of Manpower Forecasting is education itself Education is, in a sense, an industry People work in it, there is capital equipment in it and it produces a product It is essential if you are to plan the educational system adequately to make estimates of the numbers of pupils that there will be in the system over the next ten or twenty years and then see whether you can supply teachers to meet those needs In the

United Kingdom we have found that, although we have at the moment a total of 330,000 teachers in our maintained schools, our present requirements, according to present policies, are 400,000 and our requirements by the mid-1970's will be 650,000 teachers. This requires an increase in the teaching force per annum which is something like four or five times the rate to which we had been accustomed (6)

This, I think, has two consequences — one of them an important consequence for Ireland. That is, the more rapid Ireland's economic growth path, the more rapid will be the demand for education and the greater will be the problem of meeting that demand. Furthermore, it seems to me that the whole pattern of emigration from this country is changing. We may well be coming to a situation where emigration as a net figure actually ceases and there may, indeed, even be a reversal of this pattern (5). There is a likelihood of this occurring by the early 1970's because the projections of the United Kingdom's population are really rather astonishing. We are, at the moment, a nation of 50,000,000 people, if you leave out Northern Ireland, and we expect to be a nation of 70,000,000 in about another generation. A proportion of our 50,000,000 have Irish blood, a significant number are first generation Irish immigrants. I can easily foresee a situation in this explosion of population in the United Kingdom where first the tide of immigrants from Ireland to England is almost reversed and secondly, where the family pattern and the marriage habits of the United Kingdom spread to Ireland, where the age of marriage drops, the incidence of marriage rises and where the rate of population growth increases substantially. If this is so, then the educational problem, the problem of finding teachers, may easily be transformed in the next ten or fifteen years in Ireland itself. I think that is the first sort of conclusion which one would be tempted to draw from the sort of calculations we have been doing in this Manpower Forecasting line in England in the last few years (2).

The second point I hardly dare make because it is almost a political point. It does seem somewhat ironic that Ireland is capable of producing many more teachers than at present — in the sense that it has the applicants if not the accommodation — while Britain is so desperately short of teachers. I wonder whether some arrangement might not be made whereby Britain could borrow teachers for short periods and return them later. This is the sort of thing which comes to one's mind when one begins to make exercises of this kind and when one tries to project likely trends of enrolment and likely trends of teacher recruitment and tries to fit the whole jigsaw together to make sense.

Education undoubtedly in a number of cases has played a major part

in establishing the preconditions for economic growth. There are two separate sorts of questions to ask about this. One is a question about the unit one is interested in. Am I interested in one particular human being? Am I interested in a family? Am I interested in Ireland? Am I interested in a wider regional grouping? Because what is good for one is not, necessarily, good for all, and what is good for all is not, necessarily, good for each. In the context of Irish economic history, where emigration has played so very large a part, this question is a difficult one. From the point of view of the individual the more education that you can give an Irishman or an Irish woman the higher the wage he is likely to command in the countries to which he emigrates and the higher the probability of his employment. It is a well-established economic fact that the higher you move up the skill hierarchy the greater is the likelihood of your being employed and the higher the average wage which you will receive. It costs a great deal to educate a man and therefore the more you spend on the education of an Irishman the more, in a sense, you are giving to a foreign country when a man emigrates and does not return. Therefore, in a sense, the place of education in economics raises one of the major problems of the economics of welfare, namely, whose welfare should you consider, that of Ireland viewed as an economic unit or that of the individual? I should have thought that, on the whole, the answer was fairly clear. One should consider the individual because of the doctrine of the rights and value of the individual. But it is idle to pretend that this expenditure is entirely to the public advantage, although it is very considerably to the private advantage. It has, of course, been a convenient way by which Ireland could subsidise its larger and, on the whole, richer neighbours. (A general redistribution of income from the poor to the rich seems to be one of those inevitable facts of economic life which governments try to reverse!)

If the sort of prognostication that I have been making about the future of the Irish economy is correct, then this kind of argument will become of less importance than it has been in the past. The interests of the individual will coincide far more with the interests of the nation. And furthermore, of course, one always has to say that, of any given age cohort of children, one does not know which of them will go abroad and which children will stay at home and it would be most unfortunate not to educate anybody in a cohort on the grounds that half of them might emigrate. The national consequences would, of course, be unfortunate. This is the second aspect I think of the Irish case.

Fundamentally what happened in Ireland in the years immediately after 1958 was that the nation laid for itself certain foundations on which

substantial economic growth was built. These foundations were largely, I think it is fair to say, in the realm of physical capital and in the development of the general administration and the business community generally. Over the last few years the Irish nation has been benefitting from the forethought and care with which these plans were laid and the physical foundations of the building, so to speak, were laid. But the other foundation, the foundation of skill and of general education will in the next stage of economic growth become far more important since the structure of the Irish economy will move more into those activities where the concentration of skill is greatest and where the need to be up to date is more important (8).

It therefore follows that the place of education in Irish economic development must be in the creation of a fundamental substructure of skills which is available all the time so that people who wish to set up and develop businesses can be assured that there is a pool of talented labour available for them to work with. This seems to me to be the fundamental point which one must make about the place of education in economic growth in Ireland today. This, however, is a very general point and perhaps one should try to be more specific. It is quite clear that the designation of all categories of skills that are likely to be needed over the next few years is one such major question.

There is another method of assessing the economic contribution of education which my American colleagues have developed. This is a systematic attempt by a large number of American economists to measure the 'return' on education and to compare it with the returns on physical capital in Western economies. This is the source of those two great American slogans that a college education is worth a quarter of a million dollars—that is the northern slogan. The southern slogan is that a college education is worth a hundred thousand dollars. What I want to ask is whether or not it is possible to calculate the returns from education in this way in order to give specific guidance to young people as to which is the most profitable line they should pursue and, of course, to the government as to which lines of education they should develop and how much emphasis they should lay upon education as compared with other expenditure for economic growth.

The argument goes thus — a man's earnings measure his contribution to the economy and it is a well established fact that people with more education earn more than those with less education. Once you have submitted the data to statistical procedure to take out of account the fact that some people are born with higher intelligence than others, you have a difference between people with education and people without education.

which you can assign to education By grossing this up to lifetime earnings, discounting and expressing it as a rate of return on a total amount spent on their education you come out with a figure which is a return on a piece of capital investment

But in the first place many of us would not accept that a man's earnings do actually in any significant way measure his contribution to the National Income except tautologically Leaving aside the large number of people with a vocation which they exercise in conditions outside the market sphere it is obviously the case that by and large the labour market is imperfect and that what people earn is on the whole arbitrarily determined by social forces and social circumstances and only very generally regulated by the laws of economics Secondly it is also the case in all societies that access to educational opportunity is heavily weighted by the socio-economic situation of the parents This is true in countries of any social structure, from Soviet Russia through Sweden to the United States, the United Kingdom, to Ireland To a considerable extent when you are measuring the return from education you are in fact, measuring parental differences in wealth And thirdly, it is by no means clear that if you substantially increase the investment in education the general pattern of wage differentials now prevailing between people with skills and those without skills would necessarily continue The development, indeed, in the United States has been the other way, the development of education has by and large tended to drive up the relative wages of the unskilled and to drive down the wages of the skilled So that, by and large, I am doubtful of the kind of calculations which have been done I find them excessively pedestrian, and they give precise answers to policy makers which are spurious and could lead to substantial waste of economic resources There are under-developed nations, where at the present moment we can point to substantial over-investment in education — Nigeria being the latest instance, India, the Phillipines, Pakistan being the classic instances (9)

In seems to me that, in general, the questions that policy makers have to face may get more difficult and for that reason more interesting than the kind of calculations which my American colleagues have on the whole recently indulged in Nevertheless, it is important for us to realise that a great deal of the importance which has been attached to education in the United States by economists derives from calculations of this kind The late President Kennedy, for example, in an important message to Congress, actually cited this work as the source of his statement that two-fifths of the American growth rate was derived directly from education (10)

Now, what does this all add up to? I have sought to eschew technical economic terms though I have tried to be as realistic and as hard-headed about this subject as I can. And I want to give a general conclusion as to the place of education in a rapidly developing economy. In the first place, education is an aspect of the rising standard of living with which we have to come to terms. It is no use deciding that we will now say that education has had enough and we will move on to something else, because the parents who are growing affluent will not be satisfied with such a decision. The pressure for increased educational expenditure in a society which is experiencing economic growth is one of the major social facts of the contemporary world. It is a very obvious, indeed *the* most obvious consequence of affluence. This is something I think we always ought to bear in mind when people make criticisms of the affluent society. The biggest growth industry is not entertainment or something frivolous, it is actually education. And education in a process of economic growth will rapidly become a large industry indeed, as the figures I have given from the United Kingdom will show. Expenditure on education in the last eight years has doubled in the United Kingdom and I expect that it will double again in the next eight years. What this means for the politicians in facing the electorate with rising demands for rates and for taxes is obvious. This is one of the major reasons why education has become such a central issue in British politics and, indeed, in the whole politics of Western Europe at the present moment.

Secondly, education is quite clearly a pre-condition of economic growth because of the general fund of skills that it gives to the nation, and it is a direct cause of economic growth because it removes certain specific bottlenecks in skills. But this is true only if education is restructured, because education in its traditional form can be a severe handicap to economic growth. And furthermore, the expense of education can become overwhelming unless education is re-organised, so that an efficient use is made of the resources which are devoted to it.

This question of the more efficient and effective use of the resources in education will, I venture to predict, become the central issue in the policies in education which are under discussion. It will become so for two reasons—first, because in country after country, it is being discovered that the educational targets which the nation is setting itself cannot be achieved with the resources available unless there are major changes in the pattern of teaching and in the structure of education. We are finding this in the United Kingdom now more than twenty years after our major educational reform introduced by the wartime coalition (11).

The second cause of this major change in the structure of education, I

think, comes also from affluence. It is that the patterns of education to which we have become accustomed in Western Europe are broadly designed for nations with slow growth and with a limited demand for secondary and higher education, and that the aspects of the revolution — and it is no less than that — that Western Europe is now going through in education is a bursting through the traditional bounds of the secondary and higher education systems. So that from both the economic side and the social side one sees enormous pressures on the educational system which will require changes in the next ten years of a magnitude which have not been seen in education for over eighty years.

My survey has been a general one because I did not want to inflict on my readers a whole range of economic technicalities, but I do hope that I have given a cautious survey which indicates that I am no wild enthusiast for the cause of education irrespective of everything else. Fundamentally, it seems to me that analysis will suggest that education probably plays at least as important a part in economic growth as physical capital, and the question of providing the right kind of education in the right way is probably a more complex matter of planning even than planning for the creation of physical capital.

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