

Education and Economic Development: Empirical Evidence and Regional Perspectives

Key Findings

A wide range of research evidence suggests that high standards of education and training are a prerequisite for high and sustained levels of economic growth. For example:

Recent statistical analysis of data for ninetyeight countries over the period 1960-85 has shown that when factors such as investment levels, population growth and initial standards of living are taken into account, high primary and secondary enrolment rates are linked to rapid economic growth (Barro, 1991; Mankiw, Romer and Well, 1992; World Bank, 1993).

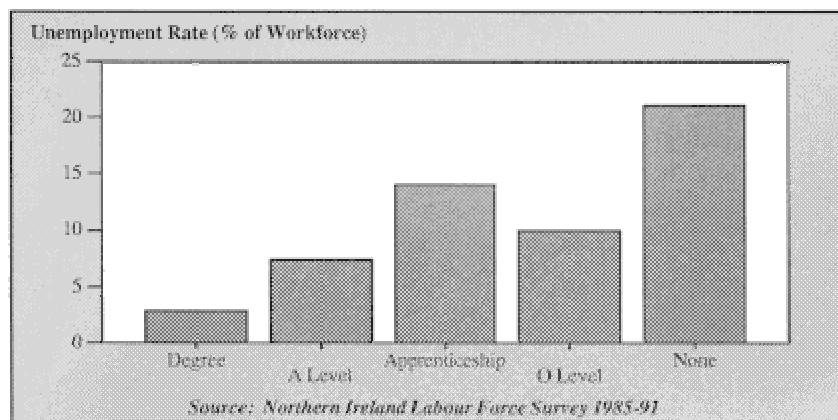
Economic growth in a small peripheral region such as Northern Ireland is crucially dependent on, firstly, inward investment and, secondly, the development of a vibrant small firm sector. International research has shown that high standards of education and training amongst the workforce are a key element in attracting inward investment (CEC, 1993). Similarly, research on small firms in Northern Ireland and elsewhere has shown that those which are owned and managed by well educated entrepreneurs tend to grow faster than others (Storey, 1993; Barkham et al., forthcoming).

Comparative research indicates that an important reason why many established local companies have been outperformed by their German counterparts is that standards of education and training are generally superior amongst the German workforce (Hitchers et al., 1990; Roper and Hofmann, 1993).

Better educated individuals are less likely to be unemployed (Figure 1); they also tend to earn more in employment and are more likely to receive training whilst in employment.

Standards of education and training in Northern Ireland compare unfavourably with other industrialised countries and must be raised, therefore, if the local economy is to maintain and improve upon its competitive position. This is particularly important for Northern Ireland where the problem is exacerbated by outmigration which tends to be concentrated amongst better educated and younger members of the workforce.

Figure 1: Unemployment Rates by Level of Educational Attainment in Northern Ireland



Introduction

1. The main aim of this project was to provide a critical review of the evidence on the relationship between education and economic development. The study focused on the evidence which existed for Northern Ireland but also examined evidence from other countries. Underlying this aim, an important objective of the project was to draw out some implications of the evidence for education policy in Northern Ireland.

Findings

2. Recent statistical analysis of data for ninetyeight countries over the period 1960-85 has shown that when factors such as investment levels, population growth and initial standards of living are taken into account, high primary and secondary enrolment rates are linked to rapid economic growth (Barro, 1991; Mankiw, Romer and Well, 1992; World Bank, 1993). Such analysis is part of what has been referred to as the 'endogenous growth' literature in which education is held to make an explicit and positive contribution to economic growth (see Box 1 for further details).

3. Economic growth in a small peripheral region such as Northern Ireland is crucially dependent upon, firstly, inward investment and, secondly, the development of a vibrant small firm sector. Evidence from international studies suggests that a well educated workforce is a key element in the overall package of measures which can be used to attract inward investment, particularly in hightech industries (CEC, 1993). Qualitative evidence provided by the Industrial Development Board on the attitudes of some externally owned companies to local standards of education is consistent with these findings. With respect to the small firm sector, a detailed statistical study of small firm growth in Northern Ireland and three English regions over the period 1986-90, found that small firms which were owned and managed by well educated entrepreneurs tended to grow faster than others (Barkham et al., forthcoming). This was because better educated entrepreneurs were more likely than others to implement business strategies, such as conducting market research and introducing product improvements, which are conducive to the overall growth of the firm.

Box 1: 'Endogenous Growth' Theories

In the early theoretical models of economic growth it was assumed that technical progress was 'exogenous', i.e. that it could not be explained in terms of the other factors which were included in the models such as, for example, the amount of capital or labour used in the production process. In the endogenous growth literature, however, the relationship between education and technical progress is central to the theoretical models. The basic argument is that a large part of economic growth is determined by technological progress, and one factor which has an important influence on this is the level of education and training amongst the workforce. For example, it is argued that education or 'human capital', is a key input to the research sector which generates the new products and ideas that underlie technical progress. Thus countries with better standards of education are likely to experience a more rapid rate of introduction of new goods and processes and thereby tend to grow faster.

4. A number of so-called 'matched plant' studies have investigated in detail the factors which explain differences in the performance of comparable companies in Northern Ireland and Germany (Hitchers et al., 1990; Roper and Hofmann, 1993). These studies strongly suggest that one of the most important reasons for the poorer performance of many established local companies is the superior standards of education and training amongst the German workforce. Higher levels of vocational skills amongst the German workforce contributed to, for example, a lower incidence of machine breakdown, greater flexibility of operative staff and a greater tendency to introduce product and process innovations.

5. Better educated individuals tend to earn more in employment (Table 1). This has formed the basis of the so-called 'Rate of Return' studies, which have used the education-earnings relationship to measure the economic benefits or 'returns', which accrue from different levels of education. In particular, these studies have argued that earnings levels reflect, to some

extent, the contribution which individuals make to company performance. Since better educated individuals generally earn more in employment, it is argued that education has an important positive influence on overall economic performance. These Rate of Return studies have provoked a lively debate in the literature (see Box 2 for further details).

Table 1: Education and Earnings in Northern Ireland

Level of Educational Attainment	Earnings Band			
	£2,000 - £4,999 %	£5,000 - £9,999 %	£10,000 - £14,999 %	£15,000+ %
Degree	9	12	28	60
A Level	3	8	7	7
GCSE/O Level	21	27	19	12
Vocational	19	20	25	12
No Qualifications	47	38	22	9
Total	100	100	100	100

Source: Continuous Household Survey 1992/93

Notes: Figures relate to males and females in employment age 16 and over.

6. Better educated individuals are less likely than others to be unemployed (Figure 1). They are more attractive to employers because, all other things being equal, they are likely to contribute more to company performance. Better educated people who are unemployed also tend to search more intensively and effectively for work than others. For this reason, education has an economic role in enhancing labour market efficiency. This role is important because the costs to employers of having unfilled vacancies can be very large, and so improving labour market efficiency could reduce these costs, and thereby improve economic performance, profitability and competitiveness.

Box 2: Debates About 'Rate of Return' Studies

Perhaps the most influential criticisms which have been made of the Rate of Return studies are the so-called 'signalling' and 'screening' theories. These have focused on the issue of whether or not education actually does raise productivity, and hence earnings. In particular they have argued that education acts as a proxy for innate ability, and that it is this innate ability which is the main factor contributing to the education - earnings relationship, not the education. In light of these criticisms, the consensus which seems to have emerged in the literature is that education has an important role as a 'screening device' which can be used to separate individuals of different abilities, particularly at the stage of recruitment. However, it should also be noted that many of the studies reviewed in this paper have shown that education and training provide more than simply a credential which can be used as a screening device, and that they endow people with skills and competencies which raise their productive performance in tangible ways.

7. Better educated employees are more likely than others to receive some form of work-related training (Table 2). This is important because it suggests that if individuals do not enter the labour market with adequate standards of education, then their difficulties are likely to be exacerbated in the longer term as employers tend to concentrate training programmes on better educated employees.

Table 2: Education and the Receipt of Training in Northern Ireland

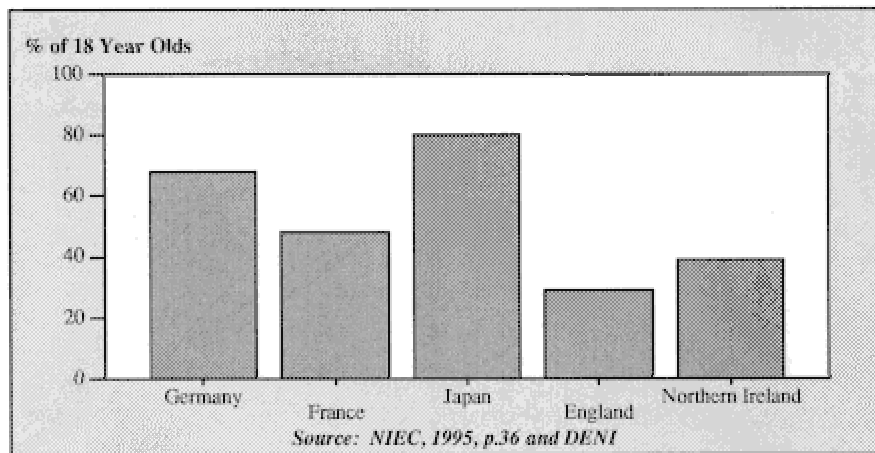
Qualifications	% Received Training
Higher Education	21.4
A Level	18.5
GCSE/O Level	11.5
No Qualifications	2.1
All	9.7

Source: Northern Ireland Labour Force Survey 1987/91

Notes: Figures are for males and females aged 16 and over and they relate to all those who were in employment. The figures should be read as follows: of those who were employed and had a higher qualification, 21.4% were receiving some form of training in their job.

8. Standards of education amongst young people in both Northern Ireland and Great Britain compare unfavourably with other industrialised countries (Figure 2). For Northern Ireland, this problem is exacerbated by outmigration which tends to be concentrated amongst the highest qualified members of the workforce.

Figure 2: Eighteen Year Olds Reaching the Equivalent of 2 or More A Level Passes



Policy Implications

9. The principal policy implication to be drawn from the evidence reviewed in this paper is that efforts to produce a better educated and more highly skilled workforce ought to be a central element in the overall economic development strategy in Northern Ireland. The evidence reviewed related to education in its broadest sense including lower and upper secondary level schooling, vocational training and university level education. The paper did not address in detail the issue of which level or type of education ought to be considered a priority from an economic development point of view. However, an important theme to emerge from the literature was that the main thrust of education policy, insofar as it relates to economic development, should be to ensure that the educational 'fundamentals' are in place amongst the majority of the working age population. The available evidence suggests that in modern industrialised economies, there has been an upward shift in the minimum level of education which enables individuals to participate successfully in the labour market, and that it is now around upper secondary level education or its vocational equivalent. Focusing education

policy on such 'fundamentals' would ensure that the majority of the workforce have the requisite cognitive abilities and the flexibility to adapt regularly to new production processes within an everchanging technological environment. This is what is required if the Northern Ireland economy is to maintain and improve upon its competitive position.

The Project

The project was undertaken for DENI by the Northern Ireland Economic Research Centre and cost £6,000.

Full Report

The full report is entitled 'Education and Economic Development: Empirical Evidence and Regional Perspectives', DENI Research Report Series Number 2, by David Armstrong. It is available free of charge from the Northern Ireland Economic Research Centre, 46 University Road, Belfast BT7 1NJ, Tel 01232325594, fax 01232439435.

The views expressed in this paper are those of the author and do not necessarily reflect those of DENI who funded the research.

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