

INVESTING IN PEOPLE

THE LABOUR MARKET IMPACT
OF HUMAN RESOURCE
INTERVENTIONS FUNDED
UNDER THE
1994-1999 COMMUNITY
SUPPORT FRAMEWORK
IN IRELAND

**KEVIN DENNY, COLM HARMON,
PHILIP J. O'CONNELL**

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Price IR£12.00, €15.24

(Special rate for students IR£6.00, €7.62)

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DUBLIN, 2000

ISBN 0 7070 0192 7

ACKNOWLEDGEMENTS

This study was commissioned by the Department of Finance. In the course of preparing this report the authors received assistance from a wide range of individuals. We would like to acknowledge the advice and comments of the steering group through the various stages of the project: Thomas Bender (DG V, Office of the European Commission), Pat Dowling (Department of Education and Science), Michael English (Department of Enterprise, Trade and Employment), Veronica Gaffey (Programme Evaluation Unit, Department of Enterprise, Trade and Employment), David Hegarty (CSF Evaluation Unit, Department of Finance), Eddy Hartog (DG XVI, Office of the European Commission), Tom Heffernan (Department of Finance), Jim Higgins (Department of Finance) and Donal O'Neill (Department of Economics, NUI, Maynooth). We would like to thank Helen Russell, Jerry Sexton and Brendan Whelan (ESRI) for their comments on an earlier draft. We would also like to thank Pat Hopkins, Regina Moore and Deirdre Whitaker, who shepherded the final manuscript to the printer with their customary competence and good humour.

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EXECUTIVE SUMMARY

1. Objectives of the Study

Expenditure on human resource development represents a very large and important component of public expenditure and represented about one-third of total European Union aid to Ireland under the 1994-1999 Community Support Framework (CSF). The main objectives of the CSF expenditures were to boost human capital by enhancing education and skill levels and to enhance the employment prospects of unemployed people.

Given the scale and importance of these investments in human resources it is imperative to take a rigorous look at their impact. Noting that much of the existing evaluation work had taken the form of stand-alone evaluations of individual measures or thematic reviews of groups of measures, and that the evaluations have tended to be qualitative in nature, the Irish Department of Finance and the European Commission decided in 1998 to commission a study of the labour market impact of the education and training provisions across the CSF. The main aim envisaged for the study was to produce, as far as possible, quantified estimates of the net impact of interventions funded under the CSF on the labour market outcomes of participants and target groups. This study is the product of that commission.

The present study focuses exclusively on the labour market impact of human resource interventions and it should be acknowledged that such programmes may also serve other objectives in preparing citizens for full participation in the economy and society. Our review of developments in the labour market during the 1990s, presented in Chapter 2, shows clearly that labour market conditions were transformed over the course of the 1994-1999 Community Support Framework. Over that brief period the booming economy led to a shift from mass unemployment to labour shortages. In the new scenario human resource interventions continue to play a vital role in meeting skill needs. In initial education, continued investment is essential to prepare young people for labour market entry and to match the growing demand for skilled workers. In labour market policies targeted at the unemployed, effective programmes can both enhance the employment prospects of those experiencing difficulty in the labour market and ease skill and labour shortages in the booming economy.

2. The Design and Scope of the Study

All of the measures assessed in this study were funded under the Human Resources Development Operational Programme (HRDOP). The HRDOP was the single largest OP in the CSF, entailing expenditures of well over IR£4 billion and it accounted for over 30 per cent of total expenditures co-financed under the CSF between 1994-1999. The Human Resources Development OP had two principal objectives: (1) to boost human capital in Ireland by enhancing education and skill levels; and (2) To enhance employment prospects of unemployed people, particularly the long-term unemployed and others excluded from the labour market.

Our analyses of the labour market impact of human resource interventions are designed to address two basic questions:

1. What are the effects of participation in the human resource measures on subsequent employment prospects?
2. What are the effects of participation in the human resource measure(s) on subsequent earnings from employment?

Framing the research questions in this manner reflects the stated objectives of the human resources interventions funded by the CSF – to enhance human capital and improve employment prospects.

We adopted a basic distinction between: (1) Initial education and training, which takes place before entry to the labour market; and (2) Continuing education, training, and temporary employment measures targeted at the unemployed and designed to enhance employment prospects of those experiencing difficulties in the labour market. Given that the two policy domains differ in terms of objectives and target groups, as well as in appropriate evaluation methodologies, we present the assessments of their labour market impact separately, in Chapters 4 and 5.

It is well established that the assessment of the net labour market effects of participation in education and training programmes cannot rely simply on the outcomes experienced by participants in those programmes alone. Thus, for example, rates of placement in employment following labour market training programmes tell us nothing about what might have happened had the individual not participated in the programme. Similarly, the earnings of university graduates indicate nothing about the additional return to a university education compared with the return associated with completing secondary education. To assess net effects in terms of either employment or earnings it is necessary to compare outcomes for participants with a comparison or control group of individuals who are similar in relevant characteristics to participants but who have not participated in the programme in question. In respect of both policy domains we assess the net impact of initial education or labour market intervention in comparison to what would have been the likely outcome if an individual had not participated in a programme. Thus our assessments are in relation to the counterfactual of non-participation, and we do not attempt to compare the relative

impact of educational programmes, on the one hand, *versus* training and other programmes for the unemployed, on the other.

Because of the necessity of comparing labour market outcomes for both participants and a control group as well as taking account of relevant characteristics of both participants and non-participants, the assessment of the net impact of education and training programmes is very demanding in terms of data. The minimal data requirements to rigorously assess the net impact of programmes are nationally representative survey data on participants (measured after some appropriate period has elapsed post-programme) providing data on employment, earnings and relevant individual characteristics, including educational attainment, age, gender and labour market experience, plus matching data for a comparison group.

Availability of appropriate high quality data thus effectively drives the evaluation process and determines the set of education and training programmes that can be assessed. Fortunately, The Economic and Social Research Institute (ESRI) has been at the forefront in collecting survey-data on labour market issues in recent years, and consequently has direct access to a number of relevant data sets suitable to the assessment of the net effects of a wide range of educational and training programmes. In this study we constructed both participant and comparison groups by combining data from three nationally representative survey data bases: six successive years of the *Annual School Leavers Survey*, two waves of the *Living in Ireland Survey*, and the 1996 *FÁS/ESRI Follow-up Survey*.

These nationally representative data sets allow us not only to measure the labour market impact of programmes but also to compare the outcomes for participants in both labour market and mainstream educational programmes with appropriate comparison groups drawn randomly from the national population to measure the net impact of programmes.

The present study was preceded by a systematic examination of the feasibility of evaluating the labour market impact of the entire range of operational human resources interventions funded under the CSF (Deloitte & Touche and ESRI, 1998). That review concluded that it is not feasible to evaluate the labour market impact of every human resources intervention funded under the CSF. In some cases interventions may take a long time for their efforts to bear fruit. In the case of other measures, appropriate data are not available. Nevertheless, if we combine all of the programmes assessed in the present study, total planned expenditure on these programmes amounted to over IR£3 billion over the 1994-1999 period and represents over 70 per cent of total expenditure under the HRDOP. We thus evaluate the labour market impact of a very substantial and important range of human resources interventions funded under the Community Support Framework.

We present our analysis of the impact of initial education and training measures in Chapter 4. There we use six years of the

Annual School Leavers Survey to analyse the impact of participation in the Vocational Preparation and Training (VPT) programme on earnings and labour market status for school leavers in Ireland for the period 1990-1995. We also use the *Living in Ireland Survey*, which provides a more general sample of the population than is available in the *School Leavers Survey*, to estimate returns to VPT as well as tertiary programmes funded under the CSF, including sub-degree courses funded under the Higher Technical and Business Skills (HTBS) and Middle Level Technician (MLT) programmes and post-graduate courses funded by the Advanced Technical Skills (ATS) programme.

3. Findings and Policy Implications

3.1 INTERVENTIONS IN INITIAL EDUCATION AND TRAINING

We present our analysis of the impact of initial education and training measures in Chapter 4. The results show that there are sizeable returns to the Vocational Preparation and Training programme, although these are mainly confined to VPT courses taken after completion of the Leaving Certificate: Post Leaving Certificate (PLC) courses have positive and sizeable effects on both earnings and employment probabilities. The earnings returns are higher for young males than for females.

The analysis also shows that the returns to VPT taken after the junior cycle (but without a Leaving Certificate) have very little impact on the labour market outcomes of the participants. This suggests that modification of these programmes was required and indeed these have been subsequently assimilated into the Leaving Certificate Applied course, a programme which has more structure.

With regard to tertiary level credentials, the findings show a strong positive impact of sub-degree (diploma and certificate level) tertiary qualifications funded under the Higher Technical and Business Skills and Middle Level Technician (HTBS/MLT) programmes on the earnings of both men and women, although the returns are greater for men. Possession of advanced third level degrees, at the level funded under the Advanced Technical Skills programme, leads to significant earnings gains for both men and women. We also deal with the sensitivity of estimates to the age profiles of the individuals and find that this pattern of effects remains true for those aged under 37 years of age – the age group most likely to have benefited from the educational programmes under consideration.

Assessing the employment effects of initial education is complex because individuals face a three-way choice between education, employment and non-employment. Our analysis of young people shortly after leaving school suggested that, on balance, participation in VPT is a good treatment for those whose academic attainment is sufficiently low that they would be unlikely to enter third level education. At third level, possession of sub-degree awards, funded by the HTBS/MLT programme, increases the probability of employment. This is true also for those with

higher degrees, although here the effect is not statistically significant. Thus, our findings show that the probability of employment is never lowered by participation in post-secondary education.

The evidence also suggests that taking PLCs is associated with a *lower* probability of entering third level education which is contrary to one of the objectives behind them. However our data largely precedes the introduction of formal national certification of these programmes in 1994 by the NCVA (at Level 2) and it is likely that this introduction of certification will generate a more formal trail of qualifications for the individual, possibly leading to a greater probability of participation in education after the PLC ends. Indeed the most recent evidence from the Department of Education suggests that some 30 per cent of the group who graduated from their PLC in 1997 went on to additional further education. From a public policy perspective this is an exciting and important development, allowing one of the primary causes of social exclusion to be overcome at a time and pace that suits the student and with a focus that is tailored to suit the demands of the labour market.

3.2 ACTIVE LABOUR MARKET POLICIES FOR THE UNEMPLOYED

We present our analysis of the effects of temporary employment and training programmes in Chapter 5. Our strongest conclusions relate to the impact of programmes on subsequent employment chances. Five of the fourteen programmes are found to significantly increase the employment chances of their participants, relative to non-participants, when other relevant factors are taken account of. These effective programmes include three employment subsidy schemes – the Employment Incentive Scheme, the Employment Subsidy Scheme, the Enterprise Allowance scheme – and two training programmes – Specific Skills Training and Job Training. Two additional programmes, Return to Work and Skills Foundation, were found to have positive employment effects, but these effects were at the margins of statistical significance. Seven programmes displayed no positive employment effects. These included: Community Employment, Linked Work Experience, Community Youth Training, Community Workshops and Travelling Peoples' Workshops. We did however find that participation in Community Employment had a positive effect on women's subsequent employment chances, although not for men.

The effects of programme participation on the wages of those at work two years later are quite limited. The analysis shows that participation in Specific Skills Training is associated with a significant increase in wages although this effect appears to be confined to those previously unemployed for less than 1 year, rather than the long-term unemployed, and to those aged over 25 years of age. It should be noted that the analysis is contingent on job acquisition, and thus compares only those who have been successful in achieving employment, and is limited to a comparison of wages among full-time workers. Nevertheless, the

general pattern of findings suggests that the principal impact of effective programmes is to increase the employment chances of participants, rather than to enhance their earnings compared to non-participants who find work.

The general pattern of findings in the present study is consistent with earlier research demonstrating that programmes with strong linkages to the market are more likely to enhance the employment prospects of their participants than programmes with weak market linkages. The consistency in this pattern of findings over two research projects covering different time periods suggests that the superiority of programmes with strong market linkages applies across varying labour market conditions: that such programmes enhance their participants' prospects in good times as well as bad.

These findings have important implications for policy development. By 1998 the three effective employment subsidies – Employment Incentive Scheme, Employment Subsidy Scheme, and the Enterprise Allowance programme – had all been abolished. This coincided with the expansion of the Back to Work Allowance (BtWA) schemes implemented by the Department of Social Community and Social Affairs. The BtWA schemes are also characterised by strong market linkages, and have proved successful in enabling transitions from unemployment to work, but, on the basis of an early assessment, appear less successful in promoting sustained employment due to high drop-outs rates as social welfare support is progressively reduced over time (WRC Social and Economic Consultants, 1997). Both of the effective training programmes also declined between 1994 and 1998: throughput in Specific Skills Training fell from 13,800 participants in 1994 to 11,500 in 1998, while that in Job Training fell from 2,619 to 1,213. Over the same period Community Employment expanded from a throughput of 32,700 in 1994 to over 54,000 in 1998. However, the findings of the present study, as well as previous research on net labour market impact shows this type of programme – a direct employment scheme with weak linkages to the market – is less effective in improving participants' employment prospects.

Given the dramatic improvement in labour market conditions since the mid-1990s, together with the evidence from this and previous research on the effectiveness of Active Labour Market Programmes (ALMPs), there is a strong case for a strategic re-orientation of labour market policies for the unemployed. The essential elements of such a re-orientation would entail: (1) Development of reintegration paths for the long-term unemployed and other socially excluded groups leading to effective programmes with strong linkages to the labour market. (2) A continuation of the policy of gradually reducing numbers in Community Employment and the utilisation of freed resources to expand the provision of effective training programmes with strong market linkages. Such programmes have been shown to enhance their participants' labour market prospects, and they could also, moreover, carry the

additional advantage of alleviating skill and labour shortages in the booming labour market. (3) Increase opportunities for the long-term unemployed to participate in specific skills training programmes: a continuation of the policy of increasing rates of participation by the long-term unemployed already implemented under the FÁS Action Plan on Long-Term Unemployment, but entailing a substantial expansion in the absolute numbers to benefit from the programme. Such a reorientation, targeting ALMP resources exclusively and intensively on the most disadvantaged in the labour market, while allowing market forces to absorb younger relatively short-term unemployed, could serve both equity and efficiency goals – combating social exclusion, ensuring a more efficient investment of public resources, and alleviating labour shortages in the booming economy.

1. EVALUATING HUMAN RESOURCE INTERVENTIONS FUNDED UNDER THE 1994- 1999 COMMUNITY SUPPORT FRAMEWORK

1.1 Introduction

Expenditure on human resource development represents a very large and important component of public expenditure and represented about one-third of total European Union aid to Ireland under the 1994-1999 Community Support Framework (CSF). The main objectives of the CSF expenditures were to boost human capital by enhancing education and skill levels and to enhance the employment prospects of unemployed people.

Given the scale and importance of these investments in human resources it is imperative to take a rigorous look at their impact. A considerable volume of evaluation work has been carried out on the various human resources elements in the CSF. Much of this work has been carried out by the European Social Fund Evaluation Unit and other agencies and reviewed in the mid-term evaluation of the CSF (Goodbody, 1997; Honohan, 1997). Noting that much of the existing evaluation work had taken the form of stand-alone evaluations of individual measures or thematic reviews of groups of measures, and that the evaluations have tended to be qualitative in nature, the Irish Department of Finance and the European Commission decided in 1998 to commission a study of the labour market impact of the education and training provisions across the CSF. The main aim envisaged for the study was to produce, as far as possible, quantified estimates of the net impact of interventions funded under the CSF on the labour market outcomes of participants and target groups. This study is the product of that commission.

In this chapter we set out the central research questions addressed and outline the programmes that were included in the study. Chapter 2 presents a review of the labour market context for the 1994-1999 CSF. Chapter 3 provides a brief review of the literature on the evaluation of the labour market impact of education and training measures. Chapter 4 presents the analysis

of the impact of initial education and training measures funded under the CSF while Chapter 5 presents the analysis of the impact of education and training programmes targeted at the unemployed. Chapter 6 presents conclusions and policy implications.

1.2 The Research Design

Our analyses of the labour market impact of human resource interventions are designed to address two basic questions:

1. What are the effects of participation in the human resource measure(s) on subsequent employment prospects?
2. What are the effects of participation in the human resource measure(s) on subsequent earnings from employment?

Framing the research questions in this manner follows from the stated objectives of the human resources interventions funded by the CSF – to enhance human capital and improve employment prospects. It also reflects basic social science thinking about how labour market outcomes, such as employment chances or wages, can be used to measure how the market values different programmes.

It is well established that the assessment of the net labour market effects of participation in education and training programmes cannot rely simply on the outcomes experienced by participants in those programmes alone. Thus, for example, rates of placement in employment following labour market training programmes tell us nothing about what might have happened had the individual not participated in the programme. Similarly, the earnings of university graduates indicate nothing about the additional return to a university education compared with the return associated with completing secondary education. To assess net effects in terms of either employment or earnings it is necessary to compare outcomes for participants with a comparison or control group of individuals who are similar in relevant characteristics to participants but who have not participated in the programme in question.

In assessing the impact of mainstream education programmes, the typical strategy is to compare the outcomes of participants with a group of individuals at a lower level of educational attainment – thus, for example, we assess the earnings effects of participation in third level education by comparing graduates with those who have completed second level education, again, controlling, in a statistical model, for the effects of other relevant individual characteristics (see for example Callan and Harmon, 1999).

In evaluating the impact of active labour market programmes the typical strategy is to compare the outcome for participants, usually after some period has elapsed subsequent to programme completion, with a comparison group of individuals: (a) who were unemployed at about the same time as programme participants either began or ended their programme; but (b) who had not participated in an active labour market programme. A statistical model is then developed to measure the impact of programme participation, by comparing outcomes for participants with those of

non-participants while taking account of other relevant individual characteristics expected to influence labour market prospects – such as age, gender, educational attainment, and previous labour market experience (see for example O'Connell and McGinnity, 1997a).

Because of the necessity of comparing labour market outcomes for both participants and a control group and taking account of relevant characteristics of both participants and non-participants, the assessment of the net impact of education and training programmes is very demanding in terms of data. The minimal data requirements to rigorously assess the net impact of programmes are nationally representative survey data on participants (measured after some appropriate period has elapsed post-programme) providing data on employment, earnings and relevant individual characteristics, including educational attainment, age, gender and labour market experience, plus matching data for a comparison group.

Availability of appropriate high quality data thus effectively drives the evaluation process and determines the set of education and training programmes that can be assessed. Unfortunately, data sources such as the *Labour Force Survey* (or its replacement since 1997 the *Quarterly National Household Survey*), or the Live Register of Unemployment, do not meet the data demands necessary for the assessment of net effects of programmes. While the *LFS* did collect information on current employment status and relevant personal characteristics at a given point in time, it collected no information on earnings and scant information on previous participation in labour market training programmes – it cannot therefore serve as a control group for the assessment of labour market programmes, although it could yield information on the employment effects (but not earnings effects) of programmes in mainstream education. The Live Register contains very little information on essential individual characteristics – particularly educational attainment, its coverage of previous participation in active labour market programmes and current labour market status are unsatisfactory, and it collects no information on the earnings of those currently in employment. Data protection regulations, moreover, are such that access to Live Register data is extremely difficult.

Fortunately, the ESRI has been at the forefront in collecting survey-data on labour market issues in recent years, and consequently has direct access to a number of relevant data sets suitable to the assessment of the net effects of a wide range of educational and training programmes. In this study we constructed both participant and comparison groups by combining data from three nationally representative survey data bases:

A. *The 1996 FÁS Follow-up Survey:*

The 1996 *FÁS Follow-up Survey* covered a sample of 1,473 participants in the entire range of employment and training programmes implemented by FÁS, who had left their programmes in the period April-July 1994. The survey

collected detailed information on post-programme employment experience and earnings, as well as a range of individual characteristics, including age, gender, educational attainment, and labour market experience and unemployment duration prior to programme participation.

B. The *Living in Ireland Panel Surveys*

The 1994 and 1996 waves of the *Living in Ireland Panel Surveys* collected a wide range of information about labour market activities, among other things, from a nationally representative sample of over 4,000 households, with almost 10,000 individuals aged 17 years or over. The 1994 wave provides data on a range of individual characteristics, including age, gender, educational attainment, and labour market experience and unemployment. The third (1996) wave of the panel survey provides a detailed record of labour market and employment experience over the two years to Spring-Summer 1996.

C. The *School Leavers' Survey*

The *Annual Survey of School Leavers* is a nationally representative survey of about 5,000 individuals conducted each year about 9-12 months after students have left the second level education system. The survey collects detailed information on educational attainment, examination performance, labour market experiences, earnings, and background characteristics.

These nationally representative data sets allow us not only to measure the labour market impact of programmes but also to compare the outcomes for participants in both labour market and mainstream educational programmes with appropriate comparison groups drawn randomly from the national population to measure the net impact of programmes. The research designs for these evaluations are described in greater detail in Chapters 4 and 5.

**1.3
Human
Resource
Interventions
Funded
under the
1994-1999
Community
Support
Framework**

Human resource spending in the Irish Community Support Framework (CSF) represented a very substantial investment in education and training and accounted for IR£1.7bn in structural funds and over IR£600 in co-financing from government sources. Human resources spending was scattered across over thirty different measures in six different Operational Programmes (OPs), but well over 80 per cent of expenditure was concentrated in the Human Resources Development Operational Programme (HRDOP). The HRDOP was the single largest OP in the CSF, accounting for over 30 per cent of total co-financed expenditures (Honohan, 1997). Additional investment in human resources, mainly sector-specific training, was funded under four additional OPs: namely the Industrial Development OP; Agriculture, Rural Development and Forestry OP; Fisheries OP; Tourism OP; and Local Urban and Rural Development OP.

All of the measures which are assessed in Chapters 4 and 5 of this report fell within the HRDOP, and the following section

provides a brief discussion of the main elements of expenditure in the OP. It should be acknowledged, of course, that Irish government spending committed as matching funding within the CSF framework represents only a fraction of total public expenditures on human resources. Thus, for example total voted expenditure on education alone amounted to almost IR£2.5bn in 1997 (Department of Education and Science, 2000).

Table 1.1: Human Resources Operational Programme

	Structural Funds IR£m	Public Co-financed IR£m	Other Public IR£m	Total IR£m
1. Initial Education & Training	672.6	224.2	545.2	1,442.0
2. Continuing Training for the Unemployed	159.5	53.2	97.9	310.6
3. Social Exclusion	330.6	153.8	1,615.0	2,099.4
4. Adaptation to Industrial Change	58.9	12.0	3.1	73.9
5. Improvement of the Quality of Training	192.2	63.9	59.1	315.1
Total	1,413.8	507.1	2,320.2	4,241.1

Source: Human Resources Development Operational Programme, Monitoring Committee, Meeting, October 15th, 1999, "Financial Tables".

The Human Resources Development OP had two principal objectives: (1) to boost human capital in Ireland by enhancing education and skill levels; and (2) to enhance employment prospects of unemployed people, particularly the long-term unemployed and others excluded from the labour market. Table 1.1 shows total expenditure amounting to well over IR£4 billion on the five sub-programmes including IR£1.4bn in structural funds, IR£500m in public co-financed expenditure, and a further £2.3bn in national public funds.

1.3.1 SUB-PROGRAMME FOR INITIAL EDUCATION AND TRAINING

Almost half of structural funds expenditures were concentrated on sub-programme 1, which helped to fund initial education and training at second and third level, primarily in technical and vocational subjects. Table 1.2 shows total expenditure over the life of the 1994-1999 HRDP as well as expenditures and activities in 1995.

Within this sub-programme the largest elements of expenditure were allocated to the Vocational Preparation and Training (VPT) programme (IR£342m) and the Middle Level Technician (MLT) and Higher Technical and Business Skills (HTBS) programmes (IR£669m). The VPT programme was designed to increase the flow of technically trained entrants to the labour force by increasing the proportion of senior secondary cycle students following technical and vocational courses, and the provision of, mainly one-year, Post Leaving Certificate courses (PLCs) in vocational areas to those who have completed secondary education. The VPT programme also had the objective of increasing the retention rate at senior cycle secondary education by expanding the range of curricular options

available, particularly to those who might be at risk of failure under the traditional curriculum. In 1995, throughput amounted to almost 19,500, well over half the total throughput funded under the sub-programme (Goodbody, 1997).

Table 1.2: Sub-Programme 1: Initial Education and Training

	Total Expenditure 1994-1999	Actual Activity in 1995		Evaluation
	IR£m	Expenditure IR£m	Throughput	
Preventive actions on early school leaving	25.3	3.8	n.a.	
Early school leavers	115.9	13.4	840	
Vocational Preparation and Training	341.5	48.3	19,432	Chapter 4
Apprenticeship	265.7	35.5	3,267	
Middle Level Technician/ Higher Technical and Business Skills	668.6	109.4	12,083	Chapter 4
Advanced Technical Skills	61.6	11.0	1,394	Chapter 4
Total	1,442.0	214.4	37,016	

Source: Human Resources Development Operational Programme, Monitoring Committee, Meeting, October 15th, 1999, "Financial Tables".

The MLT/HTBS suite of courses was designed to enhance competitiveness and growth by providing initial third-level education and training to meet technical and higher skills needs by providing courses delivered through the regionally dispersed network of technological colleges. Throughput on MLT/HTBS amounted to over 12,000 in 1995, substantially greater than had been originally been projected in the OP (Goodbody, 1997).

The evaluation of the labour market impact of interventions in initial education and training, presented in Chapter 4, mainly concentrate on VPT and MLT/HTBS programmes, which together accounted for about three-quarters of total expenditure, and over 85 per cent of total throughput, of the initial education and training sub-programme in 1995. Other smaller programmes funded under this sub-programme included measures to prevent early school leaving, measures to combat unemployment among early school leavers, apprenticeship training, and vocationally oriented post-graduate training in the universities.

1.3.2 SUB-PROGRAMME FOR CONTINUING TRAINING OF THE UNEMPLOYED

This sub-programme consisted of two measures – Industry Training for the Unemployed and Local Enterprise – and had the objective of providing training related to the changing needs required by industry for those already participating in the labour market. The bulk of funding under this sub-programme (88 per cent) was allocated to Industry Training for the Unemployed, intended to provide unemployed workers with vocational training of an international standard at skilled worker level to meet identified skill needs in local labour markets. The measure comprised two training measures implemented by FÁS: Specific Skills Training and the Job Training Scheme. In 1995 actual

throughput on these two training programmes amounted to almost 19,000 at a cost of IR£46m.

Table 1.3: Sub-Programme 2: Continuing Training of the Unemployed

	Total Expenditure 1994-1999	Actual Activity in 1995		Evaluation
	IR£m	Expenditure IR£m	Throughput	
Industry Training for the Unemployed	273.8	45.5	18,870	Chapter 5
Local Enterprise	36.8	5.9	1,314	Chapter 5
Total	310.65	51.4	20,184	

Source: Human Resources Development Operational Programme, Monitoring Committee, Meeting, October 15th, 1999, "Financial Tables".

The second measure, Local Enterprise, was mainly oriented toward the provision of support for new business start-ups and the development of local enterprise. The two main programmes funded under this measure were the Enterprise Scheme (or Enterprise Allowance Scheme) and Enterprise Training. Both programmes aim to support new business start-ups, but the former mainly takes the form of a subsidy while the latter entails training. Throughput on the Local Enterprise measure was 1,314 in 1995 at a cost of IR£5.9m.

The labour market impact of both measures in this sub-programme are evaluated in Chapter 5.

1.3.3 SUB-PROGRAMME FOR THE RE-INTEGRATION OF THE SOCIALLY EXCLUDED

The sub-programme for the re-integration of the socially excluded was the largest single sub-programme in the OP, accounting for about half of all expenditure in the OP. As its title indicates, the objective of this programme was to promote the labour market integration of the disabled and socially excluded.

Table 1.4: Sub-Programme 3: Re-integration of the Socially Excluded

	Total Expenditure 1994-1999	Actual Activity in 1995		Evaluation
	IR£m	Expenditure IR£m	Throughput	
Counselling	33.6	2.1	n.a.	
Community Employment	1,485.4	278.8	54,900	Chapter 5
Re-Integration Training	100.6	19.0	4,560	Chapter 5
Community Training	119.6	23.0	4,614	Chapter 5
Vocational Training Opportunities Scheme	138.8	24.9	2,155	
Adult Literacy	4.1	n.a.	n.a.	
Occupational Disabilities	223.5	33.5	1,659	
Total	2,103.9	381.6	67,942	

Source: Human Resources Development Operational Programme, Monitoring Committee, Meeting, October 15th, 1999, "Financial Tables".

The sub-programme included three measures the labour market impacts of which are analysed in Chapter 5: Community Employment, Re-integration Training and Community Training.

Community Employment is the single largest active labour market policy implemented in Ireland. It is a direct employment measure providing temporary half-time employment for long-term unemployed and other socially excluded. Placements are primarily in the voluntary and community sectors. In 1995 throughput amounted to almost 55,000 at a cost of about IR£280m. While the objective of the measure is to promote labour market re-integration, the programme has, since 1996, offered a pair of alternative options: The Part-time integration Option – oriented toward reintegration into employment; and a Part-time Job-Option providing longer-duration employment to those particularly disadvantaged in the labour market, who because of their detachment from the labour market were less likely to attain jobs in the local labour market. It was envisaged that 30,000 places would be provided on the reintegration option and a further 10,000 places would be provide for the Job Option.

1.3.4 THE SCOPE OF THE EVALUATION

This study was preceded by a systematic examination of the feasibility of evaluating the labour market impact of the entire range of operational human resources interventions funded under the CSF (Deloitte & Touche and ESRI, 1998). That review concluded that it is not feasible to evaluate the labour market impact of every human resources intervention funded under the CSF. In some cases interventions may take a long time for their efforts to bear fruit. This would be the case, for example, with interventions at pre-school level to prevent school drop-out in secondary education a decade or more later in time. In the case of other measures, appropriate data are not available. This is the case with activities funded under the various sectoral Operational Programmes, but also with certain elements of the Human Resources OP, including the Vocational Training Opportunities Scheme (VTOS).¹ Nevertheless, if we combine all of the programmes assessed in the present study, total planned expenditure on these programmes amounted to over IR£3 billion over the 1994-1999 period and represent over 70 per cent of total expenditure under the HRDOP. We are thus in a position to evaluate the labour market impact of a very substantial and important range of human resources interventions funded under the Community Support Framework.

¹ VTOS has been evaluated (see, WRC, 1994 and ESF Evaluation Unit, 1998). However, what is lacking for the purposes of the present evaluation is matching data on the labour market experiences of both programme participants and comparable non-participants.

The education and training system represents a large and diverse range of activities. In this study we seek to assess the impact of a substantial subset of those activities where the connecting thread is that all have been subsidised by EU funding, largely on the basis that they are intended to be vocational in nature and thus to have beneficial labour market impacts. We recognise, however, that, labour market relevance notwithstanding, initial education differs from training programmes for the unemployed in important respects. First, initial education has a wide range of roles, including vocational preparation, but also the transmission of culture and citizenship; training programmes for the unemployed have the rather narrower objective of enhancing employability. Second, initial education is provided to a diversity of social groups, mainly, but by no means exclusively, to young people prior to labour market entry; training and other programmes for the unemployed are targeted mainly on those already participating in, but experiencing difficulties in the labour market. Accordingly, the two types of activity must be evaluated somewhat differently and we present our evaluations of their labour market impact in two separate chapters using differing methodological approaches and techniques. In respect of both sets of analysis, we assess the net impact of the interaction in comparison with what would have happened had an individual not participated in the programme. Thus our assessment is in relation to the counterfactual of non-participation, and we do not attempt to compare the relative impact of educational programmes, on the one hand, and training and other programmes for the unemployed, on the other.

2. PRINCIPAL DEVELOPMENTS IN THE LABOUR MARKET

2.1 The Labour Force

Labour force trends over the past decade and a half have been erratic, alternating between periods of very rapid growth, as at present, and periods of contraction, as during the late 1980s. Trends in the labour force reflect not only underlying demographic trends in the adult population, but also changes in women's labour force participation, levels of participation in education, retirement patterns, and, particularly in the Irish case, migration. Table 2.1 shows adult population by principal economic status from 1981 to 1996, distinguishing between those in the labour force; in education, engaged in home duties and an "other" residual category which mainly consists of those who have retired from the work force.

The numbers in the labour force grew slowly at an annual average of about 11,000 per annum between 1981 and 1991, and very rapidly by almost 30,000 per annum between 1991-1996. These labour force trends can be attributed to four principal factors. First, there was strong underlying growth in the adult population over the entire period. Second, however, growth in both the labour force and the adult population was reduced by net emigration, which peaked in the latter half of the 1980s. The reversal of net migration since 1991 has meant that the adult population grew unhindered by 7 per cent between 1991-1996.

Third, there has been a marked increase in women's labour force participation. Historically, women's labour force participation in Ireland has been low, and, it has been argued, lagged behind what might be expected from the rapid industrialisation of the economy since the 1960s (O'Connor and Shortall, 1999). The female labour force participation rate was less than 28 per cent in 1971, and it remained under 30 per cent a decade later (O'Connell, 1999a). The growth in female labour force participation continued to be sluggish through the mid-1980s (32 per cent in 1986), but it increased dramatically thereafter, to 35 per cent in 1991 and to almost 41 per cent in 1996. Men's participation in the labour force has been moving in the opposite direction: the participation rate fell from 81 per cent of adult males in 1971 to 76 per cent in 1981 and 72 per cent in 1991. Even with the upturn in the labour market in the 1990s the declining trend continued – to 71 per cent

in 1996. These countervailing trends in men's and women's labour force participation meant that the overall labour force participation rate remained virtually unchanged over the 1980s – 53 per cent in 1981 and 53.5 per cent in 1991 – although it increased to 55.4 per cent of the adult population in 1996.

Table 2.1: The Labour Force and Economically Inactive Population aged 15 or over, 1981-1996

	1981	1986	1991	1996
<i>Men</i>				
Total in labour force	912,495	920,300	911,200	960,310
Student	97,306	121,373	140,072	166,914
Home duties	1,041	445	2,698	4,138
Other	183,103	201,926	216,610	227,418
Total aged 15 years and over	1,193,945	1,244,044	1,270,580	1,358,780
LFPR	76.4	74.0	71.7	70.7
<i>Women</i>				
Total in labour force	358,627	409,246	471,670	573,654
Student	103,010	123,837	142,992	172,682
Home duties	661,510	653,398	592,771	549,077
Other	82,584	85,417	107,132	112,470
Total aged 15 years and over	1,205,731	1,271,898	1,314,565	1,407,883
LFPR	29.7	32.2	35.9	40.7
<i>All Persons</i>				
Total in labour force	1,271,122	1,329,546	1,382,870	1,533,964
Student	200,316	245,210	283,064	339,596
Home duties	662,551	653,843	595,469	553,215
Other	265,687	287,343	323,742	339,888
Total aged 15 years and over	2,399,676	2,515,942	2,585,145	2,766,663
LFPR	53.0	52.8	53.5	55.4

Source: Central Statistics Office, various years, *Census of Population*.

A fourth underlying factor influencing labour market trends results from increased educational participation. The total numbers engaged in education increased from 200,000 in 1981 to 283,000 in 1991 and to 340,000 in 1996. Thus the numbers in education increased by 70 per cent over the 1981-1996 period, and by 40 per cent in the decade from 1986-1996. This had two countervailing effects: (1) it radically reduced the number of young people in the labour force (the labour force participation rate for the 15-24 year age group fell from 61 per cent in 1981 to about 45 per cent in 1996; and (2) as noted above, it led to increased labour force participation among women. Sexton and O'Connell (1996) note that increased participation in education among younger age groups, as well as increased retirement among older age groups, and the dramatic increase in women's labour force participation meant that the apparent near stability in labour force participation rates over the past 15 years masked fundamental changes in the structure of the labour force entailing a much greater proportion of women and a burgeoning share accounted for by the "middle age" group.

2.2 Employment and Unemployment

The decade of the 1980s was particularly severe for the Irish economy. Table 2.2 shows how the numbers at work declined over the first half of the 1980s while the size of the labour force increased, due both to natural population growth and increasing labour force participation by women. Contraction in employment combined with labour force growth resulted in an increase in the unemployment rate from just under 10 per cent of the labour force in 1981 to a peak of almost 18 per cent in 1987. The decade from 1987-1997 saw a remarkable turn-around in Irish economic fortunes, with growth in GDP amounting to 79 per cent over the decade, giving rise to substantial increases in employment, and in the 1990s, to a marked fall in unemployment.

Table 2.2: Numbers At Work, Unemployed, Labour Force and Net Migration, 1987-1999

Year	At Work (1,000)	Unemployed (1,000)	Labour Force (1,000)	Unemployment Rate %	Net Migration (1,000)
1987	1,110	226	1,336	16.9	-23
1988	1,111	217	1,328	16.3	-42
1989	1,111	197	1,308	15.1	-44
1990	1,160	172	1,332	12.9	-23
1991	1,156	199	1,355	14.7	-2
1992	1,165	207	1,372	15.1	7
1993	1,183	220	1,403	15.7	0
1994	1,221	211	1,432	14.7	-5
1995	1,282	177	1,459	12.1	-2
1996	1,329	179	1,508	11.9	8
1997	1,380	159	1,539	10.3	15
1998	1,495	127	1,622	7.8	22
1999	1,591	97	1,688	5.7	19

Sources: Central Statistics Office, various years, *Labour Force Survey*, and Central Statistics Office, various years *Quarterly National Household Survey*.

While impressive growth was achieved over the decade as a whole, the rate of growth was, in fact, uneven, and three sub-periods can be identified. Table 2.2 shows trends in numbers at work, unemployed, and in the labour force, as well as net migration over the years 1987-1999.²

² The data from 1987-1997 are drawn from the annual *Labour Force Survey*. From 1997, the Irish Central Statistics Office switched from its annual survey to a quarterly household survey. In so doing the CSO introduced some changes to the questions relating to employment, with the result that in the second quarter of 1998 an additional 20,000 individuals were recorded as part of the labour force: an estimated 8,000 men and 12,000 women. The adjustment is confined almost exclusively to part-time workers in the services sector, with the result that data relating to part-time working in 1998 are not comparable with earlier years. In Table 2.3 we report the total number employed as recorded in 1998, however, in estimating percentage changes in total employment, we adjust the 1998 total downwards by 20,000 to render the 1998 data comparable with earlier years. This adjustment is consistent with the practice adopted by CSO (1998) in its reporting of change over time in total employment.

1. Recovery, 1987-1990. A period of recovery from 1987-1990, with strong growth in investment and exports and curtailment of public spending. In the labour market, these aggregate growth trends generated a brief employment boom between 1989-1990, when total employment increased 4 per cent and unemployment fell to 13 per cent.
2. Sluggish growth, 1991-1993. A downturn in international activity, initially in Britain in 1990 and throughout Europe in 1992 and 1993, which coincided with dramatic increases in interest rates and an exchange rate crisis, meant that growth faltered in Ireland. In Ireland, sluggish growth led to employment declines in 1991 and 1992, and with burgeoning growth in the labour force, to increased unemployment, which reached almost 17 per cent in 1993.
3. Very rapid growth, 1993-1999. Since 1993 the Irish economy has expanded very rapidly, with annual rates of growth in excess of 8 per cent averaged over the 1993-1997 period, stimulated by both accelerated export growth and by increased domestic demand. These growth rates have given rise to a rapid and dramatic improvement in labour market conditions. Total employment grew by about 400,000 or about 33 per cent, in the six years from 1993 to 1999. The unemployment rate fell to 5.7 per cent in April 1999, and was down to 5 per cent by the end of that year. Most forecasts are for a continuation of strong growth for the foreseeable future, with a continuation of strong labour demand and low unemployment.

Emigration has fluctuated in accordance with demand in both domestic and external labour markets. It rose dramatically in the late 'eighties and peaked in 1989, when net emigration (in-migration minus out-migration) rose to 44,000 individuals, representing almost 3.5 per cent of the labour force in that year. Net emigration subsequently fell, and in 1999 inward migration exceeded out-migration by about 19,000.

2.3 Employment by Gender

Table 2.3 shows employment by gender for the years 1988, 1993 and 1999. Total employment increased by an average of almost 4 per cent per annum over the entire period, although this entailed slow growth in the 1988-1993 period, followed by growth of over 5½ per cent per annum between 1993 and 1999.

Employment trends have differed between men and women, with total employment among men falling strongly in the first half of the 1980s (Sexton and O'Connell, 1996), and increasing only marginally between 1988-1993. It was only in the 1990s that men's employment levels picked up – increasing by 4.4 per cent per annum in the 1993-1999 period. As a consequence of these fluctuating trends, male employment in the late 1990s was only marginally above its level in 1981.

Table 2.3: Total Employment by Gender, 1988, 1993 and 1999

	Total	Men	Women	Female Share
	(1,000)	(1,000)	(1,000)	Per Cent
1988	1,111.8	747.0	364.7	32.8
1993	1,183.1	749.4	433.7	36.7
1999	1,591.1	947.3	643.9	40.5
Annual percentage change				
1988-93	1.3	0.1	3.8	2.4
1993-99	5.7	4.4	8.1	1.7
1988-99	3.9	2.4	7.0	2.1

Source: Central Statistics Office, various years, *Labour Force Survey*.

Note: In order to render the 1998 data comparable with earlier years, annual percentage changes are estimated on adjusted data, which reduce the total number employed in 1998 by 20,000 (8,000 men and 12,000 women) to take account of changes in measurement (see footnote 2 above).

Total employment among women grew strongly – by an average of 7 per cent per annum over the 1988-1999 period. Women's employment was also influenced by labour market conditions, with the result in the early 1980s, while total employment did not fall, as it did among men, employment growth was negligible. Growth in women's employment increased to 3.8 per cent per annum from 1988 to 1993, and then took off, averaging an annual increase of 8.1 per cent between 1993 and 1999. By 1999 the total number of women at work was more than two-thirds higher than it had been in 1981. Because of these diverging trends between men and women, there was a marked change in the gender balance of employment, and women's share of total employment increased steadily from 29 per cent in 1981 (Sexton and O'Connell, 1996) to 33 per cent in 1988 and to over 40 per cent in 1999.

2.4 Employment by Economic Sector

Sectoral employment trends have been quite divergent over the period since 1981. Employment by sector is presented in Table 2.4. Employment in agriculture continued its long-established decline: total employment in the sector fell by 55,000 from 189,000 in 1981 to 134,000 in 1997. The share of agriculture in total employment accordingly fell from 17 per cent to 10 per cent.

Manufacturing employment went through a severe decline in the early 1980s, and even after some recovery in the late 1980s the numbers employed in the sector fell by 20,000 between 1981-1991, and its share of total employment fell from 23 per cent to less than 22 per cent. Manufacturing employment has grown rapidly in the 1990s, by an annual average of 3 per cent, a similar rate of expansion to that of employment as a whole, with the result that manufacturing employment maintained its share of almost 22 per cent of the total between 1991-1997. The expansion of employment in manufacturing marks Ireland as an exception to trends elsewhere in the developed world, where industrial employment is in decline (Sexton and O'Connell, 1996). The

growth of manufacturing in Ireland is mainly due to the continued influx of foreign direct investment prompted by a range of tax and grant concessions, a moderate cost structure, and the plentiful supply of young well-educated workers. In recent years the resurgence of growth in manufacturing has occurred in both indigenous as well as foreign owned firms, and employment in the former grew by 8,400 between 1993-1996.

Table 2.4: Employment by Economic Sector, 1981-1997

	1981	1991	1997
<i>Number</i>		(1,000s)	
Agriculture	189	155	134
Manufacturing	264	245	289
Construction	102	78	97
Market Services	376	427	527
Non-market services	206	229	291
Total	1,137	1,134	1,338
<i>Share</i>		%	
Agriculture	16.6	13.7	10.0
Manufacturing	23.2	21.6	21.6
Construction	9.0	6.9	7.2
Market Services	33.1	37.7	39.4
Non-market services	18.1	20.2	21.7
Total	100.0	100.0	100.0

Source: Hughes, McCormick and Sexton (2000).

The largest growth in employment took place in services. Employment increased across the broad range of service activities over the entire period from 1981-1997: slowly during the 1980s and rapidly during the 1990s. Total services employment grew from 582,000 in 1981 to 818,000 in 1997, an expansion of over 40 per cent. Most of the employment expansion in services generally can be attributed to market services, which increased by 100,000 (or 23 per cent) from 427,000 in 1991 to 527,000 in 1997. Within the market services sector, employment trends in transport, communication and distribution have been erratic, and most of the growth in the sector has been concentrated in a range of professional, business and professional services (Sexton and O'Connell, 1996).

The highest rate of growth in the 1991-1997 period occurred in non-market services (mainly public sector activities). Within non-market services, the bulk of the growth took place in education and health services (Duggan, Hughes and Sexton, 1997).

2.5 Changes in Occupational Structure

Different industries have significantly different occupational or skill profiles and, therefore, the structural movements over recent decades have given rise to fundamental changes in the occupational/skill mix of the employed workforce. While the influence of sectoral change has been dominant, occupational profiles *per se* have also been evolving within industries. This is

particularly true of managerial and professional activities, which have assumed greater importance within enterprises across all sectors. Service related activities have also become relatively more important. In contrast, the extent of manual activities (particularly those which are unskilled) has been in decline.

The extent of these changes is shown in Table 2.5 which shows a classification of those at work by broad occupational groups for 1981-1995. Consistent with sectoral trends, the share of agricultural workers in total employment fell from almost 16 per cent in 1981 to 11 per cent in 1995. The proportion of manual workers also declined over the period, although for both skilled and unskilled manual workers, Figure 2.1 shows that the fall in the numbers employed during the 1980s was followed by some expansion during the 1990s. Employment of semi- and unskilled manual workers also fell from 15 per cent in 1981 to fewer than 12 per cent in 1995, although, as Figure 2.5 shows, there was some growth in the number of semi- and unskilled workers during the 1990s.

Table 2.5: Employment by Main Occupational Group, 1981-1995

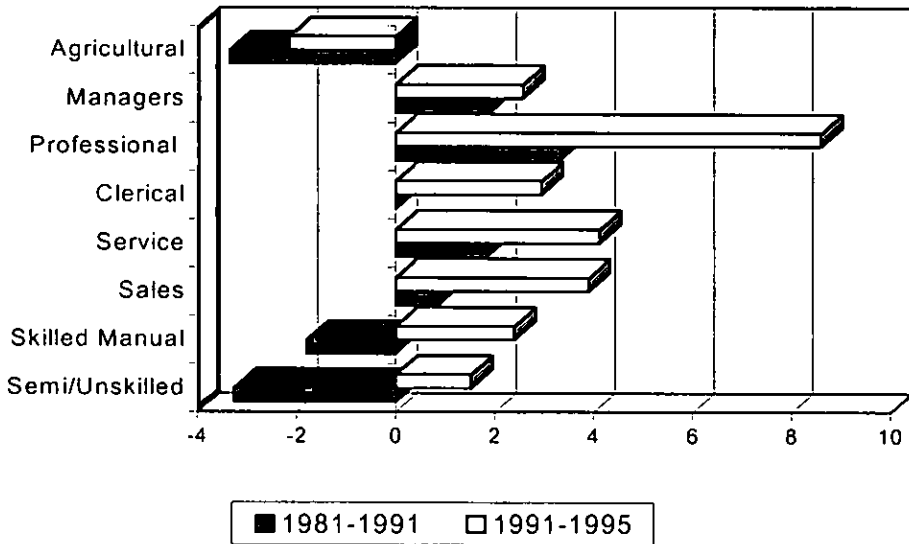
	1981		1991		1995	
	(1,000)	%	(1,000)	%	(1,000)	%
Agricultural	177.4	15.6	143.9	12.7	135.3	11.0
Managers, Proprietors	94.6	8.3	113.7	10.0	124.0	10.1
Professional etc.	155.9	13.7	189.1	16.7	223.5	18.2
Clerical	157.9	13.9	158.0	13.9	169.8	13.8
Service Occupations	92.3	8.1	110.6	9.8	127.1	10.3
Sales	74.2	6.5	82.7	7.3	98.3	8.0
Skilled Manual	213.6	18.8	195.6	17.3	205.2	16.7
Semi- & Unskilled	171.8	15.1	139.1	12.3	145.2	11.8
Total	1,138.8	100.0	1,133.5	100.0	1,233.6	100.0

Source: Duggan, Hughes and Sexton (1997).

The strongest growth took place among professional occupations, which expanded their share of total employment from 14 per cent in 1981 to 18 per cent in 1995. Service and sales workers also increased their share of the total, as did managers, while the share of clerical workers in total employment remained a constant 14 per cent throughout the period.

These changes in the occupational structure reflect a long-running trend towards upgrading of positions in the labour market – a process which has been taking place since the early 1960s (O'Connell, 1999b). The Irish pattern of occupational change follows a similar pattern to those evident in many other Western economies, and involves much more than just a shift from manual to non-manual activities. In general, the types of jobs and occupations which are growing tend to require either qualifications or personal skills as well as a degree of flexibility not characteristic of traditional forms of employment.

Figure 2.1: Annual Changes in Employment by Occupation, 1981-1991, 1991-1995



**2.6
Self
Employment**

At first sight there would appear to be remarkable stability in the proportion of those at work who are self-employed in Ireland, with about 20 per cent of those at work self-employed throughout the period from 1981-1996 (Table 2.6). In Ireland, however, the vast majority of those working in agriculture are self-employed, and historically, farmers have accounted for a substantial share of self-employment. If we exclude the declining agricultural sector (in Panel B of Table 2.6), we find that the apparent stability in self-employment has, in fact, been maintained by a substantial expansion in self-employment outside of agriculture. In the non-agricultural sectors, self-employment increased from 90,000 in 1981 to 149,000 in 1996, representing less than 10 per cent of total employment at the start of the 1980s but 13 per cent in the mid-nineties. Most of that expansion in self-employment took place during the decade after 1986.

The increased popularity of self-employment, particularly during the latter half of the 1980s may have been due to a resort to self-employment as an alternative to unemployment in a slack labour market, and the growth of self employment may be partially a response to state programmes providing a range of supports to assist the unemployed to start their own businesses. Such an option would only have been feasible for those with particular skills and competencies on demand in the market place: in general self employment would rarely count as a viable option for the unemployed person with poor skills. Sexton and O'Connell (1996) argue that the growth of self-employment may also be due to the more liberal income tax regime which applies to the self-

employed, compared with the more rigid PAYE withholding system for employees.

Table 2.6: Numbers at Work by Employment Status, 1981-1996

	Self Employed	Employees (1,000s)	Total	Self Employed Share %
A. All sectors				
1981	237	909	1,146	20.7
1986	233	848	1,081	21.5
1991	242	892	1,134	21.4
1996	257	1,028	1,285	20.0
B. Excluding Agriculture				
1981	90	861	951	9.5
1986	103	811	913	11.2
1991	125	854	979	12.8
1996	149	996	1,145	13.0

Source: Central Statistics Office, various years, *Labour Force Survey*.

The increased popularity of self-employment, particularly during the latter half of the 1980s may have been due to a resort to self-employment as an alternative to unemployment in a slack labour market, and the growth of self employment may be partially a response to state programmes providing a range of supports to assist the unemployed to start their own businesses. Such an option would only have been feasible for those with particular skills and competencies on demand in the market place: in general self employment would rarely count as a viable option for the poorly skilled unemployed. Sexton and O'Connell (1996) argue that the growth of self-employment may also be due to the more liberal income tax regime which applies to the self-employed, compared with the more rigid PAYE withholding system for employees.

2.7 Part-time Working

We noted above that there has been a significant increase in part-time working, particularly among women. Table 2.7 shows the trend in part-time working over the period 1983-1998 on the ILO classification. The share of part-time workers rose from under 7 per cent of total employment in 1983 to over 12 per cent in 1997. For men the proportion of part-timers rose from under 3 per cent to over 5 per cent in 1997 while among women, the increase was from under 16 per cent to 23 per cent.

Sexton and O'Connell (1996) show that part-time work accounted for all of the modest increase in total employment that occurred between 1983 and 1993 and that the numbers in full-time employment declined during this time.

Table 2.7: The Incidence of Part-time Working, 1983-1998 (ILO Basis)

	Men	Women	All
	%		
1983	2.7	15.6	6.7
1990	3.4	17.6	8.1
1993	4.8	21.3	10.8
1994	5.1	21.7	11.3
1995	5.4	23.1	12.1
1996	5.0	22.1	11.6
1997	5.4	23.1	12.3
1998	7.8	30.1	16.7

Source: Eurostat *Labour Force Survey*, and Central Statistics Office, 1997 and 1998.

However the balance between growth in full- *versus* part-time work has altered again with the recent surge in employment. Measured on the ILO basis, total employment increased by 197,000 between 1993 and 1997, of which 42,000 (22 per cent) were part-time. However, even if the absolute increase in employment since 1993 consisted mainly of full-time jobs, the *rate* of increase in part-time employment was higher, with the result that the share of part-time working in total employment continued to rise gradually. The 1998 data, as we have noted before (see footnote 1 above) are not comparable with earlier years because of changes in the measurement of employment in 1998, which yield a more precise, but much higher number of part-time workers. The 1998 data show that almost 17 per cent of employment was part-time, accounting for almost 8 per cent of men at work and 30 per cent of women.

The large majority of part-time workers are women and in 1997 they accounted for well over 70 per cent of all part-time workers. Women's labour force participation has thus partly increased in response to an increase in the demand for part-time workers, an arrangement which allows women greater scope to combine working with child rearing and other domestic work – a particularly important factor in Ireland, given the absence of public provision of, or even support for, child-care services.

2.8 Unemployment

The aggregate trends in unemployment over the period from 1987 to 1999 have already been discussed above (see Table 2.2). This section provides a more detailed breakdown of unemployment by age, gender and duration.

Table 2.8 shows unemployment by age and gender in 1999. Total unemployment in the third quarter of 1999 was just over 100,000, consisting of almost 59,000 men and 42,000 women. The largest number unemployed are in the prime working age group, 25-44, which accounted for almost 42 per cent of total unemployment in 1999. However, the distribution of unemployment by age group is skewed towards younger people:

almost 38 per cent of the unemployed are in the smaller 15-24 age group. Sexton and O'Connell (1996) show that unemployment among young people increased very dramatically over the course of the 1980s and 1990s. O'Connell (1999b) shows that the 15-24 year age group accounted for 30 per cent of total unemployment in 1997, so while the numbers unemployed have fallen since 1997 the proportion of young people among the unemployed has increased, and unemployment has fallen more rapidly among prime age workers than among young people. The skewed age distribution of unemployment is more pronounced among women: in 1999 44 per cent of all unemployed women are in the younger age group, compared to 33 per cent of unemployed men.

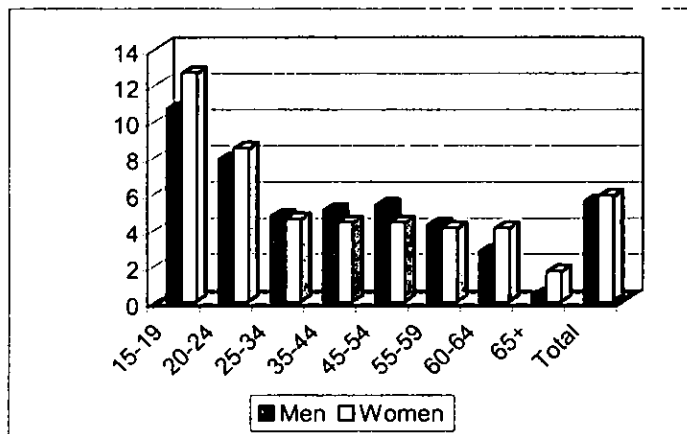
Table 2.8: Unemployment by Age Group, 1999

	15-24	25-44	45+	Total
<i>Number unemployed</i>	1,000's	1,000's	1,000's	1,000's
Men	19.3	24.9	14.6	58.8
Women	18.7	16.7	6.8	42.2
All	38.1	41.6	21.4	101.1
<i>Distribution by age group</i>	%	%	%	%
Men	32.8	42.3	24.8	100.0
Women	44.3	39.6	16.1	100.0
All	37.7	41.1	21.2	100.0

Source: *Quarterly National Household Survey*, 3rd Quarter (1999).

Figure 2.2 shows unemployment rates by age group and gender in 1999. The table confirms the difficulties facing young people in the labour market. The unemployment rate was 11½ per cent among those aged 15-19 and 8 per cent among those aged 20-24, compared to less than 5 per cent among those aged over 25. Women showed slightly higher unemployment rates than men overall, but there is some variation by age group, with younger men showing higher rates of unemployment than young women.

Figure 2.2: Unemployment Rates by Age Group and Gender, 1999

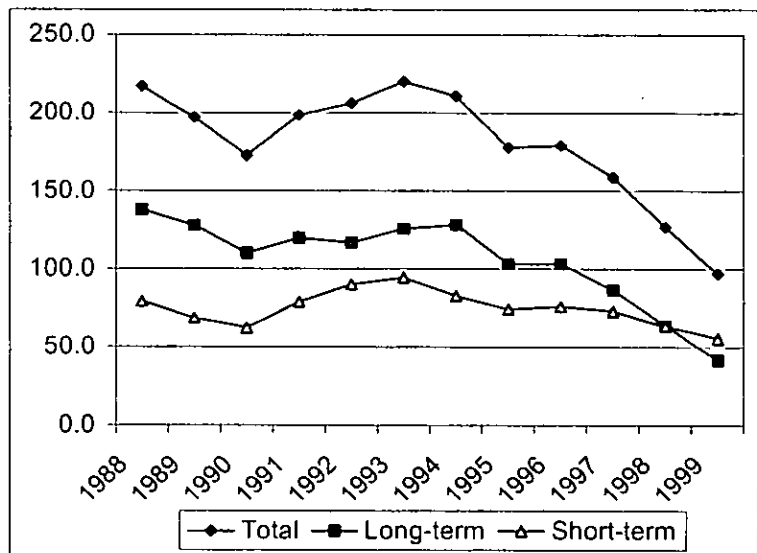


**2.9
Long-term
Unemployment**

Figure 2.3 shows the trends in total, short- and long-term unemployment from 1988-1998. Total unemployment fell between 1988 and 1990, but increased again to about 220,000 in 1993. The rapid growth in the economy and in employment since 1993 has resulted in a steady decline in total unemployment – from just under 16 per cent of the labour force in 1993 to less than 6 per cent in 1999.

The trend in long-term unemployment has followed a slightly different path, increasing rather more slowly than total unemployment in the early to mid-1990s and falling more rapidly than the total since the mid-1990s. This reflects an unusual time-trend in “short-term” unemployment (i.e. unemployment of less than one year’s duration), which has fallen less since the mid-1990s than long-term unemployment. Thus, between 1995 and 1999, total unemployment fell by 45 per cent, long-term unemployment by 60 per cent and short-term unemployment by only 25 per cent. By 1999, the number short-term unemployed exceeded the number long-term unemployed for the first time in over a decade and a half.

Figure 2.3: Trends in Total, Long- and Short-term Unemployment, 1988-1999 (1,000s)



These trends in long-term unemployment are very encouraging, but they should be interpreted with some caution. Over the two years from 1996-1998, long-term unemployment fell by 39,000 but the reduction in the number unemployed less than one year fell by only 9,000. Between 1998-1999, long-term unemployment fell by another 22,000, while short-term unemployment fell by just under 8,000. These trends appear to confound our conventional understanding of the labour market. We would expect that during an employment boom the “short-term” unemployed would be

hired first both because the long-term unemployed are likely to be more disadvantaged in terms of skills and work experience than the "short-term" unemployed, and because of the effects of "state dependence" which suggest that the longer an individual has been unemployed the lower the probability that that individual will escape from unemployment and re-enter work (Heckman and Borjas, 1980).

Table 2.9: Unemployment by Duration, 1988-1998

	Total Unemployed	Unemployed less than 1 year	Long-term Unemployed	Total Unemploy. Rate	Long-term Unemploy. Rate	Long-term Share in Total
	1,000's	1,000's	1,000's	%	%	%
1988	217.0	79.2	137.8	16.3	10.4	63.5
1989	196.8	68.8	128.0	15.0	9.8	65.0
1990	172.4	62.2	110.2	12.9	8.3	63.9
1991	198.5	78.8	119.7	14.7	8.8	60.3
1992	206.6	90.1	116.5	15.1	8.5	56.4
1993	220.1	94.7	125.4	15.7	8.9	57.0
1994	211.0	82.8	128.2	14.7	9.0	60.8
1995	177.4	74.1	103.3	12.2	7.1	58.2
1996	179.0	75.7	103.3	11.9	6.9	57.7
1997	159.0	72.7	86.3	10.3	5.6	54.3
1998	126.6	63.1	63.5	7.8	3.9	50.2
1999	96.9	55.3	41.6	5.7	2.5	42.9

Source: C.S.O. (1999) Quarterly National Household Survey, 3rd Quarter 1999.

In Ireland, however, most of the reduction in unemployment in recent years has occurred in respect of long-term unemployment. O'Connell (1998) argues that much of the reduction in long-term unemployment achieved in Ireland in the 1994-1997 period may be attributable to participation in labour market training and temporary employment schemes. *Quarterly National Household Survey* data show that the numbers participating in the schemes at each survey in 1998-99 has been about 41,000. However, the "throughput" from labour market schemes, which is a flow measure of the number of individuals completing schemes and re-entering the labour market, was about twice that number (O'Connell, 1998). This suggests that the ratio of the number of participants in active labour market programmes to measured unemployment is very high in Ireland and the very large scale of labour market programmes in Ireland may have a very strong influence on our measurement of the balance between short- and long-term unemployment.

Further reductions in unemployment are likely to take place slowly, both because much remaining unemployment is likely to be frictional in nature, related to labour market entry and mobility between jobs, and because in such a tight labour market those remaining unemployed tend to suffer particularly severe disadvantages which reduce their capacity to compete for work.

3. THE BENEFITS OF EDUCATION AND TRAINING: EVIDENCE FROM THE INTERNATIONAL LITERATURE

3.1 The Benefits of Initial Education

3.1.1. THE ECONOMIC RETURNS TO SCHOOLING

The rapid growth in education in the USA, Japan and Germany in recent years suggests a strong link between human capital accumulation and economic growth (see NIESR, 1993). Post-compulsory education in general and higher education in particular contributes to wealth creation in the economy in many ways. For example, technology transfer, direct links between education and research institutions with business and industry and improving the capacity of the economy to appropriate the benefits of technological advances made elsewhere all serve to enhance both the economic well being and social cohesion of a region.

Some, perhaps most, of these benefits are appropriated by the individuals who make the investments in their own "human" capital that generate this wealth creation, in the form of higher wages. The "rate of return" to education derived from the relationship between education and economic success is central to most of education policy. The larger this rate of return (relative to the return on other investments) the more likely it is that individuals are *failing* to respond to economic incentives to invest in education. That is, paradoxically, a high rate of return to education is evidence that individuals are investing too little in education – if only they invested more the greater would be the supply of educated workers and, for given demand, the lower would be the wage of such workers.

The early literature on returns to schooling contains two different approaches. The first applies cost-benefit analysis of investments in schooling. For different schooling alternatives the streams of costs and benefits are calculated, and the internal discount rate, which equates the present values of future outcomes, is presented as the rate of return to the alternative, which requires the most schooling. Studies in this line are characterised by sometimes extremely detailed accounts of the costs and benefits, such as the consequences of different financial

aid schemes, different tuition fees, mortality rates by level of schooling, and pension benefits (see Cohn and Addison, 1997).

The second method uses regression techniques on schooling from an earnings equation, often referred to as the Mincerian earnings equation after Mincer (1974) who first proposed it. In the early literature the Mincer equation was commonly estimated by means of Ordinary Least Squares (OLS) – the standard method for simple econometric specifications. This estimation technique assumes that the explanatory variables (in this case schooling) are uncorrelated with the unobservable elements in the equation. This might not be the case for a number of various reasons. The endogeneity bias suggests that individuals intentionally choose the amount of schooling they consider to be best for them, given the value they place on schooling (or their “taste” for schooling). Clearly, however, the amount of schooling depends – at least partially – on earnings prospects. Hence, schooling depends on future earnings, and future earnings depend on the level of schooling. The difficulty in pursuing a more elaborate structure econometrically is that we need to be able to model the determinants of schooling using variables that are uncorrelated with earnings. Finding variables that meet these criteria can be very difficult and the danger of introducing a more serious bias to our results, associated with misuse of the methodology, is considerable. This point is returned to in Chapter 4.

The return to schooling may also be biased if an individual's “ability” or motivation affects earnings but is omitted from the earnings equation. For example, it has been shown that if we assume that higher ability children have more schooling but omit ability from our specification, the OLS estimate of the return to schooling will be higher compared to the true return. Finally, measurement error in the schooling variable can have serious implications. It is well known in econometric theory that measurement error leads to an understatement of the true parameter to be estimated. The schooling variable might be measured with error for two reasons. First, respondents may misreport their actual schooling level as often they are recalling their schooling level many years after it has taken place. It may also be wrongly coded somewhere in the process of collecting the data. Second, and perhaps more serious, is that the usual schooling variables (either years of schooling or level of schooling) may be rather inaccurate measures of the true investment in formal schooling. For instance the quality of schooling is neglected, and also the actual experiences of the child at school (either positive or negative) plays no role. Furthermore, the problem with measurement error is that even when the measure of schooling is fairly accurate, any slight bias that is present might be magnified when additional covariates (for instance an ability measure) enter the model.

3.1.2. EVIDENCE FOR IRELAND

The Irish educational system has changed substantially since the 1960s. Comprehensive descriptions can be found elsewhere (Tussing, 1978; Sexton and O'Connell, 1996). A summary indication of the changes in the system can be gleaned from the fact that the proportion of the age-cohort taking the Junior Cycle examinations rose from about 40 per cent in 1967 to close to 100 per cent in 1994; and the proportion taking Senior Cycle examinations rose from about 21 per cent to about 82 per cent. (Whelan and Hannan, 1999).

The fee-paying aspect of secondary education was a major hurdle for families, so typically among the older generation those that received secondary/third level education came from a wealthier socio-economic background. Participation in education at third level has, over the years, been highly skewed, with high levels of participation for the children of those in higher occupational statuses, and much lower participation for those whose parents were engaged in unskilled or semi-skilled manual occupations. However, the introduction of a means-tested third level grant system in line with the general restructuring already outlined opened up the university system to many who otherwise would not have taken their education to this level. Expansion of the system notwithstanding, however, class disparities in access to third-level education have increased in recent decades (Layte and Whelan, 2000). For the modern student the secondary school is where the decision to leave first presents itself. The minimum school leaving age was raised from 14 to 15 in 1972, again as part of the general restructuring of the education system.

Research on the returns to education had been very limited up to the late 1980s due to lack of suitable data but the emergence of a number of comprehensive data sets has facilitated a renewed interest in the topic. Walsh and Whelan (1976) use cross-sectional data from the Department of Labour's redundancy section. This data set provides the authors with 1,670 workers who were entitled to redundancy payments during the first 3 months of 1972. The person must have worked for two years with the same employer in order to qualify for redundancy payments. Thus females are likely to be under represented in the sample, as they tend to switch jobs more often than males because of family commitments. Policies in some companies also prevented a woman from regaining their job following marriage. Furthermore, a check on earnings show that earnings in this sample are lower than external sources, thus unrepresentative of the population. The estimation procedure used was OLS with the natural logarithm of weekly earnings as the dependent variable, which was run separately for males and females and for both sexes together.

Callan and Wren (1994) and Callan and Harmon (1999) use the 1987 Survey of Income Distribution, Poverty and Usage of State Services from the ESRI. The 1987 survey together with the similar 1994 Living in Ireland Survey is the focus in Barrett, Callan and

Nolan (1999). Callan and Harmon (1999) produce estimates for the returns to education using the sample as a whole and by specific age cohorts. Barrett, Callan and Nolan (1998) compare earnings dispersion between 1987 and 1994. In doing this they test the responsiveness of wages to the specification of the wage equation. They control for occupational choice, educational levels, specific age bands, sex, and marital status and industry unemployment levels. Breen, Hannan and O'Leary (1995) use two measures for the return to education. First a probit equation is used to analyse the probability of having a job. The second measure of returns to education is the familiar wage equation. Hannan, McCabe and McCoy (1998) analyse the match between education level attained and occupational status in order to find evidence of "qualification inflation". In doing this they run the usual wage equation with dummy variables for being "overqualified" and "under-qualified". An individual is "Overqualified" when they are in an occupational class that is more characteristic of an individual with a lower education level. For example, a person with a degree is overqualified if he/she is in a job which is classified into an occupation, most of whose members have a third-level diploma or less.

Callan and Harmon (1999) and Callan and Wren (1994) provide very similar estimates of the returns to education. Having the Intermediate Certificate increases earnings by 19 per cent above that for a person with no qualification and a degree increases earnings by a further 60 per cent. Barrett, Callan and Nolan (1999) also produce results, which are comparable with Callan and Harmon (1997), and Callan and Wren (1995) for 1987. When the sample is split into specific age cohorts, a general picture emerges whereby returns to education increase with age. This suggests that the older age cohort enjoy a wage premium because qualifications were relatively scarce while they were attending school in the 1940s. Barrett, Callan and Wren (1998) experiment with different wage specifications. The earnings function appears not to be very responsive to its specification. Returns tend to be noticeably higher at the upper level of education with estimates consistently increasing from 1987 to 1994. This is a reflection of a society that is growing preoccupied with qualifications, a phenomenon, which Collins (1979) characterised as "credentialism". This term refers to the hypothesis that employers may be only interested in what level of qualification the individual has and not the actual content of their education. This then rewards recruits according to their actual qualifications attained. In addition, the results show that having a qualification other than a degree does not seem to have generated the same increased returns. In fact there is a slight tendency for decreased returns in non-university third level qualification.

Breen, Hannan and O'Leary (1995) also control for performance in exams. Again having taken the Intermediate Exam is not significant for females, a result they do not pay much attention to because a very small number of females leave school without any qualifications. A surprising result reported is the negative effect on

earnings from higher exam performance in the Junior Certificate. This result is explained by the authors as follows; a large number of boys who leave school after the first state exam enter an apprenticeship or training that results in lower initial earnings. When years of education is used rather than levels similar results are generated. Callan and Harmon (1999) find an estimated return of 8 per cent for each additional year of schooling, which corresponds to estimates produced by Hannan, McCabe and McCoy (1998). However Walsh and Whelan (1976) find somewhat lower estimates in the returns to vocational school and secondary school.

3.2 The Impact of Active Labour Market Policies

In recent decades there has been a general tendency throughout the OECD countries to move from passive measures which provide financial supports for unemployed workers to active measures designed to improve the skills and competencies of workers and support the search process in the labour market. Such measures include education and training programmes as well as temporary employment schemes and recruitment subsidies. In the Scandinavian countries where active labour market policies (ALMPs) were first developed, such policies were regarded as key elements of stabilising, structural and distributional policies. ALMPs could promote structural change, or at least mitigate its effects, by facilitating the reallocation of labour between sectors. During periods of recession, ALMPs have the potential to redistribute employment opportunities to the less advantaged in the labour market, while during expansionary periods, such as that being experienced in Ireland in recent years, ALMPs may increase labour supply and reduce labour and skills shortages. Such beneficial effects of ALMPs presume, of course that the programmes are effective, i.e. that they bring about an increase in the employment chances of their participants.

An additional reason to be interested in the effectiveness of ALMPs derives from a concern with value for money – the return on investment of public funds. Averaging across the OECD countries, annual public expenditures on active labour market programmes (ALMPs), including public employment services, and training and temporary employment programmes, amount to about 1 per cent of GDP. Expenditures on active labour market programmes (ALMP) in Ireland amounted to 1.75 per cent of GDP in 1996, considerably higher than the OECD average, although lower than in a number of Scandinavian countries, particularly Sweden, Denmark and Finland, where active policies play a particularly important role. Given that labour market programmes represent a very significant investment of resources in Ireland, it is important to assess the effectiveness of the interventions.

The increasing importance of ALMPs derives from the hope that State-sponsored employment and training programmes will enhance participants' productive skills and thus improve their employment prospects and earnings, with the added benefit for

society of reducing unemployment compensation payments and increasing tax revenues. In concert with the increased popularity of ALMPs, there is a large and growing literature on their impact. In discussing the impact of active labour market policies it is useful to distinguish between their macro-level effects on the overall levels of employment and unemployment, and their micro-effects on the employment prospects of individual participants. The principal focus of the present review is on the labour market impact of ALMPs at the micro level – the extent to which participation in ALMPs improves the labour market prospects of their participants, and if so, which types of are most effective in this sense. We present first, however, a brief review of the rather limited literature on the macro-level effects of active labour market policies.

3.2.1 MACRO-LEVEL EFFECTS

The direct and immediate effect of active labour market policies, including training, wage subsidies and direct job creation are to reduce open unemployment. It is unlikely, however, that the reduction in the number unemployed will equal the numbers participating in ALMPs because some who are not participating in the labour force, and thus not recorded as unemployed, for example, women returning to the labour market after a period of voluntary withdrawal to engage in domestic work, will be attracted to such programmes. In addition, however, there are a number of channels through which active labour market policies can affect employment and unemployment. Calmfors (1994) provides a formal account of the anticipated effects of various active labour market policies based on the relationship between wages and the demand for labour and the Beveridge relationship between the vacancy and unemployment rates (see also Layard and Nickell, 1986; Jackman, Pissarides and Savouri, 1990). O'Connell and McGinnity (1997a) summarise the main implications of that approach. ALMPs are regarded as correcting for malfunctioning of the labour market and can affect employment and unemployment through three principal channels: (1) through improving the matching process between job seekers and vacancies; (2) by raising the productivity of the workforce; and (3) through maintaining the effective supply of labour by reducing the extent of withdrawal from the labour market.

First, training and employment programmes, as well as public employment services, may increase the efficiency of the matching process to reduce the number of job searchers associated with a given number of vacancies. Training may adjust the skills of job-seekers to the structure of labour market demand. Temporary employment programmes can provide work experience and reduce employers' uncertainty about the employability of programme participants. Public employment services may lead to more active and effective job-searching. Improving the matching process may have the effect of reducing the ratio of job-seekers to

vacancies, resulting in an increase in the demand for labour but a decrease in wage pressure because improved matching increases the supply of candidates for specific jobs. Both of these effects should increase employment.

Second, training programmes, by enhancing the skills and competencies of the labour force, should give rise to increased productivity and, thus to improved national competitiveness, thereby increasing employment. Temporary employment subsidies or direct job creation measures may have similar effects to the extent that they entail an increase in on-the-job training.

Third, all forms of active labour market policy should help to maintain labour force participation, and, thus, the effective supply of labour, and, by so doing, increase the competition for jobs and reduce wage pressure, thereby increasing employment while reducing unemployment. This wage competition effect is likely to be particularly concentrated among the long-term unemployed and other excluded groups. The logic here is that "insiders" in the labour market – including both the employed and the short-term unemployed – dominate the wage setting process, while "outsiders" – mainly the long-term unemployed as well as discouraged workers and others who have withdrawn from the labour market – are not engaged in competition for jobs with insiders and thus have little or no influence on wage levels. Active labour market policies targeted specifically at those disadvantaged in the labour market can have the effect of redistributing job opportunities to outsiders, which can reduce wage pressure, resulting in an increased supply of labour at lower wage rates, thus generating a net increase in employment.

Empirical evidence of the macro-level effects of active labour market policies is limited although there is some evidence to support the view that active programmes may facilitate wage moderation and thus stimulate the demand for labour and that they strengthen the relationship between job creation and output growth (Calmfors and Lang (1995). Jackman, Pissarides and Savouri (1990), in their analysis of unemployment in 14 OECD countries over the period 1970-1988, found that expenditure on active labour market policies, which intensified over the course of the 1980s, "substantially reduced unemployment, on average, from what it could have been, had the 1970s experience been repeated" (p. 482). They argued that at given levels of vacancies, active labour market policies served to reduce unemployment. A cross-national analysis of 21 OECD countries found that growth in active labour market expenditures was negatively associated with employment growth, which was interpreted as reflecting the tendencies by states to increase such expenditures during recessionary periods (OECD, 1993). The same study, however, found that growth in GNP generated higher employment growth rates in countries where training expenditures increased the most, suggesting that active measures may be more effective in increasing employment during periods of economic growth, although such employment-enhancing effects are more likely to

occur where training programmes are successfully targeted at meeting skills shortages in particular sectors and occupations.

Bellman and Jackman (1996) in their analysis of 17 OECD countries over the 1975-1993 period, distinguished between public employment services, training, subsidies for employment in the private sector, and direct job creation measures. They found no significant effects of any active labour market programme types on the level of unemployment, although they did find that the ratio of expenditure on active to total expenditure on labour market policies for the unemployed (active plus passive measures) did have a significant negative effect on the unemployment rate. The effects on the incidence of long-term unemployment (the ratio of long-term to total unemployment) were quite different, with expenditure on public employment services and training have a significant negative effect on the proportion long-term unemployed, but expenditure on wage subsidies and direct employment measures showing positive effects. They interpret the latter effect as the result of eligibility criteria – that the long-term unemployed would not be recruited to such jobs if the subsidies were not restricted to the long-term unemployed. With regard to aggregate employment, Bellman and Jackman found that the ratio of expenditure on active to total expenditure on labour market policy stimulated the rate of growth in total employment, but that none of the active labour market programme types had any significant effects.

Negative effects of ALMPs have, moreover, also been identified. Such programmes may have the effect of raising wage expectations, particularly if compensation levels are high (Calmfors and Lang, 1995; Calmfors, 1994). A second adverse effect relates to dead-weight (where the outcome would have been achieved even in the absence of the policy), substitution (where programme participants substitute for non-participants in recruitment) and displacement effects (where employed workers are displaced from their jobs by programme participants), which drive a wedge between the gross and net number of jobs created (OECD, 1993). These effects are particularly relevant to wage subsidies.

In his conclusion on the contribution of active labour market policy in fighting unemployment, Calmfors (1994) argues that active labour market policies can be expected to have only limited effects on the aggregate level of unemployment, and he advocates a perspective which views "active labour market policy as only one ingredient of many in a general programme against unemployment" (p. 38). In sum, the weight of evidence in the international literature suggests that the impact of active labour market policy in creating additional employment is likely to be limited, with the exception of direct job creation measures. Training policies may generate additional employment under conditions of skills shortages.

3.2.2 MICRO-LEVEL EFFECTS

Even where ALMPs have little or no effect on the level of employment at the aggregate level, they may nevertheless serve to redistribute employment opportunities among the unemployed: for example, from relatively advantaged to less advantaged competitors for work. Evaluating the *micro* level effects of ALMPs has generated a large and increasingly sophisticated international empirical literature. Fortunately, a number of excellent surveys of that literature are available – including the OECD (1993); US Department of Labour (1995); Fay (1996) and Friedlander *et al.* (1997). Table 1 presents a summary of a selection from the international literature of empirical studies of the impact of ALMPs. The general thrust of this international literature is that the effectiveness of ALMPs may be quite limited, although effects on both employment prospects and earnings have been found to differ both across different types of programmes and target groups.

With regard to supply oriented training, programmes the findings of the empirical literature are mixed. A number of studies have found positive effects of participation in training programmes on employment chances, earnings, or both (Raum, *et al.*, 1995; Payne *et al.*, 1996; Card and Sullivan, 1988). On the other hand, however, studies of training programmes in Canada found insignificant long-run effects for most participants with the exception of young people and women re-entrants (Abt Associates, 1993). Moreover, while Axelsson, (1989) found strong positive effects of training in Sweden in 1981 and 1982, a later study of the same programme relating to the three years 1989 to 1991 found negative effects, a reversal which may have been due to the severe deterioration in the Swedish labour market (Regné, 1997).

On the demand side, i.e. temporary employment schemes, there is some evidence that public subsidies to employment or self-employment in the private sector have positive effects in increasing the subsequent employment probabilities of participants (e.g. de Koning's (1993) evaluation of two wage subsidy schemes in the Netherlands and Breen and Halpin's (1989) evaluation of the impact of a self-employment subsidy scheme in Ireland). Other studies, however, have found no evidence of positive effects. Burtless (1985) reports that in a randomised experiment in Dayton, Ohio, subsidy vouchers actually had a significant detrimental effect on the employment probabilities of recipients, compared to the control group. He concludes that there is strong evidence of a stigmatising effect of the vouchers. Other studies show mixed results. Couch (1992) reports the findings of an eight-year follow-up of the National Supported Work experiment in the US. Participation in the subsidy scheme had a positive and significant effect on the earnings of Aid to Families with Dependent Children, but no discernible effect on a youth target group. The empirical literature on the impact of direct job creation schemes in the non-profit or public sectors is limited, although, as in the case of other measures, the evidence is mixed (Erhel *et al.*, 1996).

The OECD survey (1993), in its wide-ranging review of 51 studies of the effectiveness of ALMPs in various countries, suggests that their effectiveness in improving employment chances is limited. With regard to broadly targeted training programmes for unemployed adults – the most common category of active labour market programme – the review found “remarkably meagre support for a hypothesis that such programmes are effective.” (p. 58). The review did, however, suggest that training targeted specifically at the disadvantaged did yield more positive results. With regard to public subsidies to employment or self-employment in the private sector, the review suggested high levels of deadweight, substitution and displacement. The OECD concluded that there was little to justify broad targeting of such subsidies, although specific targeting could be justified if the policy objective is to redistribute employment opportunities. Finally, the review suggested that direct job creation schemes were less likely to suffer from high deadweight than employment subsidies – since most participants would have few alternative employment opportunities – and that programmes can be designed to minimise substitution and displacement. Nevertheless, the evidence is inconclusive regarding the impact of broadly targeted public works, although as in the case of training, positive employment effects have been found for specialised schemes designed for particular groups.

Table 3.1: Selected Evaluations of the Effectiveness of ALMPs

Country/Source	Findings
Canada: Abt Associates <i>et al.</i> (1993)	Quasi-experimental evaluation of a range of programmes for the long-term unemployed, young labour market entrants and women re-entrants. Mostly insignificant long-run effects of general training, although the effects of job-subsidies for the long-term unemployed training and work experience for young entrants and women re-entrants were positive and significant in the long run.
Canada: Human Resources Canada (1995)	Quasi-experimental evaluation of <i>Employability Improvement Programme</i> found significant effects on both employment duration and earnings for job-related training programmes.
Denmark: Jensen, Pedersen, Smith and Westergaard-Neilsen (1990)	Analysis of training programmes mainly directed at low-skill manual labour market. Based on public registers in the Danish Longitudinal Database. Effects on wages are small, although for those with good initial employment conditions the wage effect is positive and significant, which for those with high initial unemployment the wage effect is negative. Initial employment conditions has similar effects on subsequent unemployment.
Ireland: Breen and Halpin (1989)	Survey of 400 firms to assess the impact of the Employment Incentive wage subsidy scheme. Discovered substantial deadweight (68 per cent) and significant substitution (21 per cent) and low (4 per cent) displacement effects and recommended closer targeting of the programme on long-term unemployed and other hard-to-place groups.
Ireland: Breen (1991)	Analysis of the effectiveness of training and employment schemes, based on a five-year follow-up survey of a cohort 1981-1982 school leavers, which included both ALMP participants and non-participants. ALMPs improved short-term employment prospects, but positive long-term employment effects of employment programmes could have been due to selection effects. The data refer only to young people.

Country/Source	Findings
Ireland: O'Connell and McGinnity (1997a)	Analysis of the impact of a range of differing training and employment programmes on offer in Ireland in 1992, based on follow-up surveys of programme participants and a comparison group of non-participants. Both training and employment programmes with strong linkages to the labour market have positive effects on subsequent employment chances and wages, while programmes with weak market linkages have no discernible impact.
Netherlands: De Koning (1993)	Evaluation of two wage-subsidies schemes suggested that such schemes increase employment probability by up to 10 per cent, although they are likely to cause considerable displacement.
Norway: Raaum, Torp and Goldstein (1995)	Quasi-experimental analysis of labour market training programmes. Found significant positive effects of training leading to formal qualifications leading to employment in particular economic sectors.
United Kingdom: Payne <i>et al.</i> (1996)	Quasi-experimental analysis of <i>Employment Training (ET)</i> and <i>Employment Action (EA)</i> – a direct job creation scheme) found that training in ET had a significant effect of employment probability, while EA had no significant effect. Training combined with job placement had a further positive effect.
United States: Bassi (1984)	Analysis of longitudinal data on participants in the <i>Comprehensive Employment and Training Act Programme (CETA)</i> . Women benefit substantially from training, but no significant findings for men. This study also found evidence of non-random selection or "creaming off" of "less hard-to-place" candidates for programme participation.
United States: Card and Sullivan (1988)	Study of a cohort of male participants in CETA. Positive effects on employment probabilities in the three years post-programme for participants in both class-room and on-the-job training programmes.
United States: Bloom (1994)	Random assignment experimental study of classroom training under the <i>Job Training Partnership Act</i> found no significant impact of training on wages.
United States: Jacobson <i>et al.</i> (1994)	Longitudinal analysis of classroom training offered to displaced workers in Pennsylvania in the mid-1980s. Significant positive effects on earnings about 18 to 30 months after completing training. Training combined with job-search assistance also had a significant impact for men.
United States: Decker and Corson (1995)	Analysis of two nationally representative samples of participants in training for displaced workers in 1988 found no significant effects of any impact of training on earnings, even though the programme was well-targeted on workers who had been displaced from their jobs and had experienced significant earnings losses due to layoff.
Sweden: Tamás <i>et al.</i> (1995)	Quasi-experimental analysis of wage gains found differentiating effects, with 1992 graduates experiencing (non-significant) wage losses and 1994 graduates experiencing significant wage gains of the order of about 3 per cent, compared with control groups over a 6 month period.

Fay's (1996) review of the literature provides a useful updating of the original OECD survey and introduces some clarity into the assessment of what kinds of programmes work and for which target groups:

- Job-search assistance appears to be effective for most groups of unemployed persons.
- The effects of formal classroom training appear to be mixed, with most programmes having little impact on employment prospects, although well-targeted programmes have been found to have beneficial outcomes.

- Employment subsidies can have beneficial effects, particularly those targeted on the long-term unemployed and women re-entrants.
- Subsidies to aid the unemployed to start their own businesses appear to be successful for some individuals, although they incur high deadweight losses and displacement effects can be high.
- Public sector job creation or direct employment schemes may be of benefit to those facing particularly severe barriers to labour market entry or re-entry, but few evaluations have found any positive effects on either employment prospects or earnings.
- Young people are the most difficult group to help. The international evidence suggests that few programmes of any kind have been found to result in increased employment or earnings among disadvantaged young people. As discussed below, the results of evaluations of Irish programmes indicate positive returns to market oriented programmes among young people – in this respect Ireland appears to differ from the general international pattern.
- Women appear to benefit from a wide range of interventions, including job-search assistance, formal classroom training and wage subsidies. While women have been found to benefit more from ALMPs than men, the evidence is less clear about which types of programme, or combinations of programmes, are most effective.
- The evidence on effects of ALMPs on the long-term unemployed is mixed, although they do appear to benefit from specially-tailored programmes, job-search assistance and wage-subsidies.

O'Connell and McGinnity, (1997a) argue that a common weakness of the international empirical literature is a failure to take adequate account of the importance of qualitative differences between programmes. Not all ALMPs are of equal value to their participants, and evaluations should pay more attention to the question of what *kinds* of ALMP are more effective. In fact, however, not all programmes incorporate even the conventional distinction between supply and demand oriented measures. This is the case in Britain where the Youth Training Scheme (YTS) combines features of both, since the programme entails both subsidised work experience and formal training (Jones, 1988). Most evaluations of the YTS have found positive effects on employment (Main and Shelly, 1990; Whitfield and Bourlakis, 1991; O'Higgins, 1994). Dolton, Makepeace and Treble (1994), moreover, found negative employment effects of YTS for men but positive effects for women. The results in relation to earnings were, however, inconsistent, with Whitfield and Bourlakis finding negative effects, and Main and Shelly arriving at inconclusive results. At least some of the inconsistency in the findings in relation to YTS may be due to substantial differences in terms of

the occupational focus of training places, the duration of on-the-job training, and the extent of differences in qualifications and skill levels of training in YTS placements.

Much of the literature on US programmes also appears to encounter difficulties distinguishing between different programme types. Bassi's (1984) evaluation of schemes funded under the Comprehensive Employment and Training Act (CETA), found positive earnings effects for women but not for men. Bassi, however, did not distinguish between the different types of programme funded under the CETA umbrella. Haveman and Hollister (1991) did distinguish between different types of CETA programme, and concluded that public service employment and on-the-job training were more effective than work experience or classroom training. Yet Card and Sullivan (1988), in a three year follow-up study, found the opposite effects; namely, that classroom training was more effective than other CETA programmes. In Card and Sullivan, however, the key distinction was that between "classroom trainees" and "non-classroom trainees", a category which included on the job training, and work experience in public sector jobs, and which, therefore, confounded the conventional distinction between supply and demand measures. Thus, part of the inconsistency in the US research may be also due to the lack of attention to differences between programme types.

O'Connell and McGinnity (1997a) argue that the findings of the international literature on the impact of ALMPS active labour market policies are generally inconclusive, but frequently pessimistic, although there is some evidence to suggest that well designed programmes targeted specifically at the "hard-to-place", may have positive effects. They also argue, however, that this general confusion surrounding the impact of active labour market policies is due partly to two related shortcomings in the literature, one methodological; one conceptual. At the methodological level, most, but not all, empirical studies tend to evaluate the impact of single programmes (Bassi, 1984; Main and Shelly, 1990; Whitfield and Bourlakis, 1991; O'Higgins, 1994; Dolton, Makepeace and Treble, 1994). Many such evaluations display considerable technical sophistication in controlling for the individual characteristics of individuals and adjusting for selection effects, but single-programme evaluations, by their nature, are unable to take account of qualitative differences between programmes.

At the conceptual level, there is a general tendency in the literature to treat programmes as "black boxes", examining inputs to and outputs from programmes, without enquiring too deeply into what goes on in programmes, or to qualitative differences between differing components within programmes - this characterises much of the literature on the YTS programme in the UK and CETA in the US.

Figure 3.1: A Typology of Active Labour Market Programmes

Labour Market Leverage	Market Orientation	
	Weak	Strong
Supply – Training	General Training	Specific Skills Training
Demand – Employment	Direct Employment Schemes	Employment Subsidies

In order to incorporate qualitative differences between different types of ALMPs, O'Connell and McGinnity (1997a) develop a typology of ALMPs which goes beyond the conventional distinction between supply and demand measures to distinguish also between programmes in terms of the strength of their linkages with the labour market, giving rise to the fourfold typology of active labour market programmes outlined in Figure 1.

General Training includes a range of measures to provide basic or foundation level training in general skills. Most of the programmes in this category are designed for those with poor educational qualifications experiencing difficulties in the labour market. Included in this group also are second-chance education programmes; training courses designed for women seeking to return to the labour market; and community training programmes, oriented toward the development of community resources and responses to unemployment.

Specific Skills Training courses provide training in specific employable skills to meet skill needs in local labour markets. The distinction between General and Specific Skills Training is not simply a question of the level of training, although the latter may often be at a more advanced level than the former. Specific Skills Training can cover a wide range of skill levels – in the Irish case, for example, the category includes courses in retail sales as well as advanced courses in Computer Aided Engineering. What these training courses share in common is that they are designed to meet specific skill needs in particular occupations and industries.⁵

Direct Employment Schemes. These programmes consist of subsidised temporary employment in the public or voluntary sectors – variants of the conventional public works programmes. Most work in this type of programme is of a nature which would not be commercially viable – e.g. environmental improvements, provision of community-based childcare.

⁵ The distinction between general and specific skills training measures for the unemployed should not be confused with Becker's (1975) distinction. Becker's concept of specific training, usually applied to the training of employed workers, refers to training that is specific to a single employer, while his concept of general skills refers to broad skills which are portable between different employers. Thus, both of our training categories would be included within Becker's category of general training.

Employment Subsidies. These provide subsidies to the recruitment or self-employment of unemployed workers in the private sector. Typically they are targeted on those who would otherwise be hard to place in employment – e.g. the long-term unemployed.

O'Connell and McGinnity (1997a and 1997b) test the hypothesis that programmes with a strong orientation to the open labour market are more likely to enhance the employment prospects of participants than programmes with weak market linkages. Thus skills training programmes should have a greater positive impact on subsequent employment to the extent that they provide participants with skills that meet identified needs of employers. Similarly, employment subsidies are designed to insert participants in real jobs in the market place, with the result that the work experience and skills learned on the job are likely to be closer to those in demand in the labour market than work experience or skills learned while participating in direct employment schemes on projects which, by their nature, are not viable in the market. Their findings, based on a follow-up survey of young programme participants and a comparison group of non-participants, provide strong support for the importance of market orientation. Programmes with strong linkages to the labour market were found to both enhance the employment prospects of their participants, and increase their employment duration, and earnings from employment, even when account was taken of relevant individual characteristics such as education and previous labour market experience.

O'Connell (1999c) combines data from two data sets to compare the employment outcomes of participants in ALMPs with a comparison group of non-participants over the 1994-1996 period in Ireland. His analysis confirms the importance of the market orientation of programmes for participants' subsequent employment prospects. This later study provides substantial support for the hypothesis that programmes with strong market linkages are more effective than those with weak linkages because it draws on new data, relates to a later time period characterised by strong labour demand, and extends the original findings, which related to young people, to the entire population of ALMP participants – including older as well as young participants.

4. THE RETURNS TO INVESTMENTS IN INITIAL EDUCATION

4.1 Introduction

This chapter examines the returns to education both in terms of the probability of employment and the returns, in private income terms, to that employment using a number of individual level datasets. The focus is particularly on the three educational initiatives funded under the European Social Fund namely: Vocational Preparation and Training Programmes (henceforth VPT) including Post-Leaving Certificate (PLC) courses, Middle Level Technician (MLT) and higher degrees often funded via the Advanced Technical Skills (ATS) programmes. We use econometric techniques to measure the impact of each type of qualification on hourly earnings while controlling for a range of other factors such as age and labour market experience. We estimate separate models for males and females. We also study whether these programmes affect the probability of being in employment compared to other labour market states.

4.2 The Impact of Vocational Education at Second level

4.2.1 PROGRAMME DESCRIPTIONS

Vocational Preparation and Training Programmes (or VPT) programmes were introduced in 1983/1984 academic year. The title covers a number of programmes delivered at two levels. VPT-1 refers to one form of programme that took place after the Intermediate (now Junior) Certificate, i.e. on completion of the junior cycle of secondary school. This was primarily focused on providing additional skills to enable them to enter work rather than additional education. A more advanced version of the programme (VPT-2) took place on completion of the senior cycle (Leaving Certificate) of secondary school. This is usually referred to using the generic title Post-Leaving Certificate (or PLC) course.⁴ In either the VPT or PLC routes no national certification was available although this was addressed in 1994. Increasingly programmes are nationally certified and also appeal to outside

⁴ In this chapter we use "PLC" to refer to VPT-2 programmes and "VPT" to refer to programmes post junior cycle i.e. VPT-1.

validation agencies such as City and Guilds and Royal Society of Arts. This is particularly true for PLC programmes.⁵

PLCs are full time one and two year courses of integrated education, training and work experience in schools and colleges outside the third level sector. The vast majority of the places (over 90 per cent) would be in colleges managed by individual Vocational Education Committees (VECs). PLCs also provide for some an alternative route to non-university third level education. PLC programmes have three key components (i) General education: core skills needed such as literacy, numeracy, communications (ii) Special skills: training and skills that are specific to the particular occupation and (iii) Work Experience. Courses cover a very wide range of options including Community and Health Services; Business Studies; Performing Arts; Design and Electronics. Currently, there are over 1,000 courses given in 205 centres. In 1999/2000 there were 24,352 on these programmes of whom 72 per cent were female. The take up of courses is different for males and females with females being more concentrated in a few areas. Of the 17,541 females, 3,842 were doing secretarial courses and 1,075 taking childcare courses. The number of "mature" students taking these programmes is on the increase, currently about one-third (33.7 per cent) of the enrolment is over the age of 21. In 1994 it was approximately 21 per cent.

4.2.2 DATA DESCRIPTION

In this section we use a dataset collected annually by the ESRI to measure the impact of second level educational attainment and participation in VPT and PLC on earnings of young people in Ireland. Since both earnings and labour market status will be influenced by other variables such as region and family characteristics and since omission of these would bias our conclusions we include a fairly extensive set of controls in the analysis. The data set used is the annual Survey of School Leavers collected by the ESRI for the Departments of Education & Science and Enterprise, Trade & Employment. The respondents are sampled ten months after leaving secondary school. We pool the data collected in the six years 1990-1995 which gives a total sample of 10,165: 5,185 females and 4,980 males. For the wage equations after dropping observations due to missing data we have

⁵ The last year that VPT-1 was run was 1996/1997. Subsequently a number of variants of the early stage VPT programme have been introduced aimed less at the job market and more towards encouraging participation. These include the Leaving Certificate Applied Programme and the Leaving Certificate Vocational Programme. This chapter is only concerned with VPT prior to these changes.

a sample of 1,550 females and 1,436 males in employment.⁶ For further description of the dataset see, for example, McCoy & Whelan (1996). Table 4.1 outlines some of the main features of the data.

Table 4.1: Descriptive Statistics – School Leavers' Survey 1990-1995

Variable	Mean	Standard Deviation
Female	0.49	0.50
Age	18.84	1.09
Year Left School	91.63	1.73
Currently in Employment	0.29	0.46
Hours of Work per Week	36.29	11.66
Gross Weekly Income	101.55	52.14
Net Weekly Income	82.39	40.00
Gross Hourly Wage	2.82	1.35
Year of Sample	92.69	1.72
Farm Background	0.16	0.37
Dublin Resident	0.25	0.43
VPT	0.04	0.19
PLC	0.11	0.31
Inter/Junior Certificate Last	0.15	0.36
Leaving Certificate Last	0.79	0.41
Number of Honours Papers in Junior	2.33	2.51
Number of Honours Papers in Leaving	2.21	2.49
N of cases	10,165	

Most of the sample left school at close to 18, given the mean current age of 18.8 years, and just over 29 per cent of these are in employment one year after leaving school. The earnings are low – just over £100 for a 36-hour week. Some 16 per cent are from a farming background, and over 24 per cent are currently resident in Dublin. Participation to Leaving Certificate is around 79 per cent, and PLC courses capture 10 per cent of the sample.

4.2.3 ESTIMATING THE WAGE EFFECT OF VPT/PLC

The SLS contains a number of key factors in terms of determining wages effects of VPT and PLC. A simple earnings function of the standard form

$$y_i = S_i\delta + X_i\beta + \eta_i \quad (1)$$

can be estimated, where y is the wage measure (in this instance the logarithm of gross hourly earnings), S is a matrix of schooling characteristics or human capital measures, X is a matrix of other individual characteristics such as region of residence and η is an unobserved random component assumed to be uncorrelated with

⁶ This drop in the number of observations is mainly due to only observing wages for those in employment, although there are a small number of observations where other variables are incomplete. The importance of this sample selection is considered in more detail later in the text.

the variables on the right hand side. The parameter vectors, δ and β , which we shall estimate, are measures of the returns to the different characteristics. Since we use the (natural) logarithm of wages these coefficients can be interpreted approximately as the proportionate effect of a unit change in the relevant characteristic on wages. The wage data used are not adjusted for inflation. This is very unlikely to make any difference since almost all the variation in the data comes from variation *across individuals*. We include separate variables for each year ("time dummies") which control for aggregate effects on the economy.

The interpretation of the returns to education as a return to human capital is not the only interpretation of course. Screening models also predict a positive association between education and earnings and as is well know identification conditions that allow one to plausibly distinguish between the two classes of models are difficult to find.⁷ Similarly, it is difficult to distinguish either of these paradigms from the "credentialist" model often advanced in the sociology literature. See Breen *et al.* (1995) for such an approach which also uses the *School Leavers' Survey* although for earlier years than the present paper or Denny and Harmon (1999) which uses the International Adult Literacy Survey. Silles (1998) uses the data pooled over the years 1980-1995 to analyse in more detail the impact of educational attainment – specifically success at particular subjects – on earnings.

Table 4.2: Wage Equation Estimates – Ordinary Least Squares Dependent Variable: Logarithm Gross Hourly Wages

	Girls		Boys	
	Coefficient	Std. Error	Coefficient	Std. Error
Inter/Junior Certificate	-.004	.055	.102*	.045
Leaving Certificate	.141*	.047	.246*	.043
No. of Honour Papers – IC/JC	.025	.017	-.001	.014
No. of Honour Papers – LC	.001	.005	.033*	.008
VPT	-.028	.066	-.047	.038
PLC	.146*	.020	.171*	.043
Sample Year 1991	.074*	.032	.051	.039
Sample Year 1992	.026	.030	.005	.036
Sample Year 1993	.018	.030	.003	.039
Sample Year 1994	.150*	.038	.168*	.041
Sample Year 1995	.173*	.030	.140*	.036
Dublin Resident	.118*	.021	.118*	.026
Constant	.715*	.048	.608*	.045
N		1,550		1,436
Adjusted R ²		0.120		0.139

Starred (*) variables are statistically significant at the 95 per cent level. Throughout the paper we use "robust" standard errors.

In order to estimate this equation using Ordinary Least Squares regression we select the sample of those in employment full time approximately 12 months after leaving school. This gives us a working sample of 1,550 girls and 1,436 boys. Our schooling

⁷ For a recent attempt see Johnes (1998).

measures include whether the last exam sat was the Intermediate/Junior Certificate (IC/JC) or the Leaving Certificate (LC), a count of the number of higher level papers taken by the school-leavers by type of last exam and dummy variables indicating whether some training was received, distinguishing between VPT and PLC. We also control for the sample year and whether the school-leaver was resident in Dublin.^{*}

The results are presented in Table 4.2 separately for boys and girls. Several points are worth noting about the findings here. Both groups enjoy large increases in their earnings post-1993 suggesting the improvements in the labour market in this period has led to marked increases in the wages offered to these groups having controlled for their education levels and other characteristics. There appears also to be a consistently large wage premium for working in Dublin, of around 11.5 per cent for both groups. This could reflect, of course, a higher cost of living in Dublin.

The education variables have quite different effects. The default category is "no qualification" so we interpret the results on the school level dummy variables as the increase (or decrease) in earnings compared to someone who has no qualifications. The IC/JC has a large effect on earnings for boys of 10 per cent but the same is not true for girls where no premium is evident for this qualification. Similarly the premium for the LC over the alternative of having no qualification is 25 per cent for the boys and only 14 per cent for the girls (although the marginal return to the qualification over having left with IC/JC is the same at 14 per cent). The number of higher level papers taken in the last exam sat has a big effect for the LC boys of around 3 per cent per subject taken, whereas, interestingly, there is no premium for honours papers amongst the LC girls. IC/JC higher level papers have no real impact for either group.

The variables for the VPT and PLC are formed from an interaction of the last school exam taken and participation in VPT/PLC, which allows us to interpret the coefficients as measuring the marginal impact of the programme over the state exam of either IC/JC or LC. We find an unambiguous premium for those who attain PLC. For boys this amounts to a marginal effect of 17 per cent while for girls the effect is 15 per cent. Note that unlike the returns to LC and the issue of the higher level papers this difference in the result is not statistically significant. IC/JC followed by VPT shows no marginal return for either group.

Finally the results with respect to time trends suggest little movement in nominal earnings for the period 1990-1993 but very large increases in 1994/1995 of around 15 per cent to 20 per cent compared to 1990 wages. This would partly reflect inflation over this period, but the main explanation is the beginning of the

^{*} Occupational and industry choice are not controlled for in the regression as these choices are likely to be endogenous. That is they cannot be taken as given and allowing for this would lead to additional complications of sample selection.

economic recovery. Figures for GNP growth for this period show increases from 2 per cent in 1993 to over 6 per cent in 1994, a very substantial increase. This naturally leads to labour market tightening at all levels as the demand for labour increases. It is important not to overstate this effect on the sample we observe here: wages for young workers are low to begin with and even a modest increase of 30 to 40 pence per hour would result in the large proportionate increase in the wage for 1994 school leavers compared to the 1990 levels.

To summarise the results for boys: having the IC/JC adds about 10 per cent to wages over having no qualification. Having taken the Leaving Certificate adds about another 14 per cent on top of which each honours paper is equivalent to about an additional 3 per cent. Participation in a PLC has a large and well-determined return of about 17 per cent over those who took the Leaving but no VPT. By contrast participation in VPT after IC/JC has no measurable impact on wages. For girls the additional effect of a Leaving Certificate on earnings given that they will have the JC/IC is about the same as boys, 14 per cent. The key difference is, as we saw, that the JC/IC is worth about 10 per cent to boys but nothing to girls so girls who finish school with a Leaving Certificate end up about 10 per cent worse off than boys *other things being equal*. The results regarding the training are similar to those for the boys: there is a fairly large positive return to PLC, about 14.6 per cent, but nothing if it follows the JC/IC.

4.2.4 SELECTION BIAS CORRECTIONS

Throughout this analysis we have made the implicit assumption that the data used in the earnings equations, a sub-sample of the School Leavers' Survey, is a random sample. In other words those in this sub-sample are on average no different from those omitted (i.e. those who will be in further education or unemployed) and the probability of being selected into the sample is not correlated with any of the variables of interest. There are, however, good reasons for suspecting that this is not the case. For example, individuals with high levels of educational attainment may opt to pursue further education. In that case those in the sample who are working would have below average educational attainment. Ignoring this issue can seriously distort one's estimates of the returns to the different variables, this is called sample selection bias. This problem is well known in applied economics and there are a number of relatively straightforward ways of dealing with it. In the Appendix we outline such a mechanism based on the multinomial logit estimation method we use in the next section to model participation. Essentially a statistical correction is generated and included in the model as an additional regressor – a test of the significance of this regressor (denoted λ in the subsequent table) is a test for the presence of selection bias.

Table 4.3: Wage Equation Estimates – Selectivity Corrected

	Girls		Boys	
	Coefficient	Std. Error	Coefficient	Std. Error
Inter/Junior Certificate	-.046	.059	.082	.049
Leaving Certificate	.118*	.048	.232*	.046
No. of Honour Papers – IC/JC	.034*	.017	.002	.014
No. of Honour Papers – LC	.013*	.008	.043*	.013
VPT	-.016	.066	-.049	.038
PLC	.083*	.036	.149*	.051
Sample Year 1991	.091*	.032	.057	.040
Sample Year 1992	.035	.030	.007	.036
Sample Year 1993	.044	.032	.011*	.040
Sample Year 1994	.207*	.046	.196*	.050
Sample Year 1995	.192*	.031	.142*	.036
Dublin Resident	.102*	.023	.118*	.026
λ	-.110*	.050	-.055	.058
Constant	.832*	.072	.665*	.074
N		1,550		1,436
Adjusted R ²		0.123		0.140

Table 4.3 outlines the results for the so-called “selectivity corrected” estimation procedure. For the boys the λ term is statistically insignificant which implies that sample selection is probably not a major issue. This is borne out by the parameter estimates themselves: they are broadly the same in Table 3 as in Table 2: large statistically significant effects for the IC/JC and LC (although less precise for IC/JC) and returns to higher level papers, followed by large returns for PLC.

By contrast for girls the results do differ, and the test on λ suggests the presence of selection bias in the simple regression results presented in Table 2. The IC/JC remains insignificant in earnings determination, and the returns to the LC are lower, less than 12 per cent, compared to 14 per cent in Table 2. So *not* controlling for the fact that girls who are employed are a non-random sample causes a small but statistically significant *upward* bias in the estimated return to the Leaving Certificate. Interestingly, the premium from higher level papers is now significant for both exams, adding in the case of the LC around 1.3 per cent per subject to hourly earnings (a fraction of the equivalent premium to boys of about 4.2 per cent). The most striking result of the sample selection correction is that the estimated returns to the PLC drops by almost a half, from 14.6 per cent in Table 2, to 8.25 per cent, suggesting a large upward bias in the uncorrected estimates.

In the uncorrected results the return to education levels such as VPT reflect also the returns to the unobserved characteristics of the individuals in the employed sub-sample such as motivation or ability. As such the estimated return to the credential is partly reflecting, in addition, the return from the process of actually getting employment. The mechanism for correcting the selection bias results in an estimate of the return to the qualification that controls for the non-random nature of the employed sub-sample. This finding that it is important to control for sample selection for females and not males is very common for studies of “prime age” individuals (i.e. age 17-60). Moreover this highlights a common

theme in the literature on evaluating interventions in the labour market such as VPT whereby dealing with the non-randomness of the sample is important if policy recommendations are to be based on the estimated returns.

4.2.5 ESTIMATING THE PARTICIPATION EFFECT OF VPT/PLC

As already noted in Section 4.2.2 we have three alternatives for labour market outcomes after leaving school – higher education, employment and unemployment – rather than the binary choice more common in the literature. In Tables 4 and 5 we present the results of a multinomial logit estimation. Here the dependent variable takes one of three values corresponding to the three outcomes. The results are presented in relation to a reference category of unemployment and the tables present the estimated coefficients and the standard errors as well as the so-called relative risk ratios (RRR). The RRR allow us to interpret the effect of the variables on the increased or decreased odds of being in further study or employment over being in unemployment.⁹ Note that positive coefficients in the logistic regression correspond to RRR's greater than one and negative coefficients correspond to RRR's less than one.

In Table 4.4 the results for girls are presented. Focusing on the RRR column we find that participation in a PLC raises the odds of being in employment as against unemployment by 66 per cent but *lowers* the odds of higher education over unemployment by 83 per cent (that is $1 - .1715$), having controlled for all of the other factors in the table. The latter result is not surprising since this form of training is not primarily seen as a route to higher education. The equivalent results for boys in Table 5 are 35 per cent and 70 per cent. One interpretation of these results is that the programme does increase earnings but switches individuals away from the route to traditional higher education. If we believe that there is a large premium to university education (as shown in Callan and Harmon (1999)) then the net effect of these programmes on lifetime earnings could be negative. However recalling the table of descriptive statistics in Table 4.1 we should note that the average attainment of higher level papers by those in third level education is significantly higher than those in PLC. It is doubtful therefore that many of the programme participants would have made the entry for higher education. However the large premia for PLC suggests also that having this "treatment" raises earnings ability over the alternative of just having the LC. On balance one can therefore conclude that VPT, at least in the PLC format, seems

⁹ The odds of being in a state X is simply the probability of being in that state divided by the probability of not being in that state $P(X)/(1-P(X))$. So the odds (or odds ratio) is greater than one if the probability is greater than 50 per cent. A logit model assumes that the logarithm of the odds ratio is a linear function of the independent variables or covariates.

a good treatment for these individuals though there is a greater benefit for boys than girls. Given that the data refers to individuals a relatively short time after they have entered the labour market there is a limit to what one can infer about the long run effects of these programmes on individuals labour market experience.

Several other results in Tables 4.4 and 4.5 are worth noting. The probability of being in higher education compared to unemployment is extremely sensitive to having Leaving Certificate level education. The coefficients on father's social class appear to tell the familiar story that those from worse off backgrounds are less likely to go into higher education. In fact most of these coefficients are not statistically significant: however, having a father who is employed increases the probability of being either employed or going to further education over unemployment. For girls, being from Dublin increases the probability of being employed and reduces the probability of being in further study – this is likely to reflect the fact that there is generally a greater pool of jobs in the city and search costs are probably smaller. The picture is not quite the same for boys in that the Dublin effect is a smaller negative number but is not statistically significant.

Table 4.4: Multinomial Logit Estimates – Girls

	Employment			Further Study		
	Co-Eff.	s.e.	RRR	Co-Eff.	s.e.	RRR
Inter/Junior Certificate	.901*	.195	2.463	1.236*	.438	3.441
Leaving Certificate	1.030*	.170	2.801	2.896*	.384	18.100
No. of Honour Papers – IC/JC	.013	.068	1.012	.484*	.068	1.623
No. of Honour Papers – LC	.189*	.032	1.208	.696*	.033	2.005
VPT	-.269	.212	0.764	-.080	.379	0.923
PLC	.507*	.110	1.661	-1.763*	.142	0.172
Sample Year 1991	-.454*	.163	0.635	-.032	.187	0.969
Sample Year 1992	-.396*	.155	0.673	-.421*	.183	0.657
Sample Year 1993	-.597*	.158	0.551	.021	.182	1.021
Sample Year 1994	-.468*	.170	0.626	1.711*	.186	5.534
Sample Year 1995	-.490*	.154	0.613	.021	.181	1.022
Dublin Resident	.170	.107	1.186	-.413*	.120	0.661
Father Farmer	-.011	.148	0.989	.160	.153	1.174
Father Employed	.779*	.094	2.180	.887*	.111	2.428
Father Professional – Non Management	-.166	.236	0.847	-.913*	.231	0.401
	-.042	.235	0.959	-1.087*	.232	0.337
Father Intermediate Non-Manual	-.213	.216	0.808	-1.337*	.214	0.263
Father Skilled Manual	-.227	.235	0.797	-1.604*	.242	0.201
Father Semi-Skilled Manual	-.389	.228	0.678	-1.903*	.240	0.149
Father Unskilled Manual	-.673*	.284	–	-2.420*	.451	–
Constant						
N			5,185			
Log Likelihood			-3,666.47			

Table 4.5: Multinomial Logit Estimates – Boys

	Employment			Further Study		
	Co-Eff.	s.e.	RRR	Co-Eff.	s.e.	RRR
Inter/Junior Certificate	.770*	.146	2.160	.644	.400	1.904
Leaving Certificate	1.032*	.146	2.808	2.991*	.358	19.900
No. of Honour Papers – IC/JC	.023	.060	1.024	.522*	.069	1.686
No. of Honour Papers – LC	.082*	.036	1.085	.689*	.035	1.992
VPT	.153	.166	1.165	-.543	.503	0.581
PLC	.306*	.176	1.358	-1.192*	.227	0.304
Sample Year 1991	-.520*	.161	0.594	-.389*	.197	0.677
Sample Year 1992	-.232	.155	0.793	-.219	.193	0.803
Sample Year 1993	-.629*	.155	0.533	-.436*	.188	0.646
Sample Year 1994	-.479*	.163	0.619	1.580*	.189	4.856
Sample Year 1995	-.255	.148	0.775	-.223	.188	0.800
Dublin Resident	-.114	.109	0.892	-.329*	.127	0.719
Father Farmer	-.275*	.141	0.760	.517*	.150	1.676
Father Employed	.740*	.091	2.095	.735*	.114	2.086
Father Professional – Non Management	.317	.221	1.373	-.147	.213	0.864
Father Intermediate Non-Manual	.159	.218	1.172	-.442*	.212	0.643
Father Skilled Manual	-.091	.197	0.913	-1.225*	.192	0.294
Father Skilled Manual	-.324	.215	0.723	-1.326*	.222	0.265
Father Semi-Skilled Manual	-.433*	.213	0.649	-1.418*	.227	0.242
Father Unskilled Manual	-.672*	.256	–	-2.864*	.426	–
Constant						
N				4,980		
Log Likelihood				-3,580.07		

Further research would be needed to explain why there are importance differences between the returns to boys and girls. This data is probably not informative enough to allow one to pursue this much further. While it could be discrimination by employers it seems plausible that at least part of the difference is due to the different sectors and occupations pursued by boys and girls which in turn is influenced by young peoples expectations, see for example McCoy & Whelan (1996) Tables 11 & 12.

4.3 The Effects of Interventions at Third Level

4.3.1 DESCRIPTIVE STATISTICS

The *Living in Ireland Survey* (LIS) is the Irish component of the *European Community Household Panel Survey* (ECHP) and is described in detail in Callan *et al.* (1996). The 1994 wave of the *Living in Ireland Survey* is a nationally representative sample of over 4,000 households, with almost 10,000 individuals aged 17 years or over. The response rate for the survey was 64 per cent of valid addresses contacted. The samples for analysis have been reweighted to correct for non-response, on the basis of the number of adults in the household, urban/rural location, age and socio-economic group of household head, using external information from the much larger Labour Force Survey. The 1994 wave provides data on a range of individual characteristics, including age, gender, educational attainment, and labour market experience and unemployment.

In addition to the obvious benefit of observing different age profiles in this dataset as compared to the *School Leavers' Survey* the LIS also allows for additional ESF funded programmes to be analysed rather than being focused solely on VPT. Middle Level Technician (MLT) programmes will be represented in the sub-degree/diploma category (although not exclusively MLT programmes a significant proportion would be designated as such). Moreover, for the postgraduate sector a large funding programme has been in operation under the auspices of the Advanced Technical Skills programme. Again, although not all postgraduates in this sample are ATS funded, a large proportion would be.

Table 4.6 presents some summary statistics from the *Living in Ireland Survey* for the sample of men and women used in our estimations. As with the SLS we focus on those individuals for whom we have full information on earnings from employment (not self-employment where the wage and work hours information can be very unreliable). This provides a sample of 1,808 men and 1,340 women aged 16-64. Hourly wages are different by over £1 between the two genders, although the male sample is slightly older by about 3 years which might partly account for this. In terms of the highest educational qualifications men are more prevalent in the very lowest levels of schooling than women. Far more of the female sample report the lowest level of schooling as LC (42 per cent compared to 28 per cent for men) and women seem more likely to have participated in VPT than men. For the degree type credentials women seem to have the edge in terms of the sample proportion reporting these qualifications as their highest attained.

In the bottom half of Table 4.6 we report the findings for those in the sample aged less than 37, in order to avoid complications of different experience profiles and also because VPT and the associated programmes of MLT/ATS would have had the greatest impact on this age group given the timing of the introduction of the programmes. The credentials information was reconfigured slightly given that the individuals in this age group were too young to be observed in the era of the Primary Certificate. Here the earnings gap is not present, which given their identical ages suggests again the point that experience may be driving some of the differences in earnings observed in the full sample. Again the men seem more likely to have left early and the women seem more likely to have stayed to higher schooling levels. The preference of VPT for women is again seen in this subsample.

Table 4.6: Summary Statistics – *Living in Ireland Survey 1994*

	MEN		WOMEN	
	Entire Sample		Entire Sample	
	Mean	Std. Dev.	Mean	Std. Dev.
Hourly Wage	7.254	4.823	6.054	3.902
Age	36.62	1.242	33.36	1.099
Basic Primary Schooling	0.057	0.232	0.012	0.109
Primary Certificate	0.067	0.250	0.031	0.174
Some 2 nd Level	0.076	0.265	0.052	0.221
Group Certificate	0.098	0.297	0.031	0.172
Inter. Certificate	0.157	0.363	0.128	0.335
Junior Certificate	0.028	0.164	0.016	0.124
Leaving Certificate	0.283	0.450	0.423	0.494
VPT	0.019	0.138	0.058	0.234
Diploma – MLT	0.080	0.271	0.098	0.297
Primary Degree	0.077	0.267	0.101	0.301
Higher Degree/ATS	0.059	0.236	0.050	0.218
N	1,808		1,340	
	MEN		WOMEN	
	Aged < 37		Aged < 37	
Hourly Wage	5.475	3.284	5.308	3.060
Age /10	2.662	0.554	2.642	0.506
Low Secondary	0.328	0.470	0.144	0.351
Inter/Junior Certificate	0.070	0.256	0.048	0.215
Leaving Certificate	0.379	0.485	0.491	0.500
VPT	0.028	0.166	0.083	0.276
Diploma	0.097	0.297	0.096	0.294
Primary Degree	0.068	0.252	0.099	0.299
Higher Degree	0.029	0.169	0.039	0.194
N	955		868	

4.3.2 ECONOMETRIC ANALYSIS

Table 4.7 presents estimates of a standard earnings function for men and women, separated in the bottom half into younger men and women.¹⁰ Specification (1) in both instances suggest a fairly conventional picture in terms of the schooling/earnings profile. For men all of the categories of schooling produce significant returns over the omitted category of basic primary schooling only. For example the returns from Leaving Certificate is some 46 per cent, and the return to a degree is 94 per cent, suggesting the marginal

¹⁰ Despite its importance in the context of discussing the School Leaver Survey material the issue of sample selection is not important in the estimates here. There is no significant change in any of the estimated parameters of the model despite the statistical significance of the correction term. These estimates are available on request.

return from moving from LC to degree is 48 per cent in hourly earnings (95 per cent-46 per cent). Returns to VPT are, in terms of this form of analysis, negative as moving from LC to VPT *lowers* the return by about 2 per cent. However as this is not statistically significant in essence the finding here is for no additional return to VPT. The return from the sub-degree category (which includes MLT qualifications) is large and very well determined suggesting statistical significance in terms of the marginal return over LC of 15 per cent, with a similar marginal return compared to VPT. Higher degrees, often funded via the Advanced Technical Skills or ATS programme, also yield large returns.

The returns for women are similar in terms of the pattern of the returns from one credential over another. In terms of VPT there does appear to be a small positive effect over LC, although again this is not statistically significant. The marginal return from the Diploma over LC is again 15 per cent but not statistically different.

Given the two types of VPT available and discussed in the section on the SLS data we wanted to examine the potential differences between the early post-IC/JC and the post-LC versions in terms of earnings. However it is difficult to identify as the ESRI Living in Ireland Questionnaire only reports the one type as being the highest credential received. We therefore examined information on age of completion of the credential level to isolate whether the VPT was received "early", i.e. prior to the age of 17. This should in principle proxy whether the VPT is post IC/JC or post-LC and appears in specification (2) in Table 6 for both men and women. In this instance we interpret the returns to VPT as being the sum of the two coefficients if VPT was received early, and simply the VPT coefficient if received post-LC. This yields effects of IC/JP plus VPT which are not significantly different from the reference category of no qualifications. Men derive a wage premium of about 7 per cent from PLCs, but there is no effect among women at this level.

The bottom half of Table 7 presents results for younger men and women - aged less than 37. The reference category is now some pre-examination secondary schooling, and the Group/Intermediate/Junior Certificates are represented by one dummy variable. Unfortunately it is not possible to identify the early VPT programmes which, in any case, would have been absorbed to some extent more recently by the development of transition year schemes. The estimates for younger men and women are very different which is to be expected given the very different profiles of these individuals with respect to their time in work. The returns to age, proxying for experience in this specification, suggest very fast earnings growth. This is typical of the literature on younger cohorts as the assumption of including experience as a quadratic rests with the idea that there may be very high returns initially to experience but with time the rate of growth slows down. The negative sign on the square of age in the regression confirms this. The returns to different credentials suggest a large marginal return to VPT over the LC for men of

some 15 per cent, but the result for women maintains the argument presented in our discussion of the School Leaver Survey that VPT has no obvious earnings effects. However there is a similar lack of premium in moving from VPT to Diploma for men, whereas women capture a large return from this move, of over 7 per cent. This might suggest that the type of VPT programme that men take is a closer substitute in the labour market for sub-degree type programmes, whereas the VPT programmes that women take seem to generate no obvious payoffs. Higher credentials offer large returns but again, looking within each gender grouping, women with degrees earn 65 per cent more over the LC women, but the equivalent return for men is 55 per cent.

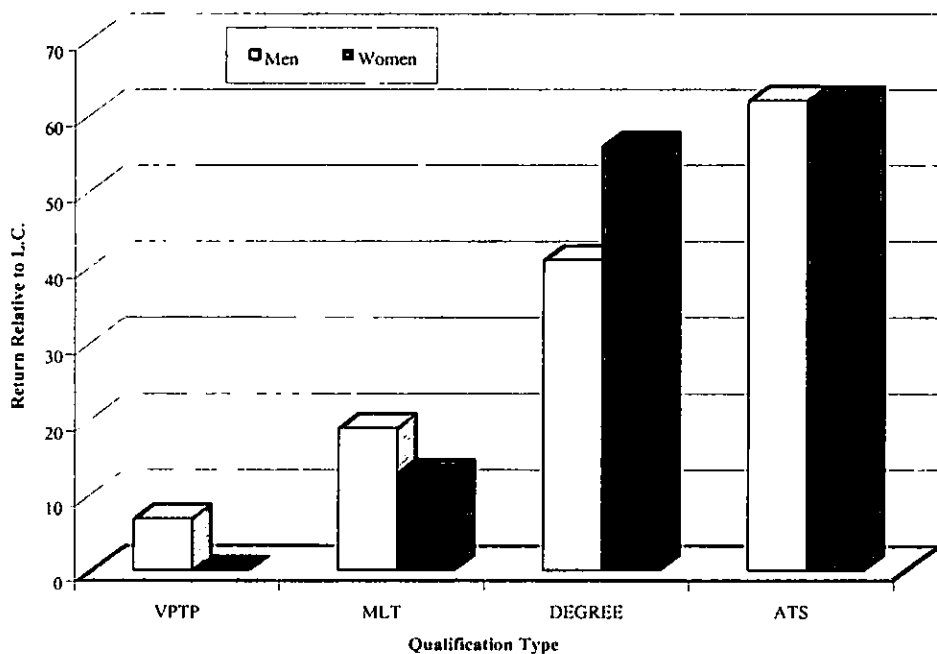
Table 4.7: Earnings Equation Estimates from ESRI Living in Ireland 1994, All Men and Women/Men and Women <37 Years of Age

	ALL MEN				ALL WOMEN			
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Primary Certificate	0.091	0.061	0.079	0.067	0.083	0.107	0.084	0.107
Some 2 nd Level	0.132*	0.060	0.121	0.063	0.290*	0.114	0.290*	0.114
Group Certificate	0.289*	0.061	0.267*	0.065	0.291*	0.132	0.291*	0.132
Inter Certificate	0.376*	0.060	0.382*	0.063	0.332*	0.098	0.332*	0.098
Junior Certificate	0.296*	0.078	0.276*	0.081	0.308*	0.128	0.308*	0.128
Leaving Certificate	0.464*	0.064	0.494*	0.062	0.477*	0.096	0.477*	0.096
VPT	0.444*	0.105	0.562*	0.108	0.470*	0.106	0.472*	0.106
Early VPT	--	--	-0.305*	0.125	--	--	-0.367*	0.051
Diploma - MLT	0.609*	0.078	0.682*	0.073	0.609*	0.102	0.609*	0.102
Primary Degree	0.940*	0.076	0.968*	0.071	1.042*	0.104	1.042*	0.104
Higher Degree/ATS	1.099*	0.086	1.113*	0.073	1.098*	0.117	1.098*	0.117
Age/10	0.785*	0.095	0.739*	0.073	0.568*	0.086	0.568*	0.086
Age ² /100	-0.099*	0.007	-0.102*	0.007	-0.071*	0.011	-0.071*	0.011
N	1,808		1,808		1,340		1,340	
Adjusted R ²	0.42		0.55		0.40		0.56	
	MEN <37				WOMEN <37			
Inter/Junior Certificate	0.079	0.054	--	--	0.123	0.071	--	--
Leaving Certificate	0.221*	0.055	--	--	0.232*	0.067	--	--
VPT	0.368*	0.108	--	--	0.231*	0.080	--	--
Diploma	0.370*	0.070	--	--	0.302*	0.083	--	--
Primary Degree	0.595*	0.080	--	--	0.876*	0.089	--	--
Higher Degree	0.726*	0.106	--	--	0.875*	0.133	--	--
Age/10	1.690*	0.277	--	--	1.579*	0.326	--	--
Age ² /100	-0.265*	0.051	--	--	-0.289	0.057	--	--
N	955				868			
Adjusted R ²	0.42				0.40			

Regression also includes controls for firm size and health of the individual.

This appears to have been an important issue to pursue. Figure 4.1 summarises the marginal or incremental return to qualifications relative to LC based on the estimates in Table 4.7, specification 2. For men most of the other parameters are stable but the VPT effect is far larger, at 56 per cent, or some 7 per cent over LC only. However, if we are discussing early VPT the returns are reduced by 30 per cent. This would yield an overall return to early VPT of 26 per cent, and suggest little if any return over and above completion of IC/JC. For women the effect of this splitting of VPT is felt throughout the estimates, which rise generally for all levels of credentials. However the returns for early VPT remain very low. Overall the sub-degree credentials (VPT/MLT) have a lower return for women compared to men. However, there is significant catch-up in the returns from degree and higher degree/ATS credentials for women.

Figure 4.1: Returns to Qualifications Relative to Leaving Certificate



One important issue concerning the estimation of the returns to education in earnings equation is the possibility that education is *endogenous*. This is similar to (but distinct from) the question of sample selection bias discussed earlier. It arises if for example individuals who because of some other unobserved factor such as ability or motivation have both higher schooling and higher earnings. Individuals will choose their level of investment in education on the basis of this information, which may be known to them but not the researcher. Consequently the estimated return will be biased: the estimated return will be a combination of the true return and the effect of ability (say) on the level of education.

The conventional solution is to use Instrumental Variables (IV), which involves finding one or more variables which determine (or are correlated with) the endogenous variable (education in this case) but are not correlated with the error term, that is they can legitimately be excluded from the earnings equation itself.¹¹ The problem with this approach is finding a suitable Instrument. Family background is a common choice, however as Card (1999) shows that the use of inappropriate instrumental variables can cause greater problems than it solves. Moreover a recent synthesis of the research on this (Ashenfelter *et al.* 1999) suggests that the claim that IV estimates are substantially larger in general cannot be sustained. In the absence of good Instruments we argue it is better to rely on Ordinary Least Squares.

Table 4.8: Logit Estimates of Probability of Employment

	MEN		WOMEN	
	Coefficient	Std. Error	Coefficient	Std. Error
Inter/Junior Certificate	0.357	0.210	0.565	0.442
Leaving Certificate	0.773*	0.234	0.939*	0.418
VPT	0.973*	0.475	0.507	0.510
Diploma	1.117*	0.481	1.205*	0.531
Primary Degree	0.779	0.434	1.372*	0.622
Higher Degree	0.834	0.505	0.923	0.759
N	3,156		1,641	

Note: The estimated models also include controls for age.

Table 4.8 summarises the issue of employment probability (against the alternative of unemployment only, unlike the multinomial choice of Table 4.5) of men and women by credentials (other covariates, such as age and age squared, region of residence etc. are included but omitted from this summary). As with the multinomial logit results what we are examining here is the significance and the sign of the estimated effect. Interestingly for men they are as likely to be in employment without any qualification as they are with a degree. This says nothing of course about the type of job or the earnings while in employment.¹² In no case is the probability lower as compared to having no qualifications of a secondary school nature. However, in this respect VPT, as in the SLS analysis, raises the probability of being in employment. This is also true for the MLT/Diploma level credential. For women, however, there is no increased probability of employment until at least MLT, but unlike men there is a significantly higher probability of being in employment if you hold a primary degree.

¹¹ See for example, Harmon & Walker (1995) which uses changes in the school leaving age in Britain to generate Instrumental Variables.

¹² Anecdotally there is also a belief that higher credential may be associated with longer job search.

4.4 Conclusions

In section 4.2 we use six years of the School Leavers' Survey (SLS) to analyse the determinants of earnings and labour market status for school leavers in Ireland for the period 1990-1995. We use a conventional econometric specification of earnings controlling for educational attainments as well as parental background. In addition, we control for sample selection bias which turns out to be important for the females in the sample only. The results show that participation in a PLC has a large and well-determined return of about 17 per cent over those who took the Leaving Certificate but no VPT. By contrast participation in VPT after IC/JC has no measurable impact on wages. The results also show that returns are higher for males in the sample. Controlling for selection (into employment) is important for the females in the sample and has the effect of reducing the marginal return to both the Leaving Certificate and PLCs and hence widening the gap between the returns to males and females, although even here the effect of PLC for female wages remains positive. Measuring the impact of father's socio-economic status confirms the widely held view that those from better off backgrounds are more likely to go on to higher education and more likely to avoid unemployment.

We also find that participation in a PLC raises the odds of being in employment as against unemployment but *lowers* the odds of higher education over unemployment, having controlled for other relevant factors. One interpretation of these results is that the programme does increase earnings but switches individuals away from the route to traditional higher education. The latter result is not surprising since this form of training is not primarily seen as a route to higher education. Moreover, the descriptive data in Table 4.1 show that the average attainment of higher level papers by those in third level education is significantly higher than those in PLCs, so it is doubtful that many of the programme participants would have made the entry for higher education. The large earnings *premia* for PLC suggests also that having this "treatment" raises earnings ability over the alternative of just having the LC. On balance one can therefore conclude that VPT, at least in the PLC format, seems a good treatment for these individuals though there is a greater benefit for boys than girls.

In section 4.3 we use the ESRI Living in Ireland Survey to estimate returns to VPT as well as MLT and ATS higher degrees, based on a more general sample of men and women than are represented in the SLS. We also deal with the sensitivity of estimates to the age profiles of the individuals. The overall result concurs with the earlier findings that VPT has a positive effect on male earnings but little if any direct impact among women. To the extent that we can measure the early, post IC/JC VPT, programmes it appears that these add nothing to the earnings of individuals. However, the findings with respect to higher levels of education suggests that women can capture large returns from diploma qualifications (MLT) and that both sexes derive benefits from degree and postgraduate qualifications (ATS).

APPENDIX A4.1: MULTINOMIAL LOGIT SELECTION

The formulation of the multinomial logit model for a number of choice outcomes J allows us to compare the three principal outcomes of working ($j=1$), higher education ($j=2$) and unemployment ($j=3$). Note that the numbering is arbitrary, in particular the outcomes are not *ordered*. Consider the outcomes as represented by a variable z , which takes one of three values to represent the choices for any individual i . For any particular outcome j the probability is determined by

$$\Pr[Z_i = j] = \frac{\exp(\alpha v_i)}{1 - \sum_j \exp(\alpha v_i)} \quad (\text{A1})$$

where \mathbf{v} is a matrix of variables assumed to determine the choice of a particular outcome and α is the corresponding vector of parameters.

In this paper the outcome variable for wages is observed if and only if the school leaver is observed in employment in the data, i.e. if choice $j=1$ is observed. If these individuals are a truly random subset of the population the standard wage equation can be given as

$$y_{i,j=1} = \mathbf{X}'\beta + \eta_{i,j=1} \quad (\text{A2})$$

where y is the wage measure, \mathbf{X} is a matrix of individual characteristics and η is an unobserved random component. However, if it is likely that these individuals are not randomly assigned into employment some statistical correction must be employed. In the standard model as developed by Heckman (1976) the choice is normally represented as a binary one, such as working or not working. However, in this instance we have a third outcome possible, namely the choice to remain in education. We must modify the standard correction to account for the fact that we derive the working sample on the basis of a multinomial logit formulation instead of the binary probit. Based on Lee (1983) the correction of the Selection is based on an outcome of z , say $z_i=1$. This allows for a restatement of (A2), suppressing the i for simplicity.

$$\begin{aligned} y_{j=1} &= \mathbf{X}'\beta + \theta \left(\frac{\phi[H_{j=1}(\alpha v)]}{\Phi[H_{j=1}(\alpha v)]} \right) + \eta_{j=1} \\ &= \mathbf{X}'\beta + \theta \lambda_{j=1} + \eta_{j=1} \end{aligned} \quad (\text{A2}')$$

where H_j is $\Phi^{-1}(P_{j=1})$, the inverse of the standard normal

cumulative density function evaluated from (A1) for $z=1$, and ϕ , Φ are the Probability Density Function and the Cumulative Density Function respectively of the standard normal distribution. This is the relevant modification of the standard inverse Mills ratio correction procedure from Heckman (1978).

The statistical significance of the θ coefficient tells us whether the uncorrected estimates are biased due to self-selection of the subsample of working individuals. Identification of the selection correction can be achieved through non-linearities in the correction term (see Vella, 1998). However it makes more sense to impose some exclusion restriction; that is omit variables from the second stage Equation (A2) and include them in the first stage logit (A1). These variables must be significant influences on the decisions in the selection decision and not significant to the wage process so they can be legitimately excluded from the wage regression. In this paper we follow the convention in the literature and use family background variables such as a paternal occupation and employment status.

5. THE LABOUR MARKET

IMPACT OF ACTIVE LABOUR

MARKET PROGRAMMES

5.1 Introduction

In this chapter we combine the results of two individual-level data sets to examine the labour market impact of a range of active labour market programmes (ALMPs) in Ireland. The main focus is on fourteen training and temporary employment schemes funded under the 1994-1999 Human Resources Development Operational Programme and implemented by FÁS, the Training and Employment Authority, as outlined in Chapter 2.

The analysis of the labour market impact of ALMPs starts from the assumption that the principal objective of such schemes is to promote the employment prospects of their participants. How do we measure employment prospects? Here we analyse the effects of programme participation on two outcomes: (a) Employment probability about two years after completing a programme; and (b) Wages from employment. To assess the net labour impact we need to consider the changes in outcomes associated with programme participation. This means that it is necessary to go beyond raw placement rates or wage rates, to assess the net effects of programmes. In effect, we are interested in examining the counterfactual – what would have happened in the absence of programme participation? To do this we measure the outcome that might have occurred if no participation had taken place and we use a comparison group of individuals, similar in relevant respects to participants, but with the important difference that they did not participate in any ALMP.

This analysis combines data from: (a) The *1996 FÁS Follow-up Survey* – covering programme participants in the range of labour market training programmes; and (b) A comparison group drawn from the 1994 and 1995 waves of the *Living in Ireland Survey*. Combining the two data sets allows us to compare labour market outcomes of participants with non-participants over a similar two-year time period – with the result that macro-economic and labour market conditions are similar for both groups. O'Connell and McGinnity (1997a) show that placement rates in employment tend to stabilise within the first twelve months after leaving a programme, suggesting that our two-year comparison represents an adequate post-programme duration over which to assess programme effectiveness.

5.2 Data: the FÁS Follow-up and Living in Ireland Surveys

The data on programme participants comes from the *FÁS Follow-Up Survey* conducted by the ESRI in 1996. The survey is described in detail in Watson (1996). The population for that survey consisted of the 20,938 individuals who left a FÁS course or scheme between April and July 1994. A random sample of 2,078, roughly 10 per cent of programme leavers, was taken. The sample was disproportionately stratified by programme to ensure adequate numbers of cases in the smaller programmes, and proportionately by age, gender and region within programmes. Data collection was conducted between January and June 1996, about two years after they had left their programmes. Data collection was initially conducted by post, followed by telephone or personal contact of those who did not respond to the postal questionnaire. Identical questionnaires were used in each of the survey methods. A total of 1,473 questionnaires were completed, representing a response rate of 71 per cent of the target sample, of which 40 per cent were conducted by post, 37 per cent by telephone and the remaining 23 per cent by personal interview. Following the survey, weights were generated to render the sample data representative of the population of programme leavers in terms of programme, age group, gender and region. The survey collected a range of indicators relating to the employment programme, previous labour market history, post-programme work and training experiences; current employment situation and earnings; as well as standard socio-demographic information on age, gender and educational attainment.

The comparison group of non-participants was drawn from the 1994 and 1996 waves of the longitudinal *Living in Ireland Survey* (LIS) described in Chapter 4 above. The 1994 wave of the survey provides data on a range of individual characteristics, including age, gender, educational attainment, and labour market experience and unemployment. The third (1996) wave of the panel survey provides a detailed record of labour market and employment experience over the twelve months to Autumn 1996.

In order to render the comparison group similar to the participant group in terms of labour market situation, all individuals who were unemployed at the time of the original interview in 1994 were selected from the LIS. About 10 per cent of the sample of participants in FÁS programmes were not actively participating in the labour force immediately prior to their programmes – most were engaged in home duties. In order to provide a comparison group for this latter group, we selected an additional group of 120 individuals from the LIS who were not economically active at the time of interview in 1994 but who did respond that they were looking for work. All individuals who indicated that they had participated in any temporary employment or training programme in 1993 or 1994 were then eliminated. This generated a comparison group of 429 individuals who were unemployed, or economically inactive but seeking work, at about the same point in time that the participant group left their programmes. The comparison group constructed from the first

wave of the LIS was then tracked through the 1995 and 1996 waves to record their labour market situation and income from employment in the two subsequent years.

Table 5.1 shows descriptive statistics for the participant and comparison group.¹³ While the two groups shared similar labour market situations in mid-1994, there were some differences between the two groups. The average age of the comparison group, 36 years is somewhat older than the participants group, 30 years. A greater proportion of the comparison group is married or living with a partner, and the distribution of educational qualifications is lower than among the participant group. More of the participant group was unemployed for relatively short durations immediately prior to programme participation than the comparison group. A greater proportion of the participant group had never worked, and less were outside of the labour force than was the case for the comparison group.

Table 5.1: Descriptive Statistics, Participant and Comparison Group

	Participants		Non-participants	
	Mean	Std. Dev.	Mean	Std. Dev.
Female	0.39	0.49	0.39	0.49
Age	29.88	11.12	36.44	11.56
Married or with partner	0.38	0.48	0.55	0.50
No Qualification	0.22	0.42	0.49	0.50
Junior Certificate	0.29	0.45	0.29	0.45
Leaving Certificate	0.25	0.43	0.14	0.35
Third Level	0.23	0.42	0.07	0.25
Unemployed less than 6 months	0.42	0.49	0.10	0.30
Unemployed 6-12 months	0.15	0.36	0.06	0.24
Unemployed 1-2 years	0.13	0.33	0.12	0.33
Unemployed 2+ years	0.22	0.42	0.48	0.50
Never worked	0.19	0.39	0.12	0.32
Not in Labour Force (prior)	0.07	0.25	0.23	0.42
N of cases	1,433		492	

Table 5.2 shows the proportions employed and employed full-time at the time of interview in 1996 by programme and for the comparison group. The table shows that more than half of all

¹³ In the case of the comparison group, about 40 respondents were excluded from the analysis because of missing data.

Table 5.2: Proportions Employed and Employed Full-time in 1996 by Programme

	Employed in 1996	Employed Full- time, 1996	N of Cases
Community Employment	0.36	0.26	258
Linked Work Experience	0.48	0.33	46
Employment Incentive Scheme	0.63	0.60	72
Employment Subsidy Scheme	0.83	0.76	70
Enterprise Allowance Scheme	0.89	0.79	80
Enterprise Training	0.57	0.51	82
Return to Work	0.47	0.30	96
Local Training Initiative	0.41	0.32	73
Travelling Peoples' Workshop	0.05	0.00	20
Skills Foundation	0.65	0.55	83
Community Training Workshop	0.38	0.33	90
Community Youth Training	0.54	0.47	96
Specific Skills Training	0.76	0.66	285
Job Training	0.72	0.64	90
All Participants	0.53	0.45	1,433
Non-participants	0.28	0.20	492

participants who left programmes in 1994 was employed two years later in 1996. This is substantially higher than the employment rate for the comparison group, about 28 per cent of whom were at work two years after their first interview. Somewhat lower proportions were employed full-time, as would be expected, although the large differential between the two groups is maintained. The data also show substantial variation within the participant group by programme, with only 5 per cent of participants in Travelling Peoples' Workshops at work in 1996, compared to 89 per cent of participants in the Enterprise Allowance Scheme.

The data in Table 5.2 thus suggest both that programme participants fared substantially better in the labour market than the comparison group, and that there is substantial variation in the employment effects of different programmes. We noted, however, that the participant and comparison groups differ in respect of a number of characteristics that may have had a bearing on their employment prospects. Thus, for example, the participant group is better educated and a greater proportion had been unemployed for relatively short periods of time prior to programme participation than is the case with the comparison group. These compositional differences could account for some of the observed differences in outcomes between the two groups. Within the participant group, moreover, there are substantial differences between programmes in the characteristics of their participants. For example, Community Employment is largely targeted on the older long-term unemployed, while Job Training is mainly targeted on

younger unemployed people, often with shorter periods of pre-programme unemployment and better educational qualifications.

These considerations simply reinforce the well-established argument that "raw" placement rates are poor indicators of programme effectiveness (O'Connell and McGinnity, 1997a). Assessing the net effects of programmes entails both taking account of relevant individual characteristics of participants, such as age, gender, education and previous labour market experience, as well as comparing outcomes for participants with an appropriate comparison group of non-participants. To achieve this it is necessary to shift to multivariate analysis of individual level data.

5.3 Modelling the Effectiveness of Programmes

The behaviour of individuals in relation to ALMPs can be depicted in the following equation:

$$y_{it} = a_y + b_1 * p_{i,t-1} + b_2 * x_i + u_{it} \quad (1)$$

In this linear equation, y_{it} represents the outcome of interest (say, earnings) for the i^{th} person in period t (i.e. at some period post-programme), where $t-1$ is the period when the intervention takes place (this may be measured at time of programme entry or leaving). x_i is a set of exogenous variables and personal characteristics for individual i , usually measured at or before programme entry. $p_{i,t-1}$ is a dichotomous variable, valued 1 if the individual is a programme participant and zero if a non-participant, and u_{it} is the random error term. The mean effect of programme participation is given by b_1 . In the present instance p takes the form of a vector of dichotomous participation variables measuring participation in one of the fourteen different programmes covered in the FÁS Follow-up Survey.

While Equation (1) depicts the outcome as a simple linear variable, y can be transformed as appropriate to the specific outcome of interest. Thus, models of employment probabilities are typically estimated using a Logit regression analysis where:

$$y_{it} = \ln (e/(1-e))_{it}$$

Here $\ln (e/(1-e))_{it}$ is the natural logarithm of the predicted value of the odds ratio ($e/1-e$) at time t for the i^{th} individual, and where e is the probability of having a score of 1 - i.e., at work. On the other hand, where wages are the outcome of interest, it is usual to specify y as the log of wages, mainly in order to render the estimation less sensitive to outlying income values.

5.4 Modelling Employment Chances

Table 5.3 shows the results of a simple logistic regression analysis of employment chances in 1996 as a function of type of programme. Equation (1) refers to the probability of being at work either full- or part-time in 1996, and Equation (2) relates only to part-time work. The reference category for the equations is non-participation – membership of the control group. The model also controls for a series of variables measuring individual characteristics and previous labour market experience, all operationalised as dichotomous variables. The control variables include: gender, age group, marital status, educational qualifications, duration of previous employment, whether the individual had ever previously worked, and whether the individual was outside of the labour market immediately prior to programme participation (or the first interview in the case of non-participants).

The results in Table 5.3 tell a very different story to Table 5.2, which showed that the two-year placement rates in employment for all programmes, with the single exception of Travelling Peoples' Workshops (TPW), were higher than the placement rate for non-participants. Table 5.3 shows that, when we take account of individual characteristic and labour market histories, participants in seven programmes had higher employment probabilities than the non-participants. The employment rates in respect of seven other programmes were not statistically different from the comparison group. The positive effects of four programmes – Employment Subsidy Scheme (ESS), Enterprise Allowance (EntA), Specific Skills Training (SST) and Job Training (JobT) – were particularly strong. Three other programmes had positive effects: Employment Incentive Scheme (EIS), Return to Work (RTW) and Skills Foundation (SkF) although the coefficients in respect of the latter two programmes were at the margins of statistical significance ($p < .10$). The seven programmes which showed no statistically significant different outcome from the comparison group were: Community Employment (CE), Linked Work Experience (LWE), Local Training Initiatives (LTI), Travelling People's Workshops (TPW), Enterprise Training (EntT), Local Training Initiatives (LTI), Community Training Workshops (CWT), and Community Youth Training (CYT).

The lack of any discernible effect of Community Employment on employment chances two years later is of particular concern, both because of the large numbers participating in the programme – 44 per cent of all programme leavers during the Target period April-July 1994 had participated in CE – and because participants in CE are particularly disadvantaged in the labour market, with a high concentration of low educational qualifications, poor labour market experience, and long-duration of unemployment (Sexton and O'Connell, 1996). The negative effect of the Travelling Peoples' Workshop is not statistically significant, but suggests that the programme is of very limited assistance in overcoming the particularly difficult labour market situation confronting members of the Travelling Community.

Table 5.3: Logistic Regression of Employment Chances 2 Years Post-programme

	Equation (1) Employed in 1996		Equation (2) Employed Full-time in 1996	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-1.097***	0.212	-1.296***	0.23
Female	-0.046	0.127	-0.348**	0.128
Age less than 20	0.071	0.238	0.132	0.238
Age 20-24	0.278+	0.167	0.184	0.169
Age 40+	-0.137	0.149	-0.238	0.163
Married or with partner	0.411**	0.139	0.419**	0.147
Junior Certificate	0.768***	0.15	0.736***	0.165
Leaving Certificate	1.312***	0.17	1.304***	0.182
Third Level	1.118***	0.181	1.182***	0.191
Unemployed 6-12 months	-0.077	0.17	0.012	0.17
Unemployed 1-2 years	-0.615***	0.173	-0.463**	0.177
Unemployed 2+ years	-1.247***	0.157	-1.275***	0.172
Never worked	-0.149	0.175	0.048	0.176
Not in Labour Force (prior)	-0.676***	0.21	-1.219***	0.249
Programme Effects:				
Community Employment	0.194	0.151	-0.063	0.167
Linked Work Experience	0.522	0.974	0.052	1.021
Employment Incentive Scheme	1.112***	0.287	1.201***	0.292
Employment Subsidy Scheme	2.046***	0.298	1.695***	0.265
Enterprise Allowance	2.525***	0.51	1.896***	0.41
Enterprise Training	0.654	0.471	0.840+	0.484
Return to Work	1.036+	0.568	0.926	0.629
Local Training Initiative	-0.139	0.352	-0.156	0.378
Travelling People's Workshops	-1.557	1.173	-4.465	5.217
Skills Foundation	0.858+	0.504	0.684	0.489
Community Workshop	0.216	0.394	0.141	0.406
Community Youth Training	0.267	0.298	0.184	0.303
Specific Skills Training	1.293***	0.206	1.159***	0.208
Job Training	1.381***	0.305	1.317***	0.298
N of cases	1,921		1,921	
-2 Log Likelihood	2,058.60		1,952.73	
Chi ²	599.83		601.56	

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

The "riskset" for the comparison group was designed to include all those who were unemployed or economically inactive but seeking work at about the same point in time as programme participants exited from their programmes. While this appears a reasonable basis for comparison, the possibility exists that control group members could have participated in programmes subsequent to selection to the comparison group, which could then have reduced their probability of being observed at work at

the time of the survey. Programme participants also faced a similar risk, but to test for the sensitivity of the estimated effects to any bias from this source, we estimated an equation for employment chances after dropping all those who participated in any ALMP between 1994 and the time of the survey in 1996. The results are reported in Appendix Table A5.1 and are very similar to those reported for Equation (1) in Table 5.3 below, although the effects of Return to Work and Skills Foundation, of marginal statistical significance in Table 5.3 are rendered non-significant when the analysis is confined to the attenuated sample.

The effects of the control variables are in accordance with conventional understandings of the labour market. Neither gender nor age had significant effects, although those aged over 40 have somewhat lower, but non-significant, employment prospects than those aged 25-39, the reference category. Married people and those living with partners are more likely than single people to be at work after two years have elapsed. Educational qualifications were strongly related to employment prospects: those with no qualifications were much less likely to be at work than those with a Junior level certificate, and possession of a Leaving Certificate, or attendance at third level education both had positive effects on employment chances.

The effects of prior labour market experiences are also in line with our expectations. The employment chances of those who were unemployed for six to twelve months were not significantly different from those who were unemployed for less than six months, the reference category. Unemployment for one to two years immediately before programme participation had a negative effect on employment chances, and the negative effect of having been unemployed for over two years was even stronger. The effect of never having worked was negative, but non-significant, but those who were outside of the labour force before programme participation, or in the summer of 1994 in the case of non-participants, did significantly reduce employment chances.

The pattern of effects in Equation (2), which models the chances of full-time employment in 1996, is similar to Equation (1), with three employment schemes, EIS, ESS and EntA, and two training programmes, SST and JobT, maintaining their strong effects on subsequent chances of full-time employment. Enterprise Training also increased the probability of full-time employment. The effects of two programmes, RTW and LTI, which were positive in Equation (1) (albeit only at the 10 per cent level of significance) were non-significant in relation to full-time employment chances. The second equation also suggests that women are less likely than men to be at work full-time. This is consistent with the general growth in women's part-time work observed in the Irish labour market in recent years (O'Connell, 1999b).

Table 5.4: Predicted Probabilities of Employment in 1996¹

	Coefficient	Significance	Probability	Net Change
Constant	-1.097	***	0.25	0.00
Female	-0.046			
Age less than 20	0.071			
Age 20-24	0.278	+	0.31	0.06
Age 40+	-0.137			
Married or with partner	0.411	**	0.33	0.08
Junior Certificate	0.768	***	0.42	0.17
Leaving Certificate	1.312	***	0.55	0.30
Third Level	1.118	***	0.51	0.26
Unemployed 6-12 months	-0.077			
Unemployed 1-2 years	-0.615	***	0.15	-0.10
Unemployed 2+ years	-1.247	***	0.09	-0.16
Never worked	-0.149			
Not in Labour Force (prior)	-0.676	***	0.15	-0.11
Community Employment	0.194			
Linked Work Experience	0.522			
Employment Incentive Scheme	1.112	***	0.50	0.25
Employment Subsidy Scheme	2.046	***	0.72	0.47
Enterprise Allowance	2.525	***	0.81	0.56
Enterprise Training	0.654			
Return to Work	1.036	+	0.48	0.23
Local Training Initiative	-0.139			
Travelling People's Workshops	-1.557			
Skills Foundation	0.858	+	0.44	0.19
Community Workshop	0.216			
Community Youth Training	0.267			
Specific Skills Training	1.293	***	0.55	0.30
Job Training	1.381	***	0.57	0.32

Notes: The baseline model, based on Equation (1), is for men, aged 25-39, single, with no qualifications and unemployed for less than six months in 1994.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Tables 5.4 and 5.5 present employment probabilities and net changes in employment probabilities for all employment and for full-time employment derived from the coefficients estimated in Equations (1) and (2).¹⁴ The employment probability of a single male in the 25-39 year age group, with no qualifications, unemployed for less than six months in 1994 and who had not participated in any employment or training programme was .25.

¹⁴ Employment probability in respect of significant coefficients is calculated as $e^b / (1+e^b)$ where e^b is the exponent of the coefficient – the odds of employment. The net change is the difference between the employment probability of the baseline or reference category measured by the constant and the probability for the significant coefficients. Non-significant coefficients do not differ from the baseline category.

Possession of a Junior Certificate raised the average employment probability of such individuals by 17 per cent, while participation of the Leaving Certificate improved their employment chances by 30 per cent. Unemployment for 1-2 years reduced employment probabilities by 10 per cent, compared to an individual unemployed for less than 6 months, and unemployment for over 2 years reduced employment probabilities by 16 per cent. The strongest programme effects relate to two employment subsidy schemes: the Enterprise Allowance Scheme, which increased employment chances by 56 per cent, and the Employment Subsidy Scheme, which increased the probability of employment by 47 per cent. Two training schemes also had strong net effects on employment chances: Specific Skills Training (+30 per cent) and Job Training (+32 per cent).

Table 5.5: Predicted Probabilities of Full-time Employment in 1996

	Coefficient	Significance	Probability	Net Change
Constant	-1.296	***	0.21	0.00
Female	-0.348	**	0.16	-0.05
Age less than 20	0.132			
Age 20-24	0.184			
Age 40+	-0.238			
Married or with partner	0.419	**	0.29	0.08
Junior Certificate	0.736	***	0.36	0.15
Leaving Certificate	1.304	***	0.50	0.29
Third Level	1.182	***	0.47	0.26
Unemployed 6-12 months	0.012			
Unemployed 1-2 years	-0.463	**	0.15	-0.07
Unemployed 2+ years	-1.275	***	0.07	-0.14
Never worked	0.048			
Not in Labour Force (prior)	-1.219	***	0.07	-0.14
Community Employment	-0.063			
Linked Work Experience	0.052			
Employment Incentive Scheme	1.201	***	0.48	0.26
Employment Subsidy Scheme	1.695	***	0.60	0.38
Enterprise Allowance	1.896	***	0.65	0.43
Enterprise Training	0.840	+	0.39	0.17
Return to Work	0.926			
Local Training Initiative	-0.156			
Travelling People's Workshops	-4.465			
Skills Foundation	0.684			
Community Workshop	0.141			
Community Youth Training	0.184			
Specific Skills Training	1.159	***	0.47	0.25
Job Training	1.317	***	0.51	0.29

Notes: The baseline model, based on Equation (2), is for men, aged 25-39, single, with no qualifications and unemployed for less than six months in 1994.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5.5 shows similar effects in respect of the probability of full-time employment in 1996, although the net effects were lower in relation to all programmes. As shown in Table 5.3 this had the effect of eliminating the effects of the Return to Work and Skills Foundation programmes. Women's probability of full-time employment (similar to men's in the case of all employment) was 6 percentage points lower than men's.

5.4.1 PROGRAMME EFFECTS BY POPULATION SUB-GROUP

Up to this point we have looked at programme effects for all participants. It is useful also, however, to consider differences in programme effectiveness for certain sub-groups in the population, including duration of previous unemployment, gender, and age group. Thus, for example, while the results of the initial models indicate that duration of previous unemployment has an influence on post-programme chances of employment, they do not tell us whether the estimated effects of programmes are similar between those short and long-term unemployed.

Table 5.6 shows the results of estimating a model of employment chances specifying a series of interaction terms for programme by unemployment duration. The interaction terms are specified as the product of two binary variables – programme participation and unemployment duration of one year or more – so the main effects relate to programme effects among those unemployed for less than one year. The non-significance of the interaction terms indicate that there is no evidence of any variation in programme effects by unemployment duration. The pattern of main effects is very similar to those estimated in Equation (1).

Table 5.7 shows a similar model of employment chances differentiating programme effects by gender. Most of the interaction terms fail to reach statistical significance suggesting that, in general, there are no discernible differences in programme effectiveness by gender. An exception to this is Community Employment, which retains its non-significant effect for men but has a positive effect for women, albeit at a marginal level of statistical significance. The employment probability derived from the estimated coefficient suggests that participation in CE increased women's average employment probability by about 12 percentage points higher than that of a non-participant.

A similar model of differential programme effects by age was also estimated but there was no evidence of any age-related differences in programme effects (see Appendix Table A5.2).

Table 5.6: Logistic Model of Employment Chances with Interactions for Unemployment Duration

Equation (3)	Long-term Unemployed Interactions			
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-1.230***	0.255		
Female	-0.047	0.128		
Age less than 20	0.109	0.241		
Age 20-24	0.285+	0.169		
Age 40+	-0.108	0.150		
Married or with partner	0.415**	0.140		
Junior Certificate	0.778***	0.151		
Leaving Certificate	1.310***	0.172		
Third Level	1.101***	0.182		
Unemployed 6-12 months	-0.100	0.172		
Unemployed 1-2 years	-0.373	0.290		
Unemployed 2+ years	-1.058***	0.262		
Never worked	-0.185	0.176		
Not in Labour Force (prior)	-0.608**	0.225		
Community Employment	0.413+	0.224	-0.436	0.312
Linked Work Experience	0.550	1.016	1.335	4.138
Employment Incentive Scheme	1.038**	0.372	0.344	0.595
Employment Subsidy Scheme	2.519***	0.443	-0.969	0.614
Enterprise Allowance	2.538***	0.685	0.037	1.016
Enterprise Training	0.782	0.547	-0.245	1.127
Return to Work	0.101	0.833	1.575	1.107
Local Training Initiative	-0.056	0.410	-0.021	0.844
Travelling People's Workshops	-3.964	4.368	3.909	4.530
Skills Foundation	0.936+	0.537	0.506	1.995
Community Workshop	0.403	0.434	-1.416	1.781
Community Youth Training	0.484	0.350	-1.047	0.940
Specific Skills Training	1.446***	0.270	-0.324	0.449
Job Training	1.254***	0.359	0.847	0.687
N of cases	1,921			
-2 Log Likelihood	2,045.56			
Chi ²	614.97			

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 5.7: Logistic Model of Employment Chances with Gender Interactions

Equation (4)			Female* Programme Interactions	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.957***	0.236		
Female	-0.285	0.268		
Age less than 20	0.063	0.242		
Age 20-24	0.252	0.168		
Age 40+	-0.119	0.150		
Married or with partner	0.381**	0.140		
Junior Certificate	0.759***	0.151		
Leaving Certificate	1.269***	0.172		
Third Level	1.103***	0.183		
Unemployed 6-12 months	-0.094	0.172		
Unemployed 1-2 years	-0.646***	0.175		
Unemployed 2+ years	-1.291***	0.161		
Never worked	-0.146	0.176		
Not in Labour Force (prior)	-0.632**	0.222		
Community Employment	-0.035	0.191	0.601+	0.314
Linked Work Experience	0.746	1.290	-0.539	1.958
Employment Incentive Scheme	1.232***	0.350	-0.486	0.607
Employment Subsidy Scheme	2.146***	0.394	-0.192	0.596
Enterprise Allowance	2.343***	0.554	0.804	1.501
Enterprise Training	1.453+	0.866	-1.205	1.066
Return to Work	0.650	1.280	0.579	1.432
Local Training Initiative	-1.036	0.706	1.320	0.818
Travelling People's Workshops	-4.006	5.552	3.125	5.678
Skills Foundation	1.465+	0.809	-1.026	1.026
Community Workshop	0.226	0.487	-0.095	0.732
Community Youth Training	0.122	0.332	0.571	0.771
Specific Skills Training	1.188***	0.273	0.262	0.402
Job Training	1.686***	0.448	-0.540	0.615
N of cases	1,921			
-2 Log Likelihood	2,024.04			
Chi ²	616.39			

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

5.4.2 CONTROLLING FOR SELECTION EFFECTS

Up to this the analysis has focused on programme effects while controlling for observable differences in variables believed to independently influence employment chances, such as education and previous labour market experience, etc. A remaining problem with comparisons of the type we have conducted is that we may not have measured all of the relevant differences between the comparison and participant groups, and that such differences may be related both to the employment outcome and to the probability

of participation in a programme. For example, "better motivated" individuals may be more likely to participate in an active labour market programme, and such motivation may also be of help in finding a job. This gives rise to a problem of selection bias and if we do not take account of such unobserved (and frequently unobservable) differences in some way then we may overestimate the effects of participation in programmes.

Overcoming the problem of selection bias has generated a great deal of debate and empirical work, and a variety of statistical techniques has been developed to correct for such bias (Breen, 1996; Heckman, 1979; Heckman and Robb, 1986; Heckman and Smith, 1996; Winship and Mare, 1992). In the simple case, the most commonly used approach is to estimate both a participation equation and an outcome equation. If an unmeasured, and therefore omitted, variable does exist which influences both participation and employment probabilities, then the residuals from the two equations will be correlated, resulting in biased coefficients in the outcome equations. The Heckman correction procedure involves the introduction to the output equation of a correction term, λ , which is derived from a probit estimation of the probability of participation. The standard application of the Heckman correction equation consists of (1) a probit estimation of the selection equation, followed by (2) an OLS model of the outcome incorporating the correction term (λ). In the present analysis, we are concerned with a binary dependent variable, employment versus non-employment, with the result that OLS estimation of the outcome equation is inappropriate, and it is necessary to estimate both participation and outcome equations as probits.

Since the response variable is dichotomous, testing (and correction if required) for sample selection bias must take the form of estimation of a simultaneous bivariate binary variable model. In the bivariate probit approach, unobserved latent variables y_1^* and y_2^* correspond to the observed binary variables y_1 and y_2 , where the subscript 1 refers to employment status and 2 to whether training has been received or not. Take y_1 equal to 1 or 0 depending on whether y_1^* is greater or less than zero and correspondingly for y_2 and y_2^* . The underlying model is

$$y_1^* = B'x + \delta y_2 + e_1 \quad (2)$$

$$y_2^* = C'z + e_2 \quad (3)$$

where x and z are the matrices of covariates with at least one extra covariate (besides those in x) contained in z . In the analyses reported below the extra variable was a binary variable measuring whether the individual had ever worked, shown to be non-significant in the employment effects equation. Sample selection bias occurs if an (unobserved) component of e_2 also affects e_1 , and can be tested for by estimating the correlation, ρ , between e_1 and e_2 , and seeing if it differs significantly from zero. The coefficient δ in (2) represents the effect of training on the response variable.

However, Maddala (1983, pp. 260-267) has pointed out that Equation (2) is a rather restrictive model for training effects because the vector of covariate coefficients, B , is being assumed the same for the training and control groups. In testing for sample selection bias it is therefore better to estimate separate models for, conceivably, there could be different amounts of selection bias in the two groups. For the training group the model is now

$$y_{IT}^* = B'_T x_T + e_{IT} \quad (4)$$

$$y_2^* = C'_z z + e_2 \quad (5)$$

where there are fewer observations (the number of trainees) involved in (4) than in (5), where all individuals are involved. This limitation of individuals in (4) is denoted by the subscript T . The appropriate analysis for this case of bivariate probit with sample selection is provided in LIMDEP (Greene, 1991, pp. 463-464).

The correlation ρ_T between e_{IT} and the matching elements of e_2 is estimated, together with its asymptotic standard error and test criterion. The corresponding analysis is performed replacing Equation (4) by

$$y_{IC}^* = B'_C x_C + e_{IC} \quad (6)$$

giving an estimate of ρ_T .

Our initial analysis of the programmes effects reported in Table 3 suggests that five programmes had strong positive and significant effects on employment chances. These included three employment subsidy programmes – the Employment Incentive Scheme (EIS), Employment Subsidy Scheme (ESS), and Enterprise Allowance Scheme (EntA) – and two skills training programmes – Specific Skills Training (SST) and Job Training (JobT). For ease of estimation in checking for sample selection bias we have grouped the effective programmes into two groups – Employment Subsidies (including EIS, ESS and EntA) and Skills/Job training (SST and JobT).

Table 5.8 shows two Probit models. Equation (5) compares employment chances of participants in employment subsidies with those of the control group, controlling for other relevant variables. Equation (6) is a similar model of the effects of the two skills training programmes. The effects are very similar to those from the Logit models which assessed the impact of all programmes reported in Table 3, although the estimated coefficients from the two types of model differ in scale.

Table 5.8: Probit Models of Employment Chances

	Equation (5) Model for Employment Subsidies		Equation (6) Model for Skills & Job Training	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.298	0.203	-0.391*	0.178
Female	-0.065	0.143	-0.085	0.115
Age less than 20	-0.378	0.276	0.170	0.208
Age 20-24	0.055	0.169	0.144	0.149
Age 40+	0.150	0.135	-0.044	0.131
Married or with partner	0.240+	0.135	0.219+	0.132
Junior Certificate	0.332*	0.136	0.380**	0.132
Leaving Certificate	0.553***	0.163	0.424**	0.149
Third Level	0.667***	0.192	0.696***	0.168
Unemployed 6-12 months	-0.228	0.204	-0.188	0.172
Unemployed 1-2 years	-0.559**	0.189	-0.512**	0.167
Unemployed 2+ years	-1.025***	0.165	-0.795***	0.144
Never worked	0.111	0.188	0.017	0.153
Not in Labour Force (prior)	-0.870***	0.207	-0.589***	0.172
Employment Subsidies	0.952***	0.132		
Skills/Job Training			0.700***	0.12
N of cases	710		859	
-2 Log likelihood	726.94		914.26	
Chi ²	246.89		275.59	

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 5.9: Testing for Sample Selection Bias in the Models for Employment Effects of Employment Subsidies and Skills/Job Training

	ρ	Std. Error	t value	Signif.
Employment Subsidies	0.492	1.321	0.372	0.710
Control group	0.449	0.667	0.673	0.501
Skills/Training	-0.552	0.326	-1.690	0.091
Control Group	0.365	0.372	0.981	0.326

The estimates, standard errors and test for both the employment subsidies and training models are shown in Table 5.9. Clearly there is no evidence of sample selection bias operating in either the training or control group and so we remain with the results obtained from the standard logistic approach.

5.5 Estimating Wage Effects of Programmes

This section analyses wage effects of programmes two years after participants had left their programmes, or two years after the original identification of the comparison group in the case of non-participants. The FÁS Follow-up Survey collected information on weekly earnings and on whether the current job was full- or part-time. Unfortunately, no information was collected on working time, with the result that it is necessary to confine the analysis to full-timers – since we have no information about hours of work, we cannot estimate hourly wages, with the result that we have no comparable basis upon which to include part-timers in the analysis. About 750 individuals were at work full-time two years post-programme, and of these, 720 answered the income question.

Table 5.10 shows descriptive statistics on wages of full-timers for the non-participants, and by programme for the participant group. On average, participants earned about 7 per cent more per week (about £187) than non-participants (£175). There was also considerable variation by programme in average earnings, from a low of £127 in the case of participants in Local Training Initiatives to a high of £237 among participants in the Enterprise Allowance Scheme.

Table 5.10: Mean Weekly Wages of those at Work Full-time in 1996 by Programme

	Mean IR£	Standard Deviation IR£	Valid N
Community Employment	200.18	100.27	60
Linked Work Experience	132.75	67.67	20
Employment Incentive	165.28	81.36	29
Employment Subsidy	205.12	92.52	33
Enterprise Allowance	236.54	135.88	37
Enterprise Training	220.87	122.13	31
Return to Work	161.35	93.19	26
Local Training Initiative	127.43	57.90	21
Skills Foundation	150.67	53.70	36
Community Workshop	136.00	55.96	25
Community Youth Train	190.85	80.61	33
Specific Skills Training	201.37	76.49	157
Job Training	175.67	63.17	49
All Participants	186.71	89.85	556
Non-participants	174.65	84.53	129

Table 5.11 shows the results of a simple OLS regression model of weekly wages. The dependent variable is the natural logarithm of wages to minimise the influence of outliers, as is conventional. The independent variables are identical to those specified in the employment equations above.

Table 5.11: OLS Model of Wages among those at Work Full-time 2 Years Post-Programme

Equation (7)	Coefficient	Std. Error	t-ratio
Constant	5.113***	0.077	66.241
Female	-0.276***	0.040	-6.882
Age less than 20	-0.165*	0.075	-2.220
Age 20-24	-0.079	0.057	-1.389
Age 40+	0.042	0.059	0.709
Married or with partner	0.068	0.051	1.322
Junior Certificate	0.046	0.060	0.754
Leaving Certificate	0.123*	0.063	1.941
Third Level	0.215***	0.067	3.216
Unemployed 6-12 months	0.098+	0.057	1.731
Unemployed 1-2 years	0.103	0.064	1.593
Unemployed 2+ years	-0.096	0.062	-1.562
Never worked	-0.043	0.055	-0.785
Not in Labour Force (prior)	-0.324***	0.077	-4.225
Community Employment	0.101	0.073	1.379
Linked Work Experience	-0.170	0.120	-1.419
Employment Incentive Scheme	-0.091	0.099	-0.926
Employment Subsidy Scheme	0.162+	0.094	1.727
Enterprise Allowance	0.070	0.089	0.781
Enterprise Training	0.105	0.096	1.088
Return to Work	0.126	0.108	1.168
Local Training Initiative	-0.192+	0.113	-1.695
Skills Foundation	0.003	0.096	0.030
Community Workshop	-0.097	0.116	-0.836
Community Youth Training	0.099	0.096	1.031
Specific Skills Training	0.172**	0.061	2.811
Job Training	0.037	0.081	0.455
N of cases	684		
Adjusted R ²	0.214		

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The results of Equation (7) suggest that the effects of programmes on wages two years after leaving a programme are quite limited. One training programme (SST) increased wages by about 17 per cent compared to non-participants. Two employment schemes (ESS and Enterprise Allowance) had positive and significant effects, although both were significant only at the 10 per cent level. Participation in the Local Training Initiative had a negative impact on wages, although this effect was at the margins of significance. None of the other programmes had any discernible impact on wages, compared to the non-participant, when individual characteristics and previous labour market experience are controlled for. It should, of course, be noted that this analysis

of the wage effects of programmes is confined to those who were at work (full-time) in 1996.

In other respects the model is statistically well-behaved, plausible and consistent with well-established labour market patterns. Women are paid less than men, young people are paid less than older people, those with higher educational qualifications have higher earnings, and those who were unemployed for a long duration prior to programme participation earned less than those with shorter durations.

In order to explore possible wage effects across different population sub-groups, Tables 5.12, 5.13 and 5.14 report models specifying interactions between programme participation and duration of previous unemployment, gender and age group, respectively. Given the reduction in the number of cases available for the analysis of wages both because of the restriction of the model to those at work full-time in 1996, as well as to refusals to answer the income question, the analysis of wage effects in the sub-populations encounters problems with small cell sizes. In general interaction terms were only specified where there were at least 10 cases in each cell of a bivariate comparison between programmes. In practice, as is clear from the tables, this meant that only a sub-set of the possible interactions could be estimated for each model.

Overall the results confirm the general conclusion that the wage effects of programme participation, conditional upon participants finding jobs, are quite limited. Table 5.12 suggests that Community Employment had a positive effect on wages among the short-term unemployed, raising wages by about 17 per cent, but the significant interaction term suggests that the average effect was slightly negative among the long-term unemployed. The effect of Specific Skills Training (SST) was positive for both the short- and long-term unemployed.

The gender interaction models suggest some gender differences in programme effects. Thus, the Employment Incentive Scheme showed a negative effect among men and a positive effect among women, while these gender effects were reversed in the case of the Enterprise Allowance Scheme. However, as noted above, care should be taken in interpreting these results because of small cell sizes.

Table 5.12: OLS Model of Wages among Those At Work Full-time With Programme Interactions for Long-term Unemployed

Equation (8)	Coefficient	Std. Error	Long-term Unemployed* Programme Interactions	
			Coefficient	Std. Error
Constant	5.121***	0.080		
Female	-0.279***	0.040		
Age less than 20	-0.162*	0.075		
Age 20-24	-0.081	0.057		
Age 40+	0.046	0.059		
Married or with partner	0.071	0.051		
Junior Certificate	0.044	0.061		
Leaving Certificate	0.115+	0.063		
Third Level	0.209**	0.067		
Unemployed 6-12 months	0.094+	0.057		
Unemployed 1-2 years	0.087	0.079		
Unemployed 2+ years	-0.104	0.073		
Never worked	-0.041	0.055		
Not in Labour Force (prior)	-0.336***	0.077		
Community Employment	0.179*	0.086	-0.258+	0.144
Linked Work Experience	-0.176	0.120		
Employment Incentive Scheme	-0.151	0.119	0.175	0.197
Employment Subsidy Scheme	0.163+	0.094		
Enterprise Allowance	0.067	0.090		
Enterprise Training	0.104	0.097		
Return to Work	0.050	0.157	0.133	0.201
Local Training Initiative	-0.189+	0.113		
Skills Foundation	-0.001	0.097		
Community Workshop	-0.104	0.117		
Community Youth Training	0.096	0.097		
Specific Skills Training	0.157*	0.066	0.112	0.124
Job Training	0.036	0.081		
N of cases	684			
R ²	0.22			

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 5.13: OLS Model of Wages among Those At Work Full-time, with Gender* Programme Interactions

Equation (9)			Female* Programme Interactions	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	5.164***	0.084		
Female	-0.372***	0.079		
Age less than 20	-0.163*	0.074		
Age 20-24	-0.086	0.056		
Age 40+	0.013	0.059		
Married or with partner	0.074	0.051		
Junior Certificate	0.037	0.061		
Leaving Certificate	0.122+	0.063		
Third Level	0.223***	0.066		
Unemployed 6-12 months	0.077	0.057		
Unemployed 1-2 years	0.098	0.064		
Unemployed 2+ years	-0.117+	0.063		
Never worked	-0.044	0.055		
Not in Labour Force (prior)	-0.299***	0.079		
Community Employment	0.030	0.096	0.166	0.141
Linked Work Experience	-0.175	0.118		
Employment Incentive Scheme	-0.261*	0.120	0.470*	0.194
Employment Subsidy Scheme	0.098	0.132	0.134	0.179
Enterprise Allowance	0.213*	0.104	-0.563**	0.186
Enterprise Training	0.066	0.124	0.079	0.184
Return to Work	0.274	0.194	-0.148	0.234
Local Training Initiative	-0.086	0.239	-0.096	0.267
Skills Foundation	-0.155	0.124	0.342*	0.173
Community Workshop	-0.145	0.142	0.110	0.204
Community Youth Training	0.074	0.096		
Specific Skills Training	0.098	0.078	0.157	0.108
Job Training	-0.047	0.109	0.174	0.153
N of cases	684			
R ²	0.23			

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 5.14: OLS Model of Wages among Those At Work Full-time, with Age Group* Programme Interactions

Equation (10)	Coefficient	Std. Error	Age 25+* Programme Interactions	
			Coefficient	Std. Error
Constant	5.059***	0.079		
Female	-0.284***	0.040		
Age less than 20	-0.020	0.100		
Age 20-24	0.074	0.087		
Age 40+	0.043	0.058		
Married or with partner	0.083	0.051		
Junior Certificate	0.043	0.060		
Leaving Certificate	0.130*	0.063		
Third Level	0.207**	0.066		
Unemployed 6-12 months	0.100+	0.056		
Unemployed 1-2 years	0.121+	0.064		
Unemployed 2+ years	-0.095	0.061		
Never worked	-0.056	0.055		
Not in Labour Force (prior)	-0.301***	0.077		
Community Employment	0.072	0.138	0.049	0.157
Linked Work Experience	-0.250	0.126		
Employment Incentive Scheme	-0.081	0.132	-0.121	0.190
Employment Subsidy Scheme	0.042	0.123	0.213	0.184
Enterprise Allowance	-0.474*	0.200	0.673**	0.220
Enterprise Training	0.231	0.161	-0.183	0.193
Return to Work	0.319	0.333	-0.188	0.352
Local Training Initiative	-0.258*	0.117		
Skills Foundation	-0.080	0.104		
Community Workshop	-0.177	0.123		
Community Youth Training	0.028	0.101		
Specific Skills Training	0.033	0.083	0.305**	0.114
Job Training	-0.103	0.105	0.295+	0.162
N of cases	684			
R ²	0.23			

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 5.14 suggests that there is little evidence of wage gains among younger programme participants – those aged under 25 years. The effects of Enterprise Allowances, negative among those under 25, had a strong positive effect on older participants. Similarly, while SST had no effect on younger participants, it raised wages among older participants by an average of 30 per cent.

Table 5.15: OLS Model of Wage Effects of Specific Skills Training, Corrected for Selection Bias

	Equation (11)		Equation (11a)	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	5.162***	0.117	5.237***	0.124
Female	-0.265***	0.065	-0.273***	0.065
Age less than 20	-0.252*	0.107	-0.103	0.133
Age 20-24	-0.115	0.073	0.039	0.103
Age 40+	-0.058	0.077	-0.044	0.075
Married or with partner	0.138*	0.07	0.143*	0.068
Junior Certificate	-0.142	0.097	-0.142	0.101
Leaving Certificate	0.034	0.106	0.043	0.114
Third Level	0.105	0.112	0.096	0.119
Unemployed 6-12 months	0.001	0.101	-0.016	0.104
Unemployed 1-2 years	-0.016	0.079	-0.132	0.087
Unemployed 2+ years	-0.040	0.095	-0.144	0.103
Not in Labour Force (prior)	-0.500***	0.098	-0.522***	0.096
Specific Skills Training	0.212**	0.069	0.000	0.140
SST*LTU			0.205	0.162
SST*AGE25+			0.291+	0.174
λ	0.400***	0.02	0.385***	0.017
Rho	0.326+	0.167	0.019	0.286
N of cases	320		320	
-2 Log Likelihood	641.20		621.34	

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Correction for selection bias is more straightforward in the case of a continuous response variable such as wages. Accordingly it is possible to adopt a conventional Heckman selection correction procedure with a probit participation equation followed by wage equation estimated by OLS. In the present analysis, the only programme showing a consistent and robust positive effect on wages was Specific Skills Training (SST), so the correction for selection bias is confined to this programme. Table 5.15 shows the results of estimating a standard Heckman correction for the contrast between participation in SST versus the control group. The instrumental variable used to identify the participation equation was a binary variable indicating whether the individual had ever previously worked, a variable already shown not to have influenced either post-programme employment prospects nor earnings. The corrected model shows that the positive effect of SST was maintained. Given the differential effects of SST between the short- and long-term unemployed, and across age groups revealed in the foregoing analysis, a set of interactions were also specified for long-term unemployment and age. Specification of the interaction terms confirms that the principal earnings effect of SST lies in its positive impact on the wages of older participants.

5.6 Conclusions

This chapter combines two individual-level data sets in order to assess the labour market impact of a range of training and temporary employment schemes funded under the Human Resources Development Operational Programme of the 1994-1999 Community Support Framework. The study tracks the post-programme labour market outcomes of participants using the 1996 FÁS Follow-up Survey, which was specifically designed to follow the progress of participants for a two year period after they left their programmes in 1994. Data on such a wide range of programmes, fourteen in all, is unusual in the literature, and the particular strength of the data set is that it allows us to compare effectiveness across programmes within a single methodological framework. The comparison group, essential to assess the net effects of programmes, is drawn from the first and third waves of the annual longitudinal *Living in Ireland Survey*, collected in 1994 and 1996, which permits identification of an appropriate control group at about the same point in time that participants left their programmes and the tracking of these non-participants over the following two years. Econometric techniques are employed to assess the net impact of programme participation while controlling for a range of factors, such as age, gender, education and previous labour market experience, which are believed to influence labour market outcomes.

The strongest conclusions of the study relate to the impact of programmes on subsequent employment chances. Five of the fourteen programmes are found to significantly increase the employment chances of their participants, relative to non-participants, when other relevant factors are taken account of. These effective programmes include three employment subsidy schemes – the Employment Incentive Scheme, the Employment Subsidy Scheme, the Enterprise Allowance scheme – and two training schemes – Specific Skills Training and Job Training. The employment effects of two additional training schemes, Return to Work and Skills Foundation were positive but at the margins of statistical significance. Estimated improvements in employment chances range from 19 percentage points in the case of Skills Foundation to 56 percentage points in the case of the Enterprise Allowance Scheme. Seven programmes display no positive employment effects, including: Community Employment, Linked Work Experience, Community Youth Training, Community Workshops and Travelling Peoples' Workshops. While most of the ineffective programmes are relatively small, the lack of an effect of Community Employment is of particular concern, both because of the large numbers participating in the scheme and because most participants in the scheme are severely disadvantaged in the labour market and unlikely to find work without effective assistance from the State.

The study also looks at differences in programme effects across different population sub-groups. In general, there were virtually no discernible differences in programme effects between the long-versus the short-term unemployed, nor across differing age groups.

The analysis shows very similar effects for men and women. An exception to this is Community Employment, which has a positive effect for women, but not for men. Participation in CE increased women's estimated employment probability by about 12 percentage points higher than the average among non-participants.

The analysis investigated whether the estimated programme effects suffered from selection bias, which could result in upwardly-biased estimates of the true effects of programmes. In relation to the three employment programmes (Employment Incentive Scheme, Employment Support Scheme and Enterprise Allowance), and two training programmes (Specific Skills and Job Training), which have consistently strong positive effects on employment prospects, the analysis shows no evidence of sample selection bias. This suggests that our initial evaluation of their positive employment effects should be retained.

The analysis suggests that the effects of programme participation on the wages of those at work two years later are quite limited. The analysis is confined to weekly wages of full-time workers because of data limitations on hours worked by part-timers. It should be noted that the analysis is contingent on job acquisition, and thus compares only those who have been successful in achieving employment. The analysis shows that participation in Specific Skills Training is associated with a significant increase in wages compared to non-participants, when other relevant variables are controlled for. The main positive effect of SST is to increase the wages of participants aged over 25 years. The positive effect of SST on earnings was maintained after correcting for sample selection bias. Notwithstanding the positive wage effects of SST, the general pattern of findings suggests that the principal impact of effective programmes is to increase the employment chances of participants, not to enhance their earnings compared to non-participants who find work.

APPENDIX TABLE A5.1

Logistic Regression of Employment Chances 2 Years Post Programme

(Sample confined to individuals with no ALMP participation between 1994-1996)

	Coefficient	Std. Error
Constant	-1.009***	0.214
Female	-0.054	0.128
Age less than 20	0.086	0.241
Age 20-24	0.256	0.168
Age 40+	-0.144	0.150
Married or with partner	0.426**	0.140
Junior Certificate	0.804***	0.151
Leaving Certificate	1.352***	0.172
Third Level	1.145***	0.182
Unemployed 6-12 months	-0.061	0.171
Unemployed 1-2 years	-0.588***	0.174
Unemployed 2+ years	-1.259***	0.158
Never worked	-0.163	0.175
Not in Labour Force (prior)	-0.666**	0.212
Programme Effects:		
Community Employment	0.077	0.154
Linked Work Experience	0.410	0.976
Employment Incentive Scheme	0.993***	0.290
Employment Subsidy Scheme	1.936***	0.299
Enterprise Allowance	2.407***	0.512
Enterprise Training	0.540	0.472
Return to Work	0.917	0.570
Local Training Initiative	-0.253	0.354
Travelling People's Workshops	-1.646	1.173
Skills Foundation	0.743	0.506
Community Workshop	0.100	0.397
Community Youth Training	0.150	0.300
Specific Skills Training	1.178***	0.208
Job Training	1.273***	0.307
N of cases	1,874.000	
-2 Log Likelihood	2,025.820	
Chi ²	581.430	

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

APPENDIX TABLE A5.2

Logistic Model of Employment Chances with Age Group Interactions

	Coefficient	Std. Error.	Age* Programme Interactions	
			Coefficient	Std. Error
Constant	-1.116***	0.218		
Female	-0.053	0.128		
Age less than 20	0.238	0.360		
Age 20-24	0.423	0.299		
Age 40+	-0.141	0.150		
Married or with partner	0.419**	0.140		
Junior Certificate	0.759***	0.151		
Leaving Certificate	1.299***	0.171		
Third Level	1.107***	0.181		
Unemployed 6-12 months	-0.089	0.172		
Unemployed 1-2 years	-0.626***	0.174		
Unemployed 2+ years	-1.270***	0.159		
Never worked	-0.136	0.175		
Not in Labour Force (prior)	-0.656**	0.211		
Community Employment	0.114	0.318	0.105	0.356
Linked Work Experience	0.434	1.011	-5.667	58.816
Employment Incentive Scheme	0.721+	0.411	0.870	0.607
Employment Subsidy Scheme	1.669***	0.456	0.637	0.603
Enterprise Allowance	2.263	1.394	0.318	1.497
Enterprise Training	0.489	0.809	0.224	0.990
Return to Work	-0.140	1.694	1.324	1.797
Local Training Initiative	-0.024	0.488	-0.521	0.764
Travelling People's Workshops	-4.976	5.893	5.917	6.040
Skills Foundation	0.767	0.559	-1.130	2.707
Community Workshop	0.106	0.455	-4.790	16.832
Community Youth Training	0.099	0.389	0.387	0.716
Specific Skills Training	1.261***	0.328	-0.089	0.433
Job Training	1.135**	0.420	0.518	0.650

N of cases 1,921

-2 Log Likelihood 2,048.28

Chi² 610.15

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

6. CONCLUSIONS AND POLICY IMPLICATIONS

This study assesses the labour market impact of a wide range of human resources interventions funded under the 1994-1999 Community Support Framework in Ireland. The main objectives of these interventions were to boost human capital by enhancing education and skill levels and to improve the employment prospects of the unemployed. The principal aim of the study was to produce quantified estimates of the impact of the funded programmes on the labour market outcomes of participants.

Human resource spending in the Irish Community Support Framework (CSF) represented a very substantial investment in education and training and accounted for about one-third of all Structural Funds aid to Ireland. Investments in human resources were scattered across more than thirty different measures in six different Operational Programmes (OPs), but well over 80 per cent of expenditure was concentrated in the Human Resources Development Operational Programme (HRDOP), the single largest OP in the CSF. All of the programmes evaluated in this study were included in the HRDOP. The coverage of our assessment is very extensive: it investigates the impact of programmes representing about 70 per cent of total expenditures under the Human Resources Operational Programme.

Our analyses of the labour market impact of human resource interventions are designed to address two basic questions:

1. What are the effects of participation in the human resource measures on subsequent employment prospects?
2. What are the effects of participation in the human resource measure(s) on subsequent earnings from employment?

Framing the research questions in this manner reflects the stated objectives of the human resources interventions funded by the CSF – to enhance human capital and improve employment prospects. It should be acknowledged that while programmes may also serve other objectives, our focus is exclusively on their labour market impact. Our review of developments in the labour market during the 1990s shows clearly that labour market conditions were transformed over the course of the 1994-1999 Community Support Framework. Over that brief period the booming economy led to a shift from mass unemployment to labour shortages. In the new scenario human resource interventions continue to play a vital role in meeting skill needs. In initial education, continued investment is

essential to prepare young people for labour market entry and to match the growing demand for skilled workers. In labour market policies targeted at the unemployed, effective programmes can both enhance the employment prospects of those experiencing difficulty in the labour market and ease skill and labour shortages in the booming economy.

We adopted a basic distinction between: (1) initial education and training, which takes place before entry to the labour market; and (2) continuing education, training, and temporary employment measures targeted at the unemployed and designed to enhance employment prospects of those experiencing difficulties in the labour market. Given that the two policy domains differ in terms of objectives and target groups, as well as in appropriate evaluation methodologies, we presented the assessments of their labour market impact separately, in Chapters 4 and 5. In respect of both policy domains we assess the net impact of initial education or labour market intervention in comparison to what would have been the likely outcome if an individual had not participated in a programme. Thus our assessments are in relation to the counterfactual of non-participation, and we do not attempt to compare the relative impact of educational programmes, on the one hand, *versus* training and other programmes for the unemployed, on the other.

We present our analysis of the impact of initial education and training measures in Chapter 4. There we use six years of the annual *School Leavers' Survey* to analyse the impact of participation in the Vocational Preparation and Training (VPT) programme on earnings and labour market status for school leavers in Ireland for the period 1990-1995. We also use *the Living in Ireland Survey*, which provides a more general sample of the population than is available in the *School Leavers' Survey*, to estimate returns to VPT as well as tertiary programmes funded under the CSF, including sub-degree courses funded under the Higher Technical and Business Skills (HTBS) and Middle Level Technician (MLT) programmes and post-graduate courses funded by the Advanced Technical Skills (ATS) programme.

In the analysis of the *School Leavers' Survey* data we use a conventional econometric specification of earnings controlling for educational attainments as well as parental background. The results show, *inter alia*, that there are sizeable returns to the Vocational Preparation and Training programme, although these are mainly confined to VPT courses taken after completion of the Leaving Certificate: Post Leaving Certificate (PLC) courses have positive and sizeable effects on both earnings and employment probabilities. The earnings returns are higher for young males than for females. Controlling for selection into employment is important for the females in the sample and has the effect of reducing the marginal return to the Leaving Certificate and hence widening the gap between the returns to young men and women.

This analysis also shows that the returns to VPT taken after the Junior Cycle (but without a Leaving Certificate) have very little impact on the labour market outcomes of the participants. This suggests that modification of these programmes was required and indeed these have been subsequently assimilated into the Leaving Certificate Applied course, a programme which has more structure.

The analysis of the *Living in Ireland Survey* concurs with the overall finding that VPT, in its Post Leaving Certificate form, has positive earnings effects for men, compared with completion of the Leaving Certificate, but little if any direct impact on earnings for women.

With regard to tertiary level credentials, the findings show a strong positive impact of sub-degree (diploma and certificate level) tertiary qualifications funded under the Higher Technical and Business Skills and Middle Level Technician (HTBS/MLT) programmes on the earnings of both men and women, although the returns are greater for men. Possession of advanced third level degrees, at the level funded under the Advanced Technical Skills programme, leads to significant earnings gains for both men and women. We also deal with the sensitivity of estimates to the age profiles of the individuals and find that this pattern of effects remains true for those aged under 37 years of age – the age group most likely to have benefited from the educational programmes under consideration.

Assessing the employment effects of initial education is complex because individuals face a three-way choice between education, employment and non-employment. Our analysis of young people shortly after leaving school based on the *School Leavers' Survey* suggested that, on balance, participation in VPT is a good treatment for those whose academic attainment is sufficiently low that they would be unlikely to enter third level education. Our analysis of adults, based on the *Living in Ireland Survey*, show that participation in VPT has a positive effect on employment chances. At third level, possession of sub-degree awards, funded by the HTBS/MLT programme, increases the probability of employment. This is true also for those with higher degrees, although here the effect is not statistically significant. Thus, our findings show that the probability of employment is never lowered by participation in post-secondary education.

The evidence also suggests that taking PLCs is associated with a *lower* probability of entering third level education which is contrary to one of the objectives behind them. However, our data largely precedes the introduction of formal national certification of these programmes in 1994 by the NCVA (at Level 2) and it is likely that this introduction of certification will generate a more formal trail of qualifications for the individual, possibly leading to a greater probability of participation in education after the PLC ends. Indeed the most recent evidence from the Department of Education suggests that some 30 per cent of the group who graduated from their PLC in 1997 went on to additional further education. This in many respect mimics the possibilities introduced

by the UK government in the early 1990s with the National Vocational Qualification or NVQ. By allowing a cumulative build-up of NVQ levels by designated education routes problems such as early leaving of formal schooling can be overcome. From a public policy perspective this is an exciting and important development, and has the potential to overcome one of the primary causes of social exclusion at a time and pace that suits the student and with a focus that is tailored to suit the demands of the labour market.

One of the stark results in Chapter 4 relates to the differences between the outcomes for boys and girls. This premium in favour of the boys might suggest a mismatch between the sort of skills imparted by the programme and the specific needs of the labour market. Whether it is an oversupply of girls (primarily into areas such as community care, catering and secretarial) or an undersupply of boys (largely in IT and engineering) the differences in the returns is indicative of this mismatch. One policy implication might therefore be to ensure the PLC programmes on offer are clearly structured to meet specific labour market needs. However this mismatch might also be overcome by careful counselling of the students to ensure that females in particular are aware of the opportunities available to them in the labour market.

We present our analysis of the effects of temporary employment and training programmes in Chapter 5. Here we combine two individual-level data sets in order to assess the labour market impact of the range of training and temporary employment schemes. We track the post-programme labour market outcomes of participants using the *1996 FÁS Follow-up Survey*, designed to follow the progress of participants for a two year period after they left their programmes in 1994. We compare their outcomes with those of a comparison group drawn from the first and third waves of the annual longitudinal *Living in Ireland Survey*, collected in 1994 and 1996.

Our strongest conclusions relate to the impact of programmes on subsequent employment chances. Five of the fourteen programmes are found to significantly increase the employment chances of their participants, relative to non-participants, when other relevant factors are taken account of. These effective programmes include: the Employment Incentive Scheme; the Employment Subsidy Scheme; the Enterprise Allowance Scheme; Specific Skills Training and Job Training. Two additional programmes, Return to Work and Skills Foundation, were found to have positive employment effects, but these effects were at the margins of statistical significance. Programmes which display no positive employment effects include: Community Employment; Linked Work Experience; Community Youth Training; Community Workshops and Travelling Peoples' Workshops. We did however find that participation in Community Employment had a positive effect on women's subsequent employment chances, although not for men.

The analysis also investigates whether the estimated programme effects suffer from selection bias, which could result in

upwardly-biased estimates of the true effects of programmes. In relation to the three employment programmes (Employment Incentive Scheme, Employment Support Scheme and Enterprise Allowance), and two training programmes (Specific Skills and Job Training), which had consistently strong positive effects on employment prospects the analysis shows no evidence of sample selection bias.

The effects of programme participation on the wages of those at work two years later are quite limited. The analysis shows that participation in Specific Skills Training is associated with a significant increase in wages among participants although this effect appears to be confined to those previously unemployed for less than one year, but not the long-term unemployed, and to those aged over 25 years of age. It should be noted that the analysis is contingent on job acquisition, and thus compares only those who have been successful in achieving employment, and is limited to a comparison of wages among full-time workers. Nevertheless, the general pattern of findings suggests that the principal impact of effective programmes is to increase the employment chances of participants, rather than to enhance their earnings compared to non-participants who find work.

Earlier work (O'Connell, 1999, O'Connell and McGinnity, 1997) has shown that programmes with strong linkages to the labour market are more likely to enhance the employment prospects of their participants than programmes with weaker linkages. The general pattern of findings in the present study provides additional support for that argument. In particular, the five programmes found to significantly improve employment chances are characterised by strong market orientation. These include three employment schemes the Employment Incentive Scheme, the Employment Subsidy Scheme, and Enterprise Allowance, and two training schemes, Specific Skills Training and Job Training. The consistency in this pattern of findings over two research projects covering different time periods suggests that the superiority of programmes with strong market linkages applies across varying labour market conditions: that such programmes enhance their participants' prospects in good times as well as bad.

These findings have important implications for the structure and nature of current active labour market programme provision. By 1998 the three effective employment subsidies – Employment Incentive Scheme, Employment Subsidy Scheme, and the Enterprise Allowance programme – had all been abolished. This coincided with the expansion of the Back to Work Allowance (BtWA) schemes implemented by the Department of Social Community and Social Affairs. The BtWA schemes are also characterised by strong market linkages, and have proved successful in enabling transitions from unemployment to work, but, on the basis of an early assessment, appear less successful in promoting sustained employment due to high drop-out rates as social welfare support is progressively reduced over time (WRC Social and Economic Consultants, 1997). Both of the effective

training programmes also declined between 1994 and 1998: throughput in Specific Skills Training fell from 13,800 participants in 1994 to 11,500 in 1998, while that in Job Training fell from 2,619 to 1,213. Over the same period Community Employment expanded from a throughput of 32,700 in 1994 to over 54,000 in 1998. In 1994 Community Employment represented 36 per cent of total throughput in FÁS programmes for the unemployed. By 1998 this ratio had increased to over 60 per cent. However, the findings of the present study, as well as previous research on net labour market impact (O'Connell and McGinnity, 1997), shows this type of programme – a direct employment scheme with weak linkages to the market – is less effective in improving participants' employment prospects.

This evidence on the effectiveness of programmes and the shifts in the balance of provision must also be considered in the light of the dramatic improvement in labour market conditions, the marked decline in both total and long-term unemployment, and the emergence of labour shortages. The scale of ALMP provision in Ireland, relative to total unemployment is now exceptionally large. *Ireland's National Employment Action Plan, 2000* (Department of Enterprise and Employment, 2000) shows that in 1999, the 96,000 participants in ALMPs represented 108 per cent of total unemployment as measured by the *Quarterly National Household Survey*. Current participants in Community Employment alone represented 44 per cent of total unemployment. Training, of which skills training accounts for less than half, represented less than 15 per cent of total unemployment. It should be acknowledged that one of the beneficial outcomes of the Medium-term Review of the CSF, implemented in the FÁS Action Plan on Long-Term Unemployment, has been that participation of the long-term unemployed on skills training programmes increased from 11 per cent in 1998 to 22 per cent in 1999. However, in absolute terms, this means that on the basis of 1998 throughput levels, the numbers of long-term unemployed accessing skills training increased from about 1,300 to 2,600 individuals.

The findings on the relative effectiveness of programmes must be interpreted with some caution. In particular, the finding that several programmes have no discernible impact on subsequent employment chances should not necessarily be interpreted to suggest they are of no value and should be abolished. For many of the disadvantaged unemployed their educational qualifications or skills may be so inadequate that participation in, for example, the Community Employment programme may offer the only hope of eventual re-integration into the labour market. It should also be acknowledged that a great deal of socially useful and valuable work has been accomplished by the activities funded by Community Employment. Our focus here, however, is confined to the interests of participants and our findings show that participation in such programmes is in itself unlikely to significantly improve the job prospects of participants unless it is followed by progression to effective schemes which do improve

employment prospects. This suggests the need for reintegration paths designed to allow the long-term unemployed and socially excluded to progress through a series of programmes tailored to their particular needs. Such reintegration paths might begin with programmes characterised by low employment effects, but if they are to be effective, must end in a training or employment programme with high net placement rates.

The dramatic decline in total and long-term unemployment and the growth of labour shortages means that many of the short-term unemployed can not be expected to find work on the basis of their own resources, and those that have difficulties are already targeted under the activation programme implemented under the Irish Employment Action Plan. Those remaining long-term unemployed, however, tend to suffer particularly severe disadvantages which reduce their capacity to compete for work (NESF, 2000). These changes in the labour market suggest the need for a strategic re-orientation of ALMP provision. The essential elements of such a re-orientation would entail: (1) Development of reintegration paths for the long-term unemployed and other socially excluded groups leading to effective programmes with strong linkages to the labour market. Given the educational and skills disadvantages from which many of the long-term unemployed suffer, this would entail some restructuring of programme provision, including the development of intermediate-level skills training programmes to facilitate progression to more advanced training in employable skills. (2) Continue the policy of gradually reducing numbers in Community Employment and use the freed resources to expand the provision of effective training programmes with strong market linkages. Such programmes have been shown to enhance their participants' labour market prospects, and they could also, moreover, carry the additional advantage of alleviating skill and labour shortages in the booming labour market. (3) Increase opportunities for the long-term unemployed to participate in specific skills training programmes. This would entail a continuation of the policy of increasing rates of participation by the long-term unemployed already implemented under the FÁS Action Plan on Long-Term Unemployment, but would entail a substantial expansion in the absolute numbers to benefit from the programme. Such a reorientation, targeting ALMP resources exclusively and intensively on the most disadvantaged in the labour market, while allowing market forces to absorb younger relatively short-term unemployed, could serve both equity and efficiency goals – combating social exclusion, ensuring a more efficient investment of public resources, and alleviating labour shortages in the booming economy.

REFERENCES

- ABT ASSOCIATES, 1993. *Longitudinal Study of Training Impacts for the Job Entry and Job Development Programs*. Canada: Human Resources Development.
- ASHENFELTER O., C. HARMON and H. OOSTERBEEK, 1999. "A Review of the Schooling/Earnings Relationship with Tests for Publication Bias", Economics Department Working Paper 99/21, University College Dublin, forthcoming *Labour Economics*, December 1999.
- AXELSSON, R., 1989. "Svensk Arbetsmarknadsutbildning en Kvantitativ Analys av Dess Effekter." PhD Thesis. Department of Economics, University of Umeå.
- BARRETT, A., T. CALLAN, B. NOLAN, 1999. "Returns to Education in the Irish Youth Labour Market." *Journal of Population Economics*, Vol. 12, pp. 313-326.
- BASSI, L., 1984. "Estimating the Effect of Training Programs with Non-random Selection", *Review of Economics and Statistics*, Vol. 66, pp. 36-43.
- BECKER, H., 1975. *Human Capital*, New York: Columbia University Press.
- BELLMAN, L., and R. JACKMAN, 1996. "The Impact of Labour Market Policy on Wages, Employment and Labour Market Mismatch", in G. Schmid, J. O'Reilly, and K. Schömann, (eds.), *International Handbook of Labour Market Policy and Evaluation*, pp. 725-746, Cheltenham, UK: Edward Elgar.
- BJÖRKLUND, A., 1993. "The Swedish Experience", in K. Jensen, and P.K. Madsen, (eds.), *Measuring Labour Market Measures*, pp. 243-264, Copenhagen: Ministry of Labour.
- BJÖRKLUND, A., and H. REGNER, 1996. "Experimental Evaluation of European Labour Market Policy", in G. Schmid, J. O'Reilly, and K. Schömann, (eds.), *International Handbook of Labour Market Policy Evaluation*, pp. 89-114, Cheltenham, UK: Edward Elgar.
- BLOOM, H., 1994. *The National JTPA Study: Overview of Impacts, Benefits, and Costs of Title II-A*. Canada: Abt. Associates.
- BREEN, R., 1996. *Regression Models: Censored, Sample-Selected, or Truncated Data*, London: Sage.
- BREEN, R., 1991. *Education, Employment and Training in the Youth Labour Market*, General Research Series No. 152, Dublin: The Economic and Social Research Institute.
- BREEN, R., and B. HALPIN, 1989. *Subsidising Jobs: An Evaluation of the Employment Incentive Scheme*, General Research Series No. 144, Dublin: The Economic and Social Research Institute.
- BREEN, R., D. HANNAN and R O'LEARY, 1995. "Returns to Education: Taking Account of Employers' Perceptions and Use of Educational Credentials", *European Sociological Review*, Vol. 11, No. 1, pp. 59-73
- BURTLESS, G., 1985. "Are Targeted Wage Subsidies Harmful? Evidence from a Wage Voucher Experiment", *Industrial and Labor Relations Review*, Vol. 39, No.1, pp. 105-114.
- CALLAN, T., and C. HARMON, 1999. "The Economic Returns to Schooling in Ireland", *Labour Economics*, Vol. 6, No. 4.
- CALLAN, T., B. NOLAN, B.J. WHELAN, C.T. WHELAN, and J. WILLIAMS, 1996. *Poverty in the 1990s: Evidence from the Living in Ireland Survey*. General Research Series No. 170. Dublin: Oak Tree Press in association with ESRI and Combat Poverty Agency.
- CALLAN, T., and A. WREN, 1994. *Male-Female Wage Differentials: Analysis and Policy Issues*, General Research Series No. 163. Dublin: The Economic and Social Research Institute.

- CALMFORS, L., 1994. "Active Labour Market Policy and Unemployment – A Framework for the Analysis of Crucial Design Features", *OECD Economic Studies*, Vol. 22, pp. 7-47. Paris: OECD.
- CALMFORS, L., and H. LANG, 1995. "The Macroeconomic Effects of Active Labour Market Policy in a Union Wage-Setting Model", *The Economic Journal*, Vol. 105, No. 430, pp. 601-619.
- CARD, D., 1988. "The Causal Effect of Education on Earnings" in O. Ashenfelter, and D. Card, (eds.), *Handbook of Labor Economics* Vol 3A. London: Elsevier.
- CARD, D., and D. SULLIVAN, 1988. "Measuring the Effect of Subsidised Training Programmes on Movements in and out of Employment", *Econometrica*, Vol. 56, pp. 497-530.
- CLANCY, P., 1995. *Access to College: Patterns of Continuity and Change*, Dublin: Higher Education Authority.
- COHN, E. and J.T. ADDISON, 1997. *The Economic Returns to Lifelong Learning*, Working Paper B-97, Division of Research, University of South Carolina College of Business Administration.
- COLLINS, R., 1979. *The Credential Society: An Historical Sociology of Education and Stratification*. New York: Academic Press.
- COUCH, K.A., 1992. "New Evidence on the Long-Term Effects of Employment Training Programs", *Journal of Labour Economics*, Vol. 10, No. 4, pp. 380-388.
- DECKER, P., and W. CORSON, 1995. "International Trade and Worker Displacement: Evaluation of the Trade Adjustment Assistance Program", *Industrial and Labour Relations Review*, Vol. 48, No 4.
- DE KONING, J., 1993. "Measuring the Placement Effects of Two Wage-Subsidy Schemes for the Long-Term Unemployed", *Empirical Economics*, Vol. 18, pp. 447-468.
- DELOITTE and TOUCHE and ESRI, 1998. "Study on Labour Market Impact of Human Resources (Education and Training) Interventions in CSF: Interim Report." Dublin: Deloitte and Touche.
- DELOITTE and TOUCHE and A. MURPHY, 1998. "Review of Community Employment Programme: Final Report", Dublin: Department of Enterprise, Trade and Employment.
- DENNY, K. and C. HARMON, 1999. "Testing for Sheepskin Effects in Earnings Equations: Evidence for Five Countries", Economics Department Working Paper 99/21, University College Dublin.
- DEPARTMENT OF EDUCATION AND SCIENCE, 2000. *Statistical Report: 1997/98*. Dublin: Stationery Office.
- DEPARTMENT OF ENTERPRISE AND EMPLOYMENT, 1996. *Growing and Sharing our Employment: Strategy Paper on the Labour Market*, Dublin: Stationery Office.
- DEPARTMENT OF ENTERPRISE, TRADE AND EMPLOYMENT, 2000. *Ireland's National Employment Action Plan*. Dublin: Department of Enterprise, Trade and Employment.
- DOLTON, P., G. MAKEPIECE and J. TREBLE, 1994. "The Youth Training Scheme and the School-to-Work Transition", *Oxford Economic Papers*, Vol. 46, pp. 629-657.
- DUGGAN, D., G. HUGHES, and J.J. SEXTON, 1997. *Occupational Employment Forecasts 2003*. FÁS/ESRI Manpower Forecasting Studies, No. 6. Dublin: The Economic and Social Research Institute.
- ERHEL, C., J. GAUTIE, B. GAZIER and S. MOREL, 1996. "Job Opportunities for the Hard-to-place", in G. Schmid, J. O'Reilly and K. Schömann, (eds.), *International Handbook of Labour Market Policy Evaluation*, pp. 277-307, Cheltenham, UK: Edward Elgar.
- EUROPEAN SOCIAL FUND PROGRAMME EVALUATION UNIT, 1998. *ESF and the Long Term Unemployed*. Dublin: European Social Fund Evaluation Unit.

- FAY, R., 1996, *Enhancing the Effectiveness of Active Labour Market Policies: Evidence from Programme Evaluations in OECD Countries*, Paris: OECD.
- FELSTEAD, A., 1994. *Funding Government Training Schemes: Mechanisms and Consequences*, Leicester: Centre for Labour Market Studies.
- FRIEDLANDER, D., D. GREENBERG and P. ROBINS, 1997. Evaluating Government Training Programmes for the Economically Disadvantaged." *Journal of Economic Literature*, Vol. XXXV, pp. 1809-1855.
- GOODBODY ECONOMIC CONSULTANTS, 1997. *Mid-Term Evaluation of the Human Resources Development Operational Programme 1994-1999*. Dublin: Goodbody Economic Consultants.
- GREEN, W., 1991. *LIMDEP Version 6.0: Users Manual and Reference Guide*. Bellport, NY: Econometric Software Inc.
- HANNAN, D., B. McCABE, and S. McCOY, 1998. *Trading Qualifications for Jobs: Overeducation and the Irish Youth Labour Market*. General Research Series No. 173. Dublin: Oak Tree Press in association with ESRI.
- HARMON, C., and I. WALKER, 1995. "Estimates of the Return to Schooling for the United Kingdom", *American Economic Review*, Vol. 85, pp. 1278-1286.
- HAVEMAN, R., and R. HOLLISTER, 1991. "Direct Job Creation: Economic Evaluation and Lessons for the U.S.A. and Western Europe", in A. Björklund, R. Haveman, R. Hollister and B. Holmlund, (eds.), *Labour Market Policy and Unemployment Insurance*, pp. 5-100, Oxford: Clarendon Press.
- HECKMAN, J., 1976. "The Common Structure of Statistical Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for Such Models" *Annals of Economic and Social Measurement*, Vol. 5, pp. 475-492.
- HECKMAN, J., 1979. "Sample Selection Bias as a Specification Error", *Econometrica*, Vol. 47, pp. 153-161.
- HECKMAN, J., and G. BORJAS, 1980. "Does Unemployment Cause Future Unemployment? Definitions, Questions and Answers from a Continuous Time Model of Heterogeneity and State Dependence," *Economica*, Vol. 47, pp. 247-283.
- HECKMAN, J. and R. ROBB, 1986. "Alternative Identifying Assumptions in Econometric Models of Selection Bias", *Advances in Econometrics*, Vol. 5, pp. 243-287.
- HECKMAN, J. and J. SMITH, 1996. "Experimental and Nonexperimental Evaluation", in G. Schmid, J. O'Reilly, and K. Schömann, (eds.), *International Handbook of Labour Market Policy Evaluation*, pp. 37-88, Cheltenham, UK: Edward Elgar.
- HONOHAN, P., (ed.), 1997. *EU Structural Funds in Ireland: A Mid-Term Evaluation of the CSF 1994-1999*, Policy Research Series No. 31. Dublin: The Economic and Social Research Institute.
- HUGHES, G, J. McCORMICK and J.J. SEXTON, 2000. *Occupational Employment Forecasts 2005*, FÁS/ESRI Manpower Forecasting Studies, Report No. 8. Dublin: The Economic and Social Research Institute.
- HUMAN RESOURCES DEVELOPMENT CANADA, 1995. *Evaluation of the Improvement Program*, Canada: Human Resources Development.
- JACKMAN, R., C. PISSARIDES and S. SAVOURI, 1990. "Labour Market Policies and Unemployment in the OECD", *Economic Policy*, No. 11, pp. 449-490.
- JACOBSON, L., R. LALONDE, D. SULLIVAN, and R. BEDNARZIK, 1994. "Returns to Classroom Training of Displaced Workers", Paper presented at CERF Workshop on Displaced Workers and Policy Responses, Montreal, Quebec: Université du Québec.

- JANOSKI, T., 1990. *The Political Economy of Unemployment: Active Labour Market Policy in West Germany and the United States*, Berkeley, California: University of California Press.
- JENSEN, P., P. PEDERSEN, N. SMITH and N. WESTERGARD-NIELSEN, 1990. "Measuring the Effects of Labour Market Training Programmes", mimeo, Department of Economics, University of Aarhus.
- JOHNES, G., 1998. "Human Capital Versus Sorting: New Data and a New Test", *Applied Economic Letters*, Vol. 5, pp. 665-667
- JONES, I., 1988. "An Evaluation of YTS", *Oxford Review of Economic Policy*, Vol 4, No. 3, pp. 54-71.
- KORPI, T., 1994. "Employment Stability following Unemployment: Evidence of the Effect of Manpower Programmes among Youth", in *Escaping Unemployment: Studies in the Individual Consequences of Unemployment and Labour Market Policy*, Stockholm: Swedish Institute for Social Research.
- LALONDE, R., 1995. "The Promise of Public Sector-Sponsored Training Programmes". *Journal of Economic Perspectives*, Vol. 9, No. 2, pp. 149-168.
- LALONDE, R., 1986. "Evaluating the Econometric Evaluations of Training Programmes with Experimental Data", *American Economic Review*, Vol. 76, pp. 604-620.
- LAYARD, R. and S. NICKELL, 1986. "Unemployment in Britain", *Economica*, Vol. 53, No. 210(S), pp. S121-S170.
- LEE, L.F., 1983. "Generalized Econometric Models with Selectivity", *Econometrica*, Vol. 51, No. 2, pp. 507-512.
- LYNCH, K. and C. O'RIORDAN, 1996. *Social Class, Inequality and Higher Education*, Equality Studies Centre, Dublin: University College.
- MADALA, G.S., 1983. *Limited-dependent and Qualitative Variables in Econometrics*. Cambridge: Cambridge University Press.
- MAIN, B., and M. SHELLY, 1990. "The Effectiveness of the Youth Training Scheme as a Manpower Policy", *Economica*, Vol. 57, pp. 495-514.
- MAKEHAM, P., 1980. *Youth Unemployment*, Research Paper No. 10, Department of Employment, London: Department of Employment.
- METCALF, H., 1992. "Hidden Unemployment and the Labour Market", in E. McLaughlin, *Understanding Unemployment: New Perspectives on Active Labour Market Policies*, pp. 160-180, London: Routledge.
- MINCER, J., 1974. *Schooling, Experience and Earnings*. New York: Columbia University Press.
- McCOY, S., and B.J. WHELAN, 1996. "The Economic Status of School Leavers 1993-1995", Dublin: Department of Education/The Economic and Social Research Institute.
- NESF, 2000. *Enhancing the Effectiveness of the Local Employment Service*, Forum Report No. 17, Dublin: National Economic and Social Forum.
- NIESR, 1993. *Educational Provision, Educational Attainment, and the Needs of Industry*. London: National Institute of Economic and Social Research.
- OECD, 1996. *Employment Outlook*, July, Paris: OECD.
- OECD, 1995. *Employment Outlook*, July, Paris: OECD.
- OECD, 1994. *The OECD Jobs Study: Part II: The Adjustment Potential of the Labour Market*, Paris: OECD.
- OECD, 1993. "Active Labour Market Policies: Assessing Macroeconomic and Microeconomic Effects", *Employment Outlook*, July, Paris: OECD.
- OECD, 1991. *Evaluating Labour Market and Social Programmes: The State of a Complex Art*, Paris: OECD.
- OECD, 1990. *Labour Market Policies for the Nineties*, Paris: OECD.

- OECD, 1988. *Measures to Assist the Long-term Unemployed: Recent Experiences in Some OECD Countries*, Paris: OECD.
- O'CONNELL, P.J., 1998. "Spending Priorities in Labour Market Programmes for the Unemployed" in T. Callan (ed.), *Budget Perspectives*. Dublin: The Economic and Social Research Institute.
- O'CONNELL, P.J., 1999a. "Sick Man or Tigress? The Labour Market in the Republic of Ireland" in R. Breen, A. Heath and C. Whelan (eds.), *Ireland, North and South*. Oxford: The British Academy and Oxford University Press.
- O'CONNELL, P.J., 1999b. *Astonishing Success: Economic Growth and the Labour Market in Ireland*, International Labour Office, Employment and Training Papers, No. 44. Geneva: International Labour Office.
- O'CONNELL, P.J., 1999c. "Are They Working? Market Orientation and the Effectiveness of Active Labour Market Programmes in Ireland", ESRI Working Paper No. 105. Dublin: The Economic and Social Research Institute.
- O'CONNELL, P.J. and M. LYONS, 1995. *Enterprise-Related Training and State Policy in Ireland: The Training Support Scheme*, Policy Research Series Paper No. 25, Dublin: The Economic and Social Research Institute.
- O'CONNELL, P.J., and F. MCGINNITY, 1997a. *Working Schemes: Active Labour Market Policies in Ireland*, Aldershot: Ashgate.
- O'CONNELL, P.J., and F. MCGINNITY, 1997b. "What Works, Who Works? The Employment and Earnings Effects of Active Labour Market Programmes among Young People in Ireland", *Work, Employment and Society*, Vol. 11, No. 4.
- O'CONNELL, P.J., and F. MCGINNITY, (forthcoming). "Active Labour Market Policies, Market Orientation, and Gender: Findings for Young People in Ireland", in P. O'Connell and K. Schömann (eds.), *Education, Training and Employment Dynamics Transitional Labour Markets in the European Union*, Edward Elgar.
- O'CONNOR, P.J., and S. SHORTALL, 1999. "Does the Border Make a Difference? Variations in Women's Paid Employment North and South", in R. Breen, A. Heath, and C.T. Whelan (eds.) *Ireland, North and South*, Oxford: The British Academy and Oxford University Press.
- O'HIGGINS, N., 1994. "YTS, Employment and Sample Selection Bias", *Oxford Economic Papers*, Vol. 46, pp. 605-628.
- PARK, N., W. RIDDELL and R. POWER, 1993. *An Evaluation of UI-Sponsored Training*, Ottawa, Canada: Human Resources Development Canada Ltd.
- PAYNE, J., 1990. *Adult Off-the-Job Skills Training*, Training Agency Research and Development Series No. 57, Sheffield: The Training Agency.
- PAYNE, J., S. LISSENBURGH, M. WHITE and C. PAYNE, 1996. *Employment Training and Employment Action: An Evaluation by the Matched Comparison Method*, Department for Education and Employment Research Series No. 74, Sheffield: Department for Education and Employment.
- RAAUM, O., H. TORP, and H. GOLDSTEIN, 1995. *Employment Effects of Labour Market Training in Norway*, Memorandum No. 8, Oslo: Department of Economics, University of Oslo.
- REGNÉR, H., 1997. *Training at the Job and Training for a New Job: Two Swedish Studies*. Swedish Institute for Social Research Dissertation Series, No. 29. Stockholm: Swedish Institute for Social Research.

- SCHMID G., J. O'REILLY and K. SCHÖMANN, 1996. "Theory and Methodology of Labour Market Policy and Evaluation: An Introduction", in G. Schmid, J. O'Reilly and K. Schömann, (eds.), *International Handbook of Labour Market Policy and Evaluation*, pp. 1-33, Cheltenham, UK: Edward Elgar.
- SEXTON, J.J. and P.J. O'CONNELL, 1976. *Labour Market Studies: Ireland*. Luxembourg: European Commission.
- SEXTON, J.J., B.J. WHELAN and J.A. WILLIAMS, 1988. *Transition from School to Work and Early Labour Market Experience*, General Research Series No. 141, Dublin: The Economic and Social Research Institute.
- SHACKLETON, J.R., 1995, *Training for Employment in Western Europe and the United States*, Aldershot: Edward Elgar.
- SILLES, M., 1998. "Early Labour Market Choices: Empirical Evidence From The School Leavers Survey". MA Thesis, Department of Economics, University College Dublin.
- TAMÁS, A., A. HARKMAN, and F. JANNSON, 1995. "The Effect of Vocationally Oriented Employment Training on Income and Employment", Sweden: Arbetsmarknadsstyrelsen.
- THUROW, L., 1975. *Generating Inequality: Mechanisms of Inequality in the US Economy*, London: Macmillan.
- TORP, H., 1994. "The Impact of Training on Employment: Assessing a Norwegian Labour Market Programme", *Scandinavian Journal of Economics*, Vol. 96, No. 4, pp. 531-550.
- TORP, H., O. RAAUM, E. HERNAES and H. GOLDSTEIN, 1993. "The First Norwegian Experiment", in K. Jensen and P.K. Madsen, (eds), *Measuring Labour Market Measures*, pp. 97-140, Copenhagen: Ministry of Labour.
- TUSSING, A.D., 1978. *Irish Educational Expenditures – Past, Present and Future*. General Research Series No. 92. Dublin: The Economic and Social Research Institute.
- US DEPARTMENT OF LABOR, 1995, *What's Working (and what's not): A Summary of Research on the Economic Impacts of Employment and Training Programs*. Washington D.C.: General Publications Office.
- VELLA, F., 1998. "Estimating Models with Sample Selection Bias". *Journal of Human Resources*, Vol. 33, No. 1, pp. 127-169.
- WALSH B., and B.J. WHELAN, 1976. "A Microeconomic Study of Earnings in Ireland", *The Economic and Social Review*, Vol. 7, No. 2, pp. 199-207.
- WATSON, D., 1996. "1996 Follow-Up of Participants in FÁS Courses or Schemes: Technical Notes and Tabular Analysis of Data." Report to FÁS. Dublin: The Economic and Social Research Institute.
- WHELAN, C.T., and D. HANNAN, 1999. "Class Inequalities in Educational Attainment among the Adult Population in the Republic of Ireland", *The Economic and Social Review*, Vol. 30, No. 3, pp. 285-307.
- WHIFIELD, K., and C. BOURLAKIS, 1991. "An Empirical Analysis of YTS, Employment and Earnings", *Journal of Economic Studies*, Vol. 18, No. 1, pp. 42-56.
- WINSHIP, C. and R. MARE, 1992. "Models for Sample Selection Bias", *Annual Review of Sociology*, Vol. 18, pp. 327-350.
- WRC SOCIAL AND ECONOMIC CONSULTANTS, 1997. *Developing Active Welfare Policy: An Evaluation of the Back to Work Allowance Scheme*, Dublin: Department of Social, Community and Family Affairs and WRC Social and Economic Consultants.
- WRC SOCIAL AND ECONOMIC CONSULTANTS, 1994. *An Evaluation of VTOS*, Dublin: WRC Social and Economic Consultants and Department of Education and Science.

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