

Policy Research Series

PAPER NO. 25

MAY, 1995

ENTERPRISE-RELATED TRAINING AND STATE POLICY IN IRELAND: THE TRAINING SUPPORT SCHEME

Philip J. O'Connell and Maureen Lyons



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Erratum

Page 14:

Table 1.1:

Total expenditure for 1994-99 should read £50.5m (not £62.5)

% increase in total expenditure is 75% (not 115%)

Text following Table 1.1 should read:

"....the budget is expected to increase by 75 per cent..."

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Dr. Philip J. O'Connell is a Research Officer with the ESRI. Maureen Lyons is a former Research Assistant at the ESRI and is now studying for her Ph.D. at the Queen's University of Belfast. The paper has been accepted for publication by the Institute, which is not responsible for either the content or the views expressed therein.

***ENTERPRISE-RELATED TRAINING
AND STATE POLICY IN IRELAND:
THE TRAINING SUPPORT SCHEME***

Philip J. O'Connell and Maureen Lyons

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DUBLIN, 1995

ISBN 0 7070 0160 9

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Acknowledgements

This study arises out of a survey commissioned by FÁS, the Training and Employment Authority, to investigate the utilisation and impact of the Training Support Scheme.

The authors would like to acknowledge the assistance of a great many people without whom the present study could not have been completed. Brendan Whelan provided invaluable assistance and expert advice in designing the survey and drawing the sample. We are grateful to the FÁS personnel, particularly John McGrath, who assisted us with the design of the questionnaire and provided us with the database to draw the sample. Siobhan Leigh-Doyle and Jerry Sexton helped with the design of the survey and questionnaire. The Survey Unit at the Institute took over the fieldwork and data processing with their usual efficiency. We are particularly grateful to all the respondents who took the time to complete our detailed questionnaire.

We received encouragement and valuable comments on earlier drafts from our ESRI colleagues, particularly Kieran Kennedy, Brian Nolan, Jerry Sexton, and Christopher Whelan, and from Roger Fox and John McGrath at FÁS. Mary McElhone and Deirdre Whitaker shepherded the manuscript through editing, Phil Browne through desk top publishing, and Pat Hopkins through reproduction, each with their customary mix of good humour and professionalism.

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GENERAL SUMMARY

Education and training policies have received increasing attention in recent years with the recognition that human resources – the skills and competencies of the work-force – are crucial to raising productivity, enhancing competitiveness, and increasing wages and living standards. In Ireland, as in most countries, the bulk of State support for human resource development is allocated to initial education and training – prior to entry to the labour force – and to the training and retraining of unemployed workers. This concentration of public support is appropriate because of the need both to ensure that all citizens have sufficient education to participate fully in the society and economy and to produce a skilled work-force. Training of unemployed workers is driven by the perception that they lack the resources to secure training for themselves. Enterprise-related training is a key element of human resources development but is generally regarded as the responsibility of the private sector since the returns to training of workers accrue largely to private actors – employers and workers. State intervention to promote enterprise-related training is, therefore, generally limited to measures to correct for market failures which result in levels of training which fall short of socially desirable levels.

This study has two objectives. First, it examines the incidence of training activity in Ireland and seeks to assess the extent of skill deficiencies in the Irish work-force. The study concludes that Ireland suffers from deficiencies in both qualifications and skills when compared to leading industrial countries. A relatively large proportion of the adult population has low educational qualifications, representing a poor basis for further education and training. There is evidence of a skills gap at operative, supervisory and management levels, particularly in smaller indigenous firms, which adversely affects productivity, competitiveness and prospects of economic growth. The level of training of employees is lower than the European average and is, therefore, unlikely to be sufficient to bridge the deficiencies in qualifications and skills.

The study also argues that the empirical information on enterprise-related training in Ireland is quite limited and it outlines the research priorities needed to provide basic information essential to policy formulation in the area.

Second, the study evaluates the impact of the Training Support Scheme, a State programme initiated in 1990 to promote training in small and medium enterprises through the provision of training grants, and implemented by FÁS, the Training and Employment Authority. The central issue in the evaluation is the extent to which the TSS was successful in bringing about an increase in the level of formal training of workers in Irish enterprises.

The evaluation is based on a survey which collected detailed information on the training activities of a sample of 323 firms which participated in the TSS in 1992 and a comparison group of 116 firms which did not participate in the scheme. The survey was commissioned by FÁS. The study found that TSS-aided firms engaged in substantially more training than did non-participant firms. The greater level of training found among TSS-aided firms was most pronounced among small firms with less than 20 employees, while among large firms the differences between aided and unaided firms were not significant, suggesting that the effects of the scheme were greatest among small firms. Multivariate analysis of the effects of participation confirmed this: when we controlled for those factors which are expected to influence the level of training independent of participation in the scheme, the net effect of the TSS in stimulating an increase in training was confined to small firms (with less than 20 employees), while its effect in larger firms was marginal. This suggests that there is a high element of deadweight in the scheme and that for larger firms the TSS resulted in a subsidy to training which would have been undertaken without State aid.

The study concludes that greater targeting of grant aid towards smaller firms would reduce its deadweight while enhancing its impact in promoting a greater overall level of training. Since small firms were found to be more likely to use TSS aid to support training of managerial, supervisory and professional occupations, greater targeting of small firms should have the additional effect of altering the balance of training in favour of these occupations. The study notes that changes in the administration of the scheme introduced since 1992 – providing a premium grant rate for very small firms (with less than 12 employees) and reserving 50 per cent of the total budget for firms with less than 50 employees – are likely to enhance the impact of the scheme in promoting a greater level of training among firms which are least likely to conduct training if left to their own devices.

Chapter 1

INTRODUCTION: ENTERPRISE-RELATED TRAINING AND THE STATE

1.1 Introduction

In recent years education and training policies have received increasing attention with the recognition that human resources – workers' skills, capabilities and competencies – are key to increasing productivity. Productivity growth, particularly at a time of international product market integration and rapid technological, economic and occupational change, is key to maintaining wages and living standards. The Commission of the European Union now accords a strategic role to investment in vocational education and training in maintaining Europe's external competitiveness and maintaining its living standards, in ameliorating existing regional differences in living standards within Europe, and in combating unemployment. Similarly, the Irish *National Development Plan, 1994-99* (Government of Ireland, 1993) identifies the development of human resources as central to the achievement of both higher living standards and increased employment.

Nevertheless, enterprise-related training has been neglected in Ireland. The general consensus of recent evidence on the training of those at work in Ireland is that there is a significantly lower incidence of formal training of employees in Ireland compared with more advanced European countries, and that Irish firms suffer from a deficiency of skills when compared with best international practice. A recent National Economic and Social Council (NESC) report concluded that "the current labour force has low levels of qualifications and is weak in management skills. It is thus not well prepared for the sweeping changes in the economic environment which have been facing us over the past decade." (NESC, 1993a, p. 224).

This study has two objectives. First, it examines the incidence of training activity in Ireland and seeks to assess the extent and nature of skill deficiencies in the Irish workforce. Second, it evaluates the impact of the Training Support Scheme, a State programme initiated in 1990 to encourage and promote training in small and medium enterprises through the provision of grant aid to companies to

purchase training in the market. The evaluation is based on a survey of the training activities of firms in Ireland in 1992. The principal objective of the survey was to evaluate the impact of the programme in increasing the quantity of training among Irish companies.

In this chapter we first discuss issues in the economics of training, reviewing the evidence on the linkages between vocational education and training and economic performance, explaining why firms and individuals may under-invest in training, and exploring why and how States intervene in the training market. We then examine State policies to support enterprise-related training in Ireland, focusing in particular on the Training Support Scheme. We conclude the chapter with a discussion of the issues to be addressed in the evaluation of the Training Support Scheme.

Chapter 2 presents a brief review of educational qualifications, workforce skills and training in Ireland and compares Irish performance with international standards. Chapter 3 explores the methodological issues entailed in the evaluation of State training policies and describes the survey of firms on which the analyses are based. Chapter 4 compares TSS-aided firms with the sample of companies which did not participate in the scheme – a comparison which is central to the evaluation of the impact of the TSS. Chapter 5 presents a summary of the main findings and policy issues arising from them. Appendix 1 presents selected summary data on the sample of TSS-aided firms. Appendix 2 contains the questionnaire from the survey.

1.2 The Economics of Training

1.2.1 The Benefits of Training

Education and training, by enhancing the skills and competencies of workers, and thus increasing their productivity, is widely believed to confer benefits on individuals, enterprises and national economies. The weight of empirical evidence from the international literature supports this general assertion of positive returns to investment in education and training, or human capital, although there is some disagreement both on the mechanisms through which training confers benefits, and some cross-national variation on precisely what kinds of education and training generate increased living standards and economic growth.

Individual benefits

At the level of the individual, the positive effects of education and training, measured in terms of both employment prospects and earnings is well established. First, there is a substantial body of evidence to suggest that there is a strong and positive relationship between educational attainment and employment, and that unemployment is significantly higher among those with poor educational attainments both in the international literature (OECD, 1994) and in Irish research

(Breen, 1991; NESO, 1993a and 1993b; Hannan and O'Riain, 1993). Second, those with higher educational attainments tend to earn more. This link between education and income is well established in the empirical literature, both internationally (e.g., Blau and Duncan, 1967; Mincer, 1974; Sewell and Hauser, 1975; Johnes, 1993) and in Ireland (Breen and Hannan, forthcoming; Callan, 1993). Third, enterprise-related training has been found to yield wage gains for workers in a number of countries (e.g., Barron, Black, and Loewenstein, 1989; Mincer, 1988; Groot, Hartog and Oosterbeck, 1994), although such research has not been conducted in Ireland.

Alternative theoretical approaches challenge the contribution of human capital to economic growth, arguing that education determines the individual's place in the labour queue, that education is used as a signal of ability used by employers in recruiting workers, or is part of a status competition game (Berg, 1970; Stiglitz, 1975; Collins, 1979). These interpretations are not inconsistent with the evidence on positive returns to the individual, but they do challenge the assumption that private returns to education (or training) necessarily translate into enhanced performance of the enterprise or to growth at the level of the economy as a whole.¹

Macro-level benefits

At the macro-economic level, education and training are held to improve the skills and productive capacities of the workforce, thus raising productivity, enhancing competitiveness, increasing output and income throughout the economy as a whole (Becker, 1975), although the nature of the linkage between human capital and growth is a matter of debate, and there has been a renewal of research in the topic in recent years. Early empirical tests of the macro-level relationship, based on the growth accounting approach, suggested that increases in output over the past century cannot be fully accounted for by increases in capital and labour inputs alone, suggesting that some of the residual, or unexplained, growth must be due to increases in the quality of inputs, including the quality of human capital (e.g., Denison, 1979). More recently, exogenous growth theories have turned their attention to explaining the residual in the growth accounting framework, emphasising externalities such as interactions between levels of education and investment in research and development and in physical capital (Romer, 1986) or externalities associated with the effects of concentrations of highly skilled workers whose productivity is enhanced by exchanging ideas and learning from others (Lucas, 1988).

¹ If educational attainment is used as a screening device to measure, for example, job applicants' "innate abilities", rather than their skills and competencies, then the private returns may be similar, but human capital is not then enhancing performance by increasing skills.

In the international literature most empirical studies have found a positive relationship between educational levels and aggregate productivity or economic growth (Barro, 1991; Mankiw, Romer and Weil, 1992; Psacharopoulos, 1994). Psacharopoulos (1994), in a review of the empirical research, argues that the macro-economic returns to schooling decline both with level of education and by a country's level of development: the highest returns are found for primary education in less developed economies. Walsh (1993) examines the contribution of human capital accumulation to economic growth in the Irish case, and finds that the high rate of investment in human capital has not yielded the expected growth performance. Walsh attributes the low returns to investment in education in Ireland to ineffective utilisation of human capital, but his findings should serve to alert us to the complexities involved in the relationship between human capital and economic performance. More generally, while the empirical research provides support for the general thesis that the skills and competencies of the workforce are important to economic performance, it must be recognised that the cross-national research is typically based on crude measures of human capital (e.g., enrolment rates in education) and that such research is not sufficiently sensitive to determine which types of education or training are most likely to generate economic growth.

Benefits to the Enterprise

Quantitative empirical evidence on the contribution of training to performance at the level of the enterprise is limited, but most research suggests that training improves the productivity of firms as well as leading to higher earnings for trained employees (as discussed above). Bartel (1992) found that training leads to increases in productivity of the order of 17 per cent in US firms. Bishop (1994) found that on-the-job training had a positive short-term impact on productivity, but that its impact declined over time, and it had no impact on employee earnings. However, he found that off-the-job training raised productivity by 16 per cent. Barron *et al.* (1989) found that training resulted in productivity gains that were twice as large as wage gains. An OECD (1994) review of this literature concluded that "the pay-off [from training] to firms, net of the wage gain, is about the same size as that to employees." We are not aware of any statistical research to examine the contribution of enterprise-related training to performance in the Irish case.

An influential series of qualitative studies conducted by researchers at the National Institute of Economic and Social Research in London throw further light on the relationship between training, skills and productivity. These "matched plant" studies compare productivity in enterprises of similar size and product market sector in different countries. Controlling for differences in physical capital, raw materials, and organisation of work, these studies attribute productivity differentials between British and German enterprises to workforce training,

qualifications and skills (Steedman and Wagner, 1987, 1989; Prais and Wagner, 1988). These studies suggest that the greater skill levels of German workers result in greater flexibility in production, higher production quality, reduced down-time due to machine breakdown and poor maintenance, and more efficient organisation of work. Similar "matched plant" studies have compared Irish firms with those in Northern Ireland, Britain and Germany, and concluded that Ireland suffers a significant skills gap when compared with best practice abroad (O'Farrell and Hitchens, 1989; Birnie and Hitchens, 1994). These studies are reviewed in greater detail in Chapter 2.

1.2.2 Under-investment in Training

Our review of the empirical literature suggests that training does confer benefits on both workers and enterprises. Nevertheless, it is widely believed that firms and individuals invest in less training than is justified by the returns to training. Most economic theories attribute under-investment in training to market failure. Employers are likely to under-invest in training because of the difficulty in capturing the returns on their investment. Firms that have not invested in training will seek to recruit workers trained by other companies, and not having borne the costs of training, they can afford to pay higher wages. Potential poaching on the part of non-trainers is thus likely to lead to a general under-investment on the part of all firms. Individuals may be reluctant to invest in training because neither employment security nor wage returns to additional skills are guaranteed. Such uncertainties result in difficulties in financing training – individuals in particular find it difficult to borrow to finance training because of the uncertainties associated with investment in human capital.

The general theory of investment in human capital was refined by Becker's (1975) distinction between *general training*, which is useful to firms other than those providing it, and *specific training*, which is more useful to the firm providing it than to other firms. Since general training is portable, firms will be unlikely to pay for it because of the risk of losing employees, who could capture the return on the investment by moving to another firm for higher wages. Employees are thus more likely to bear the cost of general training, although they are still constrained by the uncertainties discussed above. While employers are likely to bear more of the cost of specific training, their investments are also constrained by uncertainties – e.g., where workers quit or are laid-off after training.

The human capital approach is useful in clarifying the reluctance of enterprises and individuals to invest in training, but the approach rests on a number of assumptions that are often only approximated in the real world: that labour markets are competitive "spot" markets in which attachments between trainees, workers and firms are of short duration, that there are large numbers of

firms demanding skills, that job changing is costless, and that workers have access to capital at the social rate of interest (McNabb and Whitfield, 1993). Institutional approaches, in contrast, are more likely to focus on institutional factors that either mitigate or exacerbate the uncertainty problems identified by the neo-classical approach as constraints on training. As such, they offer useful insights into the conditions under which firms or individuals are more likely to invest in training. Soskice (1993) argues that national differences in initial training systems can be explained by differences in socio-economic institutions governing labour and capital markets. In Germany, Japan, Sweden and Switzerland, effective initial training systems in which employers play a central role are anchored within a set of broader national institutions, of which the most important are co-operative industrial relations systems, strong employer organisations, and financial systems which permit long-term corporate planning. These institutional arrangements, he argues, minimise the uncertainties identified by the neo-classical approach as impediments to training – risks of poaching, loss of investment in training through excessive wage demands, and provision for long-term financing to allow recuperation of training investments – and thus tend to generate national training systems which are superior to those market driven training systems in countries such as Britain, Ireland and the US, where such institutional arrangements are weak or absent. Similarly, at the level of the firm, the work of Doeringer and Piore (1971) would suggest that firms characterised by internal labour markets – large organisations with firm-specific training, internal promotion ladders, and long-term employment stability – are more likely to train rather than to recruit to meet their skills needs and are thus likely to invest more in training than firms which rely on external labour markets to meet skill needs.

Generally, small firms are regarded as more likely to under-invest in training than larger firms. Smaller firms are more likely to operate under conditions approximating the neo-classical labour market assumptions: they are more likely to have to compete for skilled workers, they face greater risks of poaching from competing firms, and they are less likely to be able to offer the internal promotion ladders available to larger firms to evoke the loyalty of trained workers. Training in small firms is also more likely to suffer problems associated with economies of scale since smaller firms may face higher training costs per employee than larger firms because they cannot spread fixed costs of training over a large number of workers, and because in small firms releasing key personnel for training may cause greater interruption of productive activities than in larger firms. Small firms are also more likely to lack information on best practice in their product markets, as well as on the availability, cost and quality of training to meet their skill needs. The impediments to effective training in small firms are particularly significant in

Ireland since most firms in Ireland are small: 56 per cent employ less than 4 people and 85 per cent employ less than 10 (Task Force on Small Business, 1994).

1.3 The Role of the State

In Ireland, the bulk of State support for human resources is allocated to initial education and training – *prior to* entry to the labour force – and to the training and retraining of unemployed workers. Initial education is supported by States in most societies as a matter of national policy not only to produce a skilled workforce but also to ensure that all citizens have sufficient education to participate fully in the society and the economy. Interventions to train unemployed workers are generally driven by the perception that unemployed workers lack the resources to secure training for themselves. Enterprise-related training, on the other hand, has generally been regarded as the responsibility of the private sector, since the returns accrue largely to private actors – firms and employees. Our review of the problem of under-investment in training above highlights the risks and uncertainties faced by firms and individuals in capturing the returns to investment in training and the associated resource constraints on financing training. Where States perceive market failures resulting in levels of training which fall short of socially desirable levels (e.g., where skills shortages threaten to undermine national competitiveness or growth prospects) they may intervene to correct such market failures. Government interventions to promote training typically seek to mitigate the risks and uncertainties surrounding investments in training and/or to subsidise training costs in firms, particularly smaller ones, where training would otherwise be insufficient.

State interventions which influence training decisions can be categorised into three broad types: financial incentives, regulation of training or labour markets, and provision of information services.

Financial incentives may take a number of different forms. States in Australia, Ireland, France and Sweden have imposed levy/grant schemes whereby employers pay a training tax (usually in the region 1-2 per cent of their total payroll) and can recoup all or most of their contributions if they spend at least the amount of the tax on training. Such schemes should have the effect of reducing the risk of poaching since they tax non-trainers, and if such levies are set at a sufficiently high level they could also serve to increase the overall incidence of training. In the light of our discussion on general versus specific training above, however, it could be argued that where such schemes apply to general training, the incentive is directed at the wrong party to the training decision (the employer) since general trainees are believed to bear the costs of their own training, as in the case of apprentices receiving lower wages. Such schemes, moreover, are likely to encounter difficulties in monitoring and measuring the level of training sufficient to recover the tax. An alternative approach is to provide direct financial incentives

either in the form of tax incentives or training grants. The Training Support Scheme in Ireland is an example of the latter and is discussed in greater detail below. Such schemes have similar difficulties in determining what counts as training, and they are likely to suffer considerable deadweight where firms accept grant aid or tax reductions to conduct training which they would have undertaken anyway. Where deadweight occurs, such financial incentives merely function to subsidise the operating costs of private enterprises, with a net loss to the exchequer and no impact on training activity.

An alternative strategy is for states to regulate training or labour markets. Historically states in various countries have adopted this approach to traditional apprenticeships, regulating contractual arrangements between employer and trainee, the duration of training and certification, usually in co-operation with the social partners. More generally, states can seek to reduce the uncertainties faced by both employers and workers by regulating termination of employment, for example through regulations governing redundancy settlements, fair dismissal, or advance notice of lay-offs. If firms are constrained by their ability to lay workers off, they may seek improvements in competitiveness in upgrading skills, and workers may have more confidence in investing in training if employment tenure is more certain. Such regulations, however, are more likely to meet with success, and to be acceptable to employers, where surrounding institutional arrangements governing industrial relations are more facilitative of employer involvement in training (see our discussion of institutional approaches to training above).

Notwithstanding other forms of intervention, states can also act to reduce information gaps facing enterprises. We noted above that small enterprises in particular are likely to suffer information deficiencies concerning not only best training practices in competitor countries, but also in relation to the availability, cost and quality of training. States can provide information services to collect and co-ordinate information on training needs and training markets which individual firms, particularly smaller ones, are not in a position to do.

1.4 Public Policy and Enterprise-Related Training in Ireland

In recent years the main policy innovations in the field of vocational education and training have been in initial education and training for the unemployed. At second level the Vocational Preparation and Training Programme (VPT) was developed to provide vocationally oriented education training and work experience both to strengthen the technical/vocational elements of senior cycle secondary education and to meet the needs of students for whom the academic focus at second level is unsuitable. In 1992-93 about 21,500 students participated in VPT programmes, representing about 15 per cent of the total at senior cycle second level (Department of Education, 1994). At third level, enrolments at both university and the Regional Technical Colleges and Colleges of Technology have

expanded dramatically, particularly over the past decade (Hughes and O'Connell, 1995). Substantial resources are devoted to provision of training for the unemployed. The single largest such programme, and the programme of greatest potential relevance to enterprise skill needs, is the Specific Skills Training programme (SST). SST courses provide training at operative or semi-skilled level to about 12,000 unemployed persons per year to meet skill needs in local labour markets.

We turn now to a brief review of State policies to support enterprise-related training of employees in Ireland. The principal such programmes are: The Levy/Grant Scheme, Apprenticeship Training, development agency Training Grants, and the Training Support Scheme.

The Levy/Grant Scheme

The Levy/Grant Scheme was introduced in Ireland in 1967 and was extended during the early 1970s to cover all manufacturing and building sectors. Firms in designated sectors above a specified size were levied at a rate of between 1 and 1.5 per cent of total payroll. Firms could recoup up to 90 per cent of their contribution in training grants if their training performance was judged to be adequate by FÁS, the agency with responsibility for implementing the scheme. The remaining 10 per cent was retained by FÁS to cover administration and advisory services. The scheme was intended to reduce inter-firm variation in training levels, and thus to prevent poaching by non-training firms, by compensating firms which trained and taxing those which did not. In recent years the collection and distribution of funds has been short-circuited by a "netting" arrangement whereby firms which demonstrate adequate training performance in the previous year, and submit a training plan for the current year, pay only 10 per cent of the gross levy to FÁS. While the scheme achieved a once-off increase in the overall level of in-firm training, it has been argued that it merely encourages a minimum level of training activity, without any concentration on strategically important economic sectors or functions (NESC, 1985).

In 1994 the scheme was reformed, with four "non-craft" sectors – food, drink and tobacco, clothing and footwear, textiles, and chemicals – continuing with the existing Levy/Grant arrangements. The three craft sectors – construction, printing and paper, and engineering – were excluded from the Levy/Grant Scheme and instead pay an additional 0.25 per cent to the employer's Pay Related Social Insurance Contribution in respect of all employees. The funds raised through the new tax are used to pay apprenticeship allowances during off-the-job training. The new scheme has been in operation for less than one year, so it is too early to assess its impact, although it appears to fund the training of apprentices only, suggesting that the training of other employees in the designated sectors may decline.

Apprentice training

Apprenticeship training, regulated by FÁS, provides training for apprentices in skilled craft trades mainly in engineering, construction, motor, electrical, printing and furniture, and is the traditional path to skilled employment in these sectors. Apprentices are recruited by employers and employed for the entire duration of the apprenticeship, usually four years. The first year of apprenticeship usually consists of off-the-job courses in the theory and practice of the trade at a FÁS training centre or VEC college of technology. The remainder of the apprenticeship mainly consists of employment with occasional theoretical training in block-release courses. About 3,000 apprentices are recruited annually and there are about 14,000 apprentices at various stages of completion at any one time.

The apprenticeship system is currently undergoing reform and the new model is designed to provide broad based training during the initial stages with opportunities to develop specialist skills in the later stages, and is based on the achievement of standards rather than on time served. Its modular approach is intended to allow for flexibility and cross-skilling where required and to provide for ongoing up-dating of skills.

Training Grants

Training Grants implemented by the IDA and SFADCo are directed at skill needs arising from the location of new overseas investment in Ireland. Grants of up to 100 per cent of eligible cost are provided to carry out approved training of new employees. Courses are developed in conjunction with FÁS. The measure complements the IDA Inward Investment Programme and training is designed specifically to meet employer needs.

Training Grants delivered by Udaras na Gaeltachta provides training for persons recruited to newly created jobs and those already employed in existing industries who require retraining because of changes in technology or management techniques. Like the IDA/SFADCo training grant scheme, the relevance of the training is assured, since it is designed to meet employer needs. In 1991 the scheme provided funding for the training of about 4,500 people.

Deloitte and Touche (1991) argue that training grants are likely to have a high percentage of deadweight, since a significant proportion of the training would have to be undertaken by the employers in any case. In many cases training grants are simply an additional element in the package of incentives to attract inward investment – which are considered to err on the side of generosity. Thus, while the training funded under this programme may be highly relevant to industrial needs, the potentially high deadweight suggests that training grants represent little more than a subsidy to the operational costs of industry.

The Training Support Scheme

The Training Support Scheme (TSS) was established by FÁS in 1990 to encourage and promote training in small and medium-sized firms. While the broad objective of the TSS, as stated in the Operational Programme for Industry and Services, is to improve managerial and supervisory skills, the TSS as defined by FÁS, is aimed at improving the skills of existing employees at all levels from operative to management. The scheme is open to firms engaged in manufacturing industry, internationally traded services and physical distribution. Construction firms which trade internationally are also eligible. The scheme is administered regionally, through the Services to Industry Section within each of the ten FÁS regions.

Assistance takes the form of grant aid to eligible companies to purchase their training in the market. Companies which participate in the TSS must initially demonstrate that the training need has been clearly identified and is linked to a business development plan or strategy. Funds are allocated on a "first-come first-served basis" once a company development plan has been approved by FÁS training advisers, and demand for grants far exceeds the available budget.

Training and development of personnel at all levels and all occupations in any of eight key priority areas is eligible for grant-aid. The priority areas are: strategic planning, marketing and languages, management, productivity, information systems, quality/service, technology, and finance.

At its inception in 1990, the rate of subsidy was graduated; firms with less than 50 employees were funded up to a maximum of 80 per cent of training costs, while larger firms could receive a maximum of 50 per cent of costs. The subsidy rate applies only to training costs/fees, not to wages of trainees. In an effort to reverse a trend where larger firms received a higher percentage of overall funding, the subsidy bands were revised in 1992: firms with up to 50 employees could receive a maximum of 65 per cent aid, firms with between 51 and 200 could receive up to 40 per cent aid, and firms with between 201 and 500 employees could receive up to 25 per cent aid. In 1993 further refinements were introduced to promote greater participation by small firms: (1) A fourth category of owner managed firms with less than 12 employees could receive up to 80 per cent of training programme costs; and (2) overall quotas were established within each FÁS region to ensure that 50 per cent of funds were reserved for firms with less than 50 employees, 30 per cent were reserved for firms in the 51-200 size category, and the remaining 20 per cent of funds for firms in the 201-500 size category.

The report of the ESF Programme Evaluation Unit at the Department of Enterprise and Employment on the Industrial Restructuring Programme (1993) shows that in 1991, 17,232 employees in 1,204 companies received training under

the scheme at a total cost to the state of £4.75 million, and in 1992, 1,369 companies received £5.63 million to aid the training of 22,459 employees. The European Social Fund co-financed 65 per cent of the cost of this programme. Of the total budget of £5.63 million in 1992, £3.9 million (69 per cent) was allocated to training grants and special initiatives, staff costs absorbed £830,000 (15 per cent) and overheads £301,000 (5 per cent), and a further 9 per cent of the budget (£500,000) was spent on promotion of training. While the promotion costs were incurred to encourage training in general, and should not, therefore, be attributed to the TSS, the non-grant costs nevertheless seem excessive. If we average the costs across the 1,369 firms which participated in the scheme in 1992, it cost £826 (staff, £606; overhead, £220) to deliver an average grant of £2,828. The apparently high ratio of administrative costs to grants in the TSS are particularly unfortunate since the scheme appears to be short of funds – to the extent that all funding has generally been allocated by April/May of each year. Given the shortage of funds, some of the overhead may be attributable to the need for FÁS to select between eligible projects.

Table 1.1: *Throughput and Expenditure on the Training Support Scheme, 1990-93 and 1994-99*

	1990-93 (actual)	1994-99 (planned)	% increase (pro rata)
Number of trainees	70,693	147,037	38%
Total expenditure	£19.4m	£62.5m	115%

Sources: 1990-93: ESF Programme Evaluation Unit, 1993.

1994-99: Government of Ireland, 1995.

Table 1.1 shows actual expenditure and throughput under the programme for the four years 1990-93 of the last Community Support Framework and planned expenditure and throughput for the six years of the current CSF, 1994-1999. Adjusting for the different durations, these data suggest that the number of trainees is forecast to increase by 37 per cent while the budget is expected to increase by 115 per cent, resulting, presumably, in greater expenditure per trainee. Given the planned expansion of scheme it must be hoped that some economies of scale can be achieved in its administration.

1.5 *Assessing the Impact of the TSS*

The objective of the TSS is to increase the level of training activity in Ireland in order to enhance competitiveness, particularly in small and medium-sized enterprises. The scheme appears to be popular with employers and is oversubscribed – available funding is generally fully committed by April/May of

each year. At least part of the popularity of the scheme must be attributed to its demand-led structure whereby firms identify their training needs and receive grant aid to purchase that training on the market.

An assessment of the impact of the TSS must, however, go beyond the popularity of the scheme to raise more fundamental questions including: whether the scheme represents value for money for the State; whether it is targeted at the appropriate companies and, within those companies, at the right personnel; and whether the subsidised training is of sufficient quality and quantity to achieve the objectives of the programme.

Assessing the cost-effectiveness of the programme raises the issue of its net effects. Here we are concerned not with how much training activity was grant-aided by the TSS but with how much *additional* training took place beyond that which would have taken place in the absence of the scheme. If it were found that a State programme simply subsidised training which would have been undertaken anyway, then we would conclude that, irrespective of how much training had been subsidised, there would have been no net impact whatever, and the subsidy would count as a windfall gain to the enterprises concerned but as a wastage of State resources. A well designed programme to promote greater training activity must therefore seek to minimise deadweight – i.e., subsidies which yield no increase in training activity.

In our survey we attempted to address the issue of deadweight in two ways. First, we asked respondents in firms which received TSS aid in 1992 whether their level of training would have been different if the scheme had not been in existence. It must be recognised that this measure of the deadweight element of the scheme relies on the subjective judgements of respondents regarding whether they would have engaged in an activity which is generally regarded as commendable if they had not received financial aid. This might bias responses toward understating the net impact, or overstating the deadweight, of the scheme. On the other hand, it is possible that respondents, cognisant of the concern to minimise deadweight, might suspect that answering that they would have engaged in their reported level of training, even without grant aid, would lead to a reduction in funding for the scheme. This would tend to bias responses towards overstating the net impact of the scheme and understating its deadweight. There is no rigorous way in which we can adjudicate between these opposing sources of bias if we rely only on the subjective responses of participants in the scheme.

The second strategy to determine the net effects of the scheme is to compare those firms which participated in the TSS with other firms which did not participate. In effect, we are assuming that the level of training undertaken by the non-participant firms is representative of the level of training that would have been undertaken by the participant firms had they not participated. Such an assumption

is not problematic if firms can be randomly assigned to either the participant or comparison group – the usual strategy adopted in, for example, medical research to assess the effectiveness of a new treatment or drug. In the present study, participant and comparison groups were not randomly assigned with the result that the two groups of firms may differ in respect of characteristics – such as size, economic sector or occupational structure – which have some bearing on the outcome, the level of training. To assess the net impact of the TSS, it is therefore not sufficient to simply compare the level of training in the two groups of firms and attribute any differences to the programme: we need to measure how the two groups of firms differed in respect of characteristics which have some influence over their level of training and to take those differences into account in our analysis. We elaborate more fully on the statistical techniques to compare the participant and comparison group in Chapter 3 and we present the results of our analysis of net effects in Chapter 4.

The second major issue concerns the targeting of the programme. The TSS is confined to companies in manufacturing industry, internationally traded services, and physical distribution. Certainly a case can be made for extending the TSS to other service sector areas, particularly since it is in the services sector where most employment growth is forecast to take place to the end of the century (Cantillon, Curtis and Fitz Gerald, 1994), although this is not an issue which can be adjudicated by the findings of our survey. Within sectors, our review of research suggests that the main training deficiency is in small indigenous companies, and we have noted above that the TSS has been revised several times in order to increase the representation of small firms. This necessarily raises the question of whether the current band structure for graduated subsidy rates is appropriate. Finally, within firms, we have found that Irish firms tend to suffer from a particular deficiency in management development, and we have noted that the National Economic Social Council (1993a and 1993b), the Industrial Policy Review Group (1992) and Fitz Gerald and Keegan (1993) in their review of the last Community Support Framework have all accorded strategic priority to management training. Our survey of the TSS allows us to distinguish trainees by occupational group and investigates whether the TSS has been instrumental in increasing the level of management training in participating companies.

Finally, we are concerned with the quality and quantity of training supported under the TSS. Assessment of the quality of training is notoriously difficult (Chapman, 1994), and in our survey we have had to rely on the subjective assessments of respondents in participating firms. Evaluations of the TSS have raised concerns about the average duration of training supported under the scheme. Average duration of TSS-aided training was 18 hours in 1990 and 29 hours in 1991, which raises the question of whether training of such short duration is

sufficient to realise the objectives of the programme (Deloitte and Touche, 1991; ESF Programme Evaluation Unit, 1993; Fitz Gerald and Keegan, 1993). Our survey collected information both on the number of employees receiving training, and on the duration of that training.

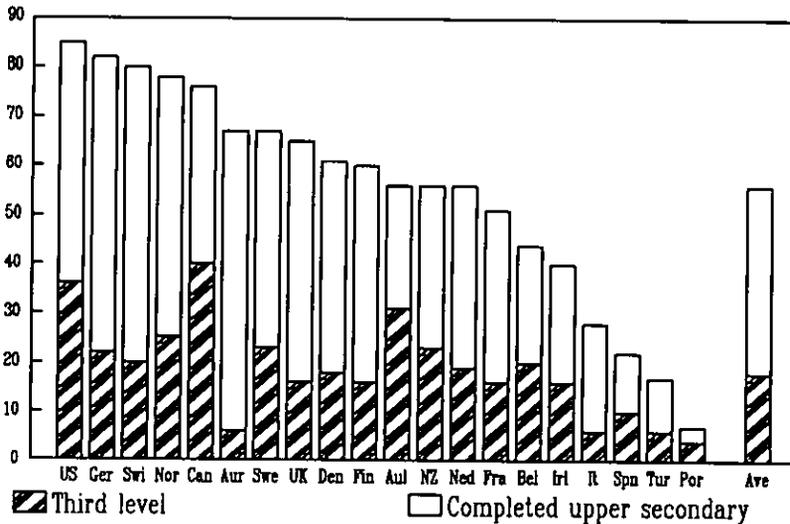
Chapter 2

TRAINING IN IRELAND

2.1 Educational Qualifications

We begin our discussion of training in Ireland with a brief outline of the educational qualifications of the population and labour force. Figure 2.1 shows comparative data on educational attainment for the adult populations (aged 25-64 years) of 20 OECD countries, derived from various Household and Labour Force Surveys in 1991 (OECD, 1993).

Figure 2.1: *Educational Attainment of Population Aged 25-64, 1991*
Per cent



Ireland has a very high proportion of its adult population with qualifications below upper secondary level: only 40 per cent of the adult population have attained a Leaving Certificate standard. This compares very unfavourably with the average of 56 per cent for all countries, and only 4 countries, mostly in the

southern periphery of Europe – Spain, Italy, Turkey and Portugal – had lower proportions having completed upper secondary education. The 16 per cent of the adult population with third-level qualifications puts Ireland well behind the leading industrial countries, although it is not greatly different from other European countries.

The figure shows the stock of education among the adult population and reflects the results of education over a 40-50 year period, one which saw a rapid expansion of participation at second and third levels in most countries. Ireland shared in the general growth of educational participation, but the rate of expansion in Ireland has not been sufficient to close the qualifications gap, due to continued expansion in other countries. Thus, if we compare educational attainment among more recent entrants to the labour force, those aged 25-34, only 50 per cent of Irish men, and 60 per cent of Irish women, have completed upper secondary education, compared with an average of 67 per cent of men and 73 per cent of women in the other OECD countries included in Figure 2.1 (OECD, 1993). This is not, however, the case with third-level qualifications: the proportion of those aged 25-34 with third-level qualifications in Ireland (20 per cent) is about equal to the international average.

Our comparison of the educational attainments of the population suggest that Ireland suffers from a qualifications gap relative to leading industrial societies. That qualifications gap relates not so much to the stock of highly qualified persons – the proportion of those with third-level qualifications in Ireland is comparable with that in other European countries and the qualifications gap at this level has narrowed appreciably in recent years, as evidenced by our comparison of those aged 25-34 years. Of greater concern is the deficiency of qualifications at intermediate levels affecting the generality of the population. The relatively large proportion of the population in Ireland which has not completed upper secondary education reflects both delayed industrialisation and the lateness of the expansion of the educational system, and it poses particularly difficult challenges to labour market policies. First, the generally low level of educational attainment represents a poor basis for the upgrading of the skills of the workforce as a whole since workers with low levels of educational attainment are less likely either to participate in, or to benefit from, further education and training. Second, there is a very large number of long-term unemployed individuals in Ireland, many of whom were displaced by economic restructuring over the past decade, and the majority of whom have very low educational qualifications, rendering them ill-equipped either to compete in the labour market or even to benefit from retraining (NESC, 1993b; O'Connell and Sexton, 1994).

The rate of completion of upper secondary education and participation in third-level education have increased rapidly in recent years and current

educational policy is to continue this trend. These more recent trends should boost the qualifications profile of new entrants to the labour force and gradually improve the qualifications of the entire work force, although high emigration among third-level graduates reduces the impact of the expansion at third level (Hughes and O'Connell, 1995). Nevertheless, notwithstanding the trend towards higher attainments of new labour force entrants, approximately 20 per cent of secondary school leavers continue to leave with either no qualifications whatsoever or with poor or inadequate qualifications, resulting in a continued inflow to the labour force of workers who are poorly prepared for either work or further training (NESC, 1993a; and Honohan and O'Connell, 1994).

Table 2.1 provides more detailed data for Ireland on the educational qualifications of those at work by economic sector, based on a special analysis of the 1991 Labour Force Survey undertaken by the Central Statistics Office. Overall, almost 22 per cent of those at work had no educational qualifications whatsoever in 1991, over 25 per cent had attained a Junior level certificate, almost 31 per cent had a Leaving Certificate, and 21 per cent had a third-level qualification. Generally, the distribution of educational qualifications is more favourable among female than male workers: almost 70 per cent of women had a Leaving Certificate or third-level qualification, whereas this was true of only 44 per cent of men.

Educational attainment in agriculture is particularly low, with over half the agricultural labour force possessing no qualifications, and less than 20 per cent in possession of a Leaving Certificate or higher qualification. Attainments in construction are also low, with over a third possessing no qualifications, and a further 39 per cent possessing a Group or Intermediate Certificate. In productive industries (manufacturing, mining and utilities) 1 in 5 workers possesses no qualifications and less than half possess the Leaving Certificate or higher qualification. Similarly, in the transport sector, about half of the workforce does not possess a Leaving Certificate. The highest educational attainments are in the professional services sector, in which over 80 per cent of workers have the Leaving Certificate or better, and almost 60 per cent per cent have third-level qualifications. Men in this sector have significantly higher qualifications than women. Over 70 per cent of public sector workers have the Leaving Certificate or better, although the public sector aggregates conceal interesting sex differences. Among males, about 35 per cent do not have the Leaving Certificate, 43 per cent have the Leaving Certificate only, and 21 per cent have third-level qualifications. Among females in public administration, on the other hand, less than 13 per cent do not have a Leaving Certificate, over 65 per cent have only the Leaving Certificate, and 21 per cent have third-level qualifications. These differences appear to represent occupational differences between the sexes in public

administration; males are polarised between manual and lower non-manual occupations, on the one hand, and higher executive, technical and professional occupations, on the other, whereas females tend to be concentrated in clerical areas (O'Connell and Rottman, 1992).

Table 2.1: *Educational Qualifications of the Labour Force, 1991*

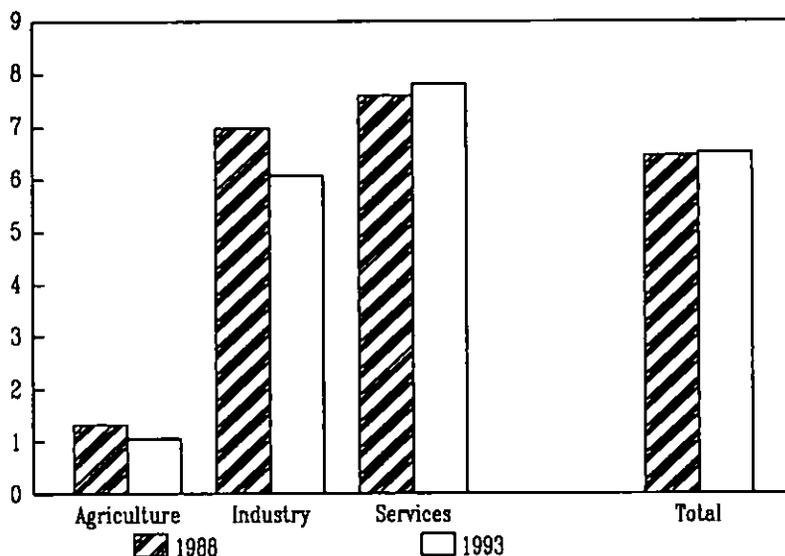
	Total at work		No	Junior	Leaving	Third
	(000s)	%	Qualifications	Cert	Cert	Level
			%	%	%	%
MALES						
Agriculture	142.0	19.0	54.0	26.8	14.0	5.3
Construction	74.7	10.0	32.2	40.4	19.9	7.5
Productive Industry	178.6	23.9	21.9	36.3	25.3	16.5
Commerce	137.5	18.4	14.6	30.6	37.7	17.1
Transport	52.3	7.0	25.8	32.1	31.5	10.5
Professional Services	71.0	9.5	7.9	8.2	12.0	72.0
Public Administration	48.3	6.5	13.5	22.2	42.9	21.4
Other	43.9	5.9	25.6	27.7	28.4	18.2
Total	748.3	100.0	26.3	29.5	25.4	18.9
FEMALES						
Agriculture	12.3	3.3	42.3	23.6	25.2	8.9
Construction	3.5	0.9	5.9	17.6	52.9	23.5
Productive Industry	65.5	17.4	17.7	31.3	38.4	12.7
Commerce	91.9	24.4	7.4	22.9	55.7	14.0
Transport	12.9	3.4	6.2	12.4	64.3	17.1
Professional Services	116.1	30.8	7.2	10.4	30.5	51.9
Public Administration	20.2	5.4	4.5	8.4	65.8	21.3
Other	54.9	14.6	21.1	27.8	34.0	17.1
Total	377.1	100.0	12.1	20.0	41.6	26.3
ALL						
Agriculture	154.3	13.7	53.0	26.5	14.9	5.6
Construction	78.2	6.9	31.1	39.4	21.4	8.2
Productive Industry	244.1	21.7	20.8	35.0	28.8	15.5
Commerce	229.3	20.4	11.7	27.5	44.9	15.8
Transport	65.2	5.8	21.9	28.2	38.0	11.8
Professional Services	187.1	16.6	7.5	9.5	23.5	59.5
Public Administration	68.5	6.1	10.8	18.1	49.7	21.3
Other	98.8	8.8	23.1	27.7	31.5	17.6
Total	1125.4	100.0	21.5	26.3	30.8	21.4

Source: Special tabulations from the *Labour Force Survey, 1991*.

2.2 *The Incidence of Training*

Figure 2.2 shows the percentage of those at work who participated in education or training in the four weeks prior to the Labour Force Surveys of 1988 and 1993. These data do not provide an accurate account of the absolute *levels* of education and training in any year, because they relate to a four week period and there is no indication of the duration of training. The data do, however, allow us to compare levels of education and training activity across sectors and to examine trends in the incidence of training over time.

Figure 2.2: *Per cent of Those At Work Participating in Education or Training in Four Weeks Prior to Labour Force Survey, 1988 and 1993*



Source: Special tabulations of the Labour Force Surveys, 1988 and 1993

About 6.5 per cent of those at work participated in education or training in the four weeks prior to the Labour Force Surveys of 1988 and 1993 and there was only a marginal increase in the overall incidence in training between the two years. The lack of any substantial increase in the proportion of those undergoing training at work over this period is disturbing in the light both of the greater emphasis on the importance of investment in human resources in recent years and of the increased investment in human resources development financed by European Union Structural Funds under the 1989-93 Community Support Framework. Only

about 1 per cent of those engaged in agriculture received training in 1988 and 1993, and the percentage dropped slightly over the period. Between 6 per cent and 7 per cent of those at work in industry received training, and the percentage dropped somewhat between 1988 and 1993. About 7.5 per cent of those in the services sector received training, and the percentage increased slightly over the period.

Table 2.2: *Participation in Education or Training in Last Four Weeks by Broad Economic Sector and Type and Purpose of Training, 1993*

	<i>Agriculture</i>	<i>Industry</i>	<i>Services</i>	<i>Total</i>
	<i>(000s)</i>	<i>(000s)</i>	<i>(000s)</i>	<i>(000s)</i>
Number at Work	142.8	311.4	692.0	1146.2
Number Trained	1.5	18.9	54.0	74.6
	%	%	%	%
Total Percentage Trained	1.1	6.1	7.8	6.5
<i>Type of training:</i>	%	%	%	%
Second Level	0.1	0.1	0.1	0.1
Third Level	0.0	0.3	0.7	0.5
Adult Education	0.1	0.3	0.5	0.4
Training at Place of Work	0.3	2.7	3.6	2.9
Job-related Training at School or College	0.2	1.2	1.5	1.2
Apprenticeship	0.1	0.9	0.3	0.5
Other Job-related Training	0.2	0.6	1.2	0.9
<i>Purpose of Training:</i>				
First Vocational Training	0.1	0.8	0.7	0.7
Training for Present Job	0.7	3.9	5.2	4.3
Training for Different Job	0.0	0.3	0.3	0.3
Other	0.3	1.0	1.6	1.2

Source: Special tabulations of the Labour Force Survey, 1993

Table 2.2 provides a more detailed breakdown of the type and purpose of training by broad economic sector in 1993. Training at the place of work was the most common type of training – received by 2.7 per cent of those at work in industry and 3.6 per cent of those in services. Job-related training at a school or college was received by 1.2 per cent of those in industry and 1.5 per cent of those in services. Almost 1 per cent of those in industry received apprenticeship training and 0.7 per cent of those in services participated in education or training at a third level institution. Most of the training was for the respondents' present jobs – 3.9

per cent of those at work in industry and 5.2 per cent of those in services received training for their present jobs, and the incidence of training for a different job was very low (0.3 per cent).

Table 2.3: *Participation in Education or Training in Last Four Weeks by Detailed Economic Sector and Type of Training, 1993*

	Total at Work	Second Level	Third Level	Adult Education	Job- Related Training	Apprentice Training	Total
	(000s)	%					
Agriculture	142.8	0.1	0.0	0.1	0.7	0.1	1.1
Mining	5.2	0.0	0.0	0.0	1.9	0.0	1.9
Manufacturing	224.3	0.1	0.4	0.3	4.8	0.6	6.2
Food	50.3	0.0	0.2	0.2	3.2	0.2	3.8
Textiles	23.6	0.0	0.4	0.4	2.5	0.0	3.4
Wood	16.2	0.0	0.0	0.0	5.6	1.2	7.4
Paper & Print	19.5	0.0	0.5	0.5	4.6	0.5	6.7
Chemical	23.6	0.0	1.3	0.8	6.4	0.0	8.1
Glass	11.5	0.0	0.0	0.0	5.2	0.9	6.1
Metals	68.3	0.0	0.4	0.3	5.9	1.2	7.8
Other	11.4	0.0	0.0	0.0	5.3	0.0	5.3
Utilities	11.5	0.0	0.9	0.9	7.0	0.0	8.7
Construction	70.5	0.0	0.0	0.1	3.3	1.8	5.5
Commerce	184.0	0.1	0.4	0.3	2.8	0.4	4.0
Wholesale	43.2	0.0	0.5	0.5	3.7	0.0	4.6
Retail	140.8	0.1	0.4	0.3	2.5	0.6	3.8
Insurance	60.3	0.0	1.0	0.5	9.1	0.2	10.6
Transport	69.7	0.1	0.4	0.4	4.6	0.3	5.7
Public Admin	66.9	0.1	1.6	0.4	6.9	0.1	9.3
Prof Services	206.4	0.0	0.8	0.7	9.3	0.3	11.0
Personal Services	80.5	0.1	0.4	0.5	5.2	0.5	6.5
Other	24.2	0.0	1.2	0.0	6.2	0.0	7.9
Total	1146.2	0.1	0.5	0.4	5.1	0.5	6.5

Source: Special tabulations of the *Labour Force Survey*, 1993

Table 2.3 presents data on participation in education and training by detailed economic sector and type in 1993. Most of those who participated in education or training received job related training, accounting for just over 5 per cent of those at work. Very few participated in second-level education, and the incidence of participation in third level was very low except among those working in chemicals manufacturing, public administration, insurance and professional services. Just

over 6 per cent of those engaged in manufacturing participated in education or training. Participation was substantially higher than the average in wood, chemicals and metal production. Participation was substantially below the manufacturing sector average in textiles and food production.

There was substantial variation in the incidence of participation in the services sub-sectors. Only 4 per cent of those working in commercial sub-sectors participated in education or training. About 11 per cent of those in insurance and professional services participated, as did 9 per cent of those in public administration.

Additional information on enterprise-related training is available from the survey of manufacturing and service companies commissioned by FÁS from the Market Research Bureau of Ireland in 1989 (FÁS, 1989). The survey was administered to 474 firms in industry (including manufacturing, construction, and the retail motor trade) and services (excluding the public service, and hotel catering industries). Total employment in the sectors covered was 961,800. During the previous 12 months, 42 per cent of all employees (404,000 persons) had received some training. About 207,000 (21 per cent of all employees) received formal off-the-job training, suggesting that a very substantial share of training in Ireland takes place on-the-job.

On-the-job training is generally considered to be of poorer quality than formal off-the-job training - much on-the-job training takes the form of "learning by doing" while engaged in production, and in many instances "trainees" are simply entry level workers engaged in mainstream production but at trainee wage rates. While much useful learning may take place on the job, such training is neither formally directed nor governed by standards and it is impossible to assess the extent or quality of such training. Fox (1990/1, p. 34) comments that many of the responses to the FÁS/MRBI survey indicating on-the-job training reflected a reluctance to admit that no training was taking place and should not be taken as a measure of real training. For this reason he argues that the figures on off-the-job training should be regarded as the best estimate of "real, formal" training. Bishop's (1994) finding that on-the-job training in the US had a short-term positive impact on productivity but no lasting effect on either firm productivity or workers' earnings lends support to the widespread scepticism about the quality and efficacy of on-the-job training. Very little information is available on on-the-job training in Ireland, and further research is needed to examine the quantity, quality and effectiveness of such training.

Overall levels of training were higher in industry than in services. While only 38 per cent of those employed in services received some training, half of those in industry received training. A similar proportion of employees in both sectors received off-the-job training, but the proportion of employees which received

off-the-job training of 4 or more days duration was twice as high in industry (11.6 per cent) as in services (5.7 per cent). Apart from apprentices in industry, among whom there was a high incidence of training, the occupations with the highest levels of training were professional and technical occupations. Most training was of short duration; 73,000 workers (7.6 per cent) received 4 or more days off-the-job training. The survey was unable to estimate the incidence or quality of on-the-job training.

Table 2.4: *Employees Trained in Previous Year, 1989*

	Total Employment	% Trained	% Trained Off-the-Job	% Trained Off-the-Job 4 or more days
	(000s)	%	%	%
Manufacturing & Construction				
Management	35.6	42.1	29.5	16.9
Supervisor	17	50.6	32.4	18.8
Tech/Prof	5.9	72.5	45.8	31.2
Technician	7.1	64.8	47.9	23.9
Crafts	38.7	32.6	10.9	5.7
Apprentice	13.7	92.7	65.7	65
Operatives	120.9	55.8	13.2	5.8
Admin/Clerical	42.2	45.7	26.1	7.8
Other	13.7	22.8	2.9	1.5
Total Industry	294.8	50.1	21.2	11.6
Services				
Management	124.5	37.5	31.2	8.1
Supervisors	27.2	39.3	21.6	9.1
Tech/Prof	71.1	48.6	44.1	13.9
Technician	23.6	41.1	25	4.6
Craft/Apprentice	23.1	35	16.8	7.7
Admin/Clerical	146	37.5	24.2	5.7
Sales	101.8	31.3	12.7	3.4
Operatives	149.4	40.2	6.3	0.9
Total Services	667	38.4	21.6	5.7
Total Industry & Services	961.8	42.0	21.5	7.6

Source: FÁS/MRBI Survey of Training Needs of the Employed.

The survey also noted that in over half of industrial companies and 65 per cent of services companies, no-one received any formal off-the-job training in the previous year. Training activity was much greater among larger firms: in 65 per

cent of very small firms, no one had received any off the job training; this was true of only 10 per cent of large firms. Moreover, in companies with less than 10 employees, only 13 per cent of employees received formal training, this was true of 16 per cent of firms with 10-100 employees, and 35 per cent of workers in firms with 100-499 employees. Paradoxically, however, the survey suggests the average duration of training was longer in small than in large firms (FÁS, 1989).

On the basis of the survey, applying the numbers receiving off-the-job training to estimates of training duration, Fox (1990/91) estimates the total days off-the-job training in industry to be 393,000, and that in services to be 551,000. Fox provides estimates of total expenditure on off-the-job training incorporating alternative assumptions on trainees' labour costs derived from (a) earnings data, and (b) data on the training activities and expenditures of British employers. Both estimates, based on the alternative assumptions, suggest that total expenditure on formal training in the non-agricultural economy (including the public sector), including trainee labour costs, to be about IR£95 million per annum, representing about 0.9 per cent of labour costs. He adds, moreover, that on-the-job training could double this estimate – to over IR£215 million, or about 2 per cent of labour costs annually.

Alternative estimates of training expenditure are provided by the *Labour Costs Survey, 1988* in industrial, distribution, banking, insurance and financial sectors in 1984 and 1988. The surveys covered all service enterprises in the designated sectors with 10 or more employees, and industrial enterprises with 20 or more employees. Training costs include wages and salaries of trainees and apprentices, employers' PRSI contributions, and other training costs net of any training grants received.²

The survey indicates that industrial enterprises spent just over 1 per cent of total labour costs on training while enterprises in wholesale distribution and finance and insurance spent about 0.8 per cent of labour costs. The proportion of labour costs allocated to training in retail distribution was considerably greater, 2.5 per cent, but the CSO notes that in this sector in particular the lower limit of 10 employees resulted in a considerable proportion of employees being excluded from the scope of the inquiry. Given the findings of the FÁS/MRBI survey, which suggest that very small firms conduct less training, the exclusion of a large

² Included as trainees are apprentices and "employees whose wages/salaries are governed by the fact that they are being trained or studying for qualifications relevant to their trade or profession." This definition of the trainee may lead to some overestimation of training activities since it allows for the inclusion of employees designated as trainees who are actually engaged in production or service (e.g., trainee shop assistants). This may have lead to some overestimation of expenditure on formal off-the-job training.

Table 2.5: *Training Costs as a Percentage of Total Labour Costs by Sector, 1988*

	<i>Training costs as % of total labour costs</i>	<i>% of non-agricultural employment, 1988</i>
	<i>%</i>	<i>%</i>
Industry	1.1	24.9
Wholesale Distribution	0.8	5.4
Retail Distribution	2.5	13.7
Credit and Insurance	0.8	4.9
<i>Weighted average/Total</i>	1.4	48.9

Sources: Training costs: CSO, 1991, *Labour Costs Survey, 1988*
Employment: CSO, 1989, *Labour Force Survey, 1988*

proportion of retail distribution firms is likely to result in an overestimate of the true expenditure on training in the sector.

Employment in the sectors covered by the Labour Costs Survey accounted for almost 50 per cent of total non-agricultural employment in 1988. Weighting the sectoral training cost estimates by the share of total non-agricultural employment yields an estimated weighted average of training costs for the covered sectors of 1.4 per cent of total labour costs per year. This estimate is broadly consistent with Fox's (1991/92) estimate of about 1 per cent of total labour costs, given the likely overestimate of formal training costs in the Labour Costs Survey due both to the exclusion of small firms and to the inclusion of wages of all employees designated as trainees.

The Irish Labour Costs Survey is part of an EC wide Labour Costs Survey, allowing comparison of expenditure on training in Ireland with that in 10 other EC countries. Table 2.6 presents the comparative data on the ratio of training to total labour costs for 1988. The data suggest very considerable variation in training expenditures both internationally and across sectors. An OECD (1991) review of comparative data on enterprise-related training noted that it is unclear what costs other than payments to apprentices are included under training costs, that it is not known whether countries followed the same data collection practices, and that their definitions of apprentices are likely to vary significantly across countries. Nevertheless, the data provide some comparative basis for the assessment of Irish training performance.

The evidence is mixed. Ireland appears as something of a training laggard in industry, credit and insurance sectors. In industry, the ratio of training costs to total labour costs was lower in Ireland than in 6 other countries. In the case of

credit institutions this was true of 7 countries, and of 8 countries with respect to the insurance sector. Training ratios were higher in wholesale distribution in 4 countries and in retail distribution in only 2 countries.

Irish firms generally ranked behind those in the more advanced EC countries, Denmark, Germany and France, and to some extent, behind the United Kingdom. Among less developed EC countries, Irish training expenditure ratios were substantially greater than Spanish, but were generally lower than those in Portugal.³

Table 2.6: *Training Costs as a Percentage of Total Labour Costs, Ten EC Countries, 1988*

	<i>Industry</i>	<i>Wholesale Distribution</i>	<i>Retail Distribution</i>	<i>Credit Institutions</i>	<i>Insurance</i>
	%				
Belgium	0.2	0.8	0.2	2.2	1.1
Denmark	2.3	1.8	6	3.7	2.3
France	1.8	1.4	1.5	2.5	2.5
Germany	1.6	1.7	2.9	3.3	2.5
<i>Ireland</i>	<i>1.1</i>	<i>0.08</i>	<i>2.5</i>	<i>0.8</i>	<i>0.7</i>
Italy	1.3	1.5	2.1	0.6	0.8
Luxembourg	0.5	0.5	0.8	0.5	0.5
Netherlands	0.5	0.5	0.2	1.5	1.2
Portugal	2.8	0.9	1.6	1.5	1.3
Spain	0.2	0.1	0.2	0.4	0.3
United Kingdom	1.5	0.8	1.1	1.1	1.1
No. with ratios greater than Ireland	6	4	2	7	8

Source: Eurostat, 1992, *Labour Costs 1988*, Volume 1.

Enterprise-based data from France and the United Kingdom on the incidence of formal training are roughly comparable with the data from the FÁS/MRBI survey reported in Table 2.4 for about the same years and are collected in Table 2.7. The data confirm the conclusion suggested by the expenditure data that

³ Portuguese and Danish expenditure ratios are surprisingly high. Both countries spend most of their adult training budgets on employed adults (Commission of the European Communities, 1991). In the Portuguese case, this may be a response to the very low levels of educational attainment of the working-age population shown in Figure 2.1 above.

Irish firms conduct less training than those in France and the UK, although the findings reverse the relativities between the latter two countries.

Table 2.7: *Percentage of Workers Receiving Formal Training*

<i>Country</i>	<i>Year</i>	<i>% of Workers Trained</i>
France	1987-88	26.6
Ireland	1989	21.5
United Kingdom	1986-87	34.8

Sources: France and UK: OECD, *Employment Outlook*, July 1991
Ireland: FÁS/MRBI *Training Needs of the Employed*, 1989

2.3 *Skill Shortages and Deficiencies*

With unemployment ranging between 13 per cent and 18 per cent of the labour force over the past decade it is clear that there is a very substantial labour surplus in Ireland (O'Connell and Sexton, 1994). While unemployment is disproportionately concentrated among those poorly educated with low skills, the overall level of unemployment is such that some over-supply of labour occurs also among those with higher level educational qualifications and skills. The expansion of the education and training system over the past two decades has contributed to a surplus at the higher skill levels. The surplus of educated and skilled labour is augmented by the additional pool of labour currently abroad, which can be counted upon as a reserve by Irish employers; where specific skill shortages occur in the domestic labour market, employers have the option of attracting skilled workers home from abroad.

Given the extent of unemployment, it is hardly surprising that survey data reveal little evidence of shortages of skilled labour; the proportion of Irish firms reporting skill shortages fell from about 20 per cent in the late 1970s to almost none in the late 1980s (Sheehan, 1992). Such evidence must be interpreted with caution, however, since what it indicates is that there is no shortage of people to fill particular jobs. It does not ensure, however, that people have the right skills, or that skills in Ireland are on a par with best international practice – the crucial issue in an economy which depends heavily on export led-growth.

O'Farrell and Hitchens (1989) conducted a comparative study of production practices and standards in small firms in Ireland, England and Scotland, matched for size and product range. They concluded: "Above all, there is a fundamental medium term requirement to improve training and skills." (p. 74) They argue that

in Ireland "the major labour problem is the quality of skills at all levels – managerial, intermediate supervisory, skilled and semi-skilled." They note that few managers have received professional training for any function and that: "Irish managers had less technical knowledge of their products, were less aware of the needs of the market, and were not as well informed concerning the key competitive criteria in their specific industry segments." (p. 66). At middle management and supervisory level, they argue that there is a lack of specialist management skills, limited knowledge of best international practice techniques, and a lack of external contacts to enable personnel at this level to keep abreast of new developments. At operative level, basic production skills were lacking, with the result that quality and productivity were both reduced, proper use of sophisticated equipment was impossible, and down-time of machinery was high due both to poor maintenance skills and longer set-up times.

In a similar study commissioned by the National Economic and Social Council, Hitchens and Birnie (1993) compared a small number of reputedly strong indigenous Irish firms with similar Dutch and Danish firms. They found that while the levels of formal skills in the Irish companies were similar to their continental counterparts, Danish in-company training was superior to that in the Irish companies, and that Irish workers need more supervision and were more variable in their attention to detail than their Dutch counterparts. Hitchens and Birnie found shortages of higher level skills in maintenance, laboratory, and design functions, and that while Irish managers were comparatively well qualified they relied too heavily on what were considered to be out-dated product and company strategies.

Birnie and Hitchens (1994) found that average productivity levels in Irish manufacturing industry, measured in terms of net output per head, had increased during the 1980s and by 1990 were ahead of levels in both Germany and the UK. They noted, however, that average productivity in Ireland concealed substantial differences between the indigenous sector, where productivity levels were about 20 per cent lower than the UK, and the foreign sector, in which productivity was more than twice the UK average. They concluded that investment in education and training, particularly at management level, is most likely to bridge the productivity gap in indigenous firms – mainly because of its impact on the volume of output, better attention to detail and quality, and better utilisation of machinery and materials.

The NES (1993a, p. 206) report concluded that there is a skills gap between Irish firms and best-practice firms in competitor countries at all levels and that "*competitive performance is adversely affected by poor quality human capital.*"⁴ Shop-floor workers and supervisors in Ireland tend to have far less formal training

⁴ Their italics.

competitiveness generally, but management training may also contribute to an increase in the demand for training of all workers, since well-trained managers are more likely to be aware of the benefits of training.

The sectoral report on the food, drink and tobacco industry, which found that sectoral training expenditures in Ireland fell well short of those in other, "best practice" countries, concluded that "the most significant weaknesses which threaten company development over the next five years were identified as marketing, research and development and general management skills" (PA Consulting Group, 1994, p. 187). Similarly, the sectoral report on the engineering industry concluded that "Lack of training in the past has resulted in a pool of Irish managers and supervisors who do not appreciate the importance of training or know how to implement training for themselves or their subordinates" (Deloitte and Touche, 1993, pp. 6-21).

Our discussion of qualifications, skills and training suggests that Ireland suffers from deficiencies in both qualifications and skills when compared with leading industrial countries. A relatively large proportion of the adult population has low educational qualifications, representing a poor basis for further education and training. There is evidence of a skills gap at operative, supervisory and management levels, particularly in smaller indigenous firms, which adversely affect productivity, competitiveness and growth prospects. The level of training of employees is lower than the European average and is, therefore, unlikely to be sufficient to bridge the qualifications and skills gaps.

Our conclusions regarding the incidence of training and skill deficiencies are, however, necessarily tentative, given the limited empirical evidence available. The weight of the evidence points to both a low incidence of training and a skill deficiency when we compare Ireland with best international practice. The evidence is not, however, sufficiently precise to provide an adequate basis to guide policy concerning enterprise-related training. In this context we note that the report of the Industrial Policy Review Group (1992) recommended withdrawal of support for firm-specific training, more support for general training and for management training, and a reorganisation of administrative arrangements for public support of enterprise-related training. These recommendations are extremely general in nature and fall well short of defining a strategic approach to state intervention in the area. This is hardly surprising given the narrow research base, collected mainly in the background report by Roche and Tansey (1992), upon which the recommendations rest. While few would question the need for more management training, other recommendations in the report are open to question. In particular, the conventional distinction made in the report between general and firm-specific training is, in many respects, artificial, and is difficult to apply in practice. Moreover, our review of the literature suggests that notwithstanding potential

positive returns to firm specific training, small firms, if left to their own devices, are likely to under-invest in training because of resource, organisational or information constraints. Withdrawal of public support for general training in small firms could lead to a significant reduction in the level of enterprise-related training in Ireland – an outcome which is hardly consistent with the need to rectify Irish skill deficiencies. The present study not only confirms that small firms tend to provide less employee training but also finds that State aid under the Training Support Scheme results in a net increase in the level of training in small firms while its effects in larger firms is likely to be marginal. The policy implications of these findings are obvious: targeting training subsidies at small firms, which represent the preponderance of firms in Ireland, is likely to lead to a net increase in the overall level of training in Ireland.

Lee (1993) argues that policy formulation in Ireland is characterised by intellectual incoherence and, citing the report of the Industrial Policy Review Group as an example of poor use of evidence in policy formulation, argues that its major recommendations are based more on assertions than a careful weighing of the evidence. In the case of training policy our review suggests that at present we lack basic information on who needs further training, who is currently receiving training, how the costs of training are shared between employers and workers, and how government can best intervene to correct existing skills deficiencies. These information gaps inhibit attempts to formulate a coherent strategy to rectify skill deficiencies in the Irish economy. Over the last couple of years a series of sectoral studies commissioned by FÁS and the sectoral Training Committees to review the challenges and opportunities represented by the single European Market have been produced, and these represent a significant contribution to the identification of skill needs in the sectors covered.⁵ Policies are more likely to be effective if they are based on good information and we believe that one element of a coherent approach to training policy must include a programme of research to rectify the current deficiencies in information concerning enterprise-related training. There is a clear need for further research, and our review of the available research suggests the following three priorities: (1) Research on who is being trained, by whom, and to what effect; (2) Research to identify more precisely the nature and extent of skill deficiencies in Ireland – to identify the sectors, firm types, and occupations where skill deficiencies are most severe; and (3) Research to identify those measures which are most likely to increase the incidence of enterprise-related training and rectify the skills gap in Ireland.

⁵ To date studies of the following sectors have been published: Clothing; Chemicals; Food, Drink and Tobacco; Engineering; Print and Paper, and Textiles industries.

Table 3.1: *Classification of Companies by Industrial Sector – Population (1992) and Sample*

<i>Industrial Sector</i>	<i>Population¹</i>		<i>Total Sample</i>		<i>Sample TSS Participants</i>		<i>Sample Non-participants</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Chemicals	184	16.3	69	15.7	57	17.6	12	10.3
Clothing & Footwear	58	5.1	19	4.3	15	4.6	4	3.4
Construction	94	8.3	44	10.0	28	8.7	16	13.8
Engineering	291	23.8	119	27.1	87	26.9	32	27.6
Food, Drink, Tobacco	173	15.3	61	13.9	46	14.2	15	12.9
Printing & Paper	91	8.1	40	9.1	28	8.7	12	10.3
Textiles	63	5.6	22	5.0	19	5.9	3	2.6
Physical Distribution	60	5.3	29	6.6	20	6.2	9	7.8
Internationally Traded Services	54	4.8	20	4.6	19	5.9	1	0.9
Other	61	5.4	16	3.7	4	1.2	12	10.3
Total	1129	100.0	439	100.0	323	100	116	100

¹ The population refers to FÁS administrative records of all firms participating in TSS in 1992.

Table 3.2: *Classification of Companies by Size – Population (1992) and Sample*

<i>Firm Size</i>	<i>Population</i>		<i>Total Sample</i>		<i>Sample TSS Participants</i>		<i>Sample Non-participants</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
1 - 20 employees	403	35.7	157	35.8	102	31.6	55	47.4
21 - 50 employees	363	32.2	129	29.4	103	31.9	26	22.4
51 - 100 employees	146	12.9	63	14.4	43	13.3	20	17.2
101 - 200 employees	136	12.0	54	12.3	41	12.7	13	11.2
200+ employees	81	7.2	36	8.2	34	10.5	2	1.7
Total	1129	100.0	439	100	323	100	116	100

In the case of TSS-participant firms we over-sampled the larger firms – those with over 100 employees – to allow us ensure reliability of results for firms in this size category.

The sample of non-participant firms is somewhat skewed toward smaller firms, with the proportion employing less than 20 employees over-represented when compared with the distribution of all TSS firms, and the proportion in firms with more than 200 employees under-represented.

Location of firms

Table 3.3 shows the distribution of the population and sample of firms by region. One-third of all firms which participated in the TSS were located in the Dublin region. The geographical distribution of the sample of TSS participants closely matches that of the population of TSS participants. Among the sample of non-participants, there is a concentration of firms (49%) in the Dublin region, and the Midlands region is poorly represented, with only one firm.

Table 3.3: *Classification of Companies by Region – Population (1992) and Sample*

Region	Population		Total Sample		Sample TSS Participants		Sample Non-participants	
	No.	%	No.	%	No.	%	No.	%
Dublin	384	34.0	173	39.4	116	35.9	57	49.1
North-East	135	12.0	44	10.0	38	11.8	6	5.2
North West	61	5.4	24	5.5	20	6.2	4	3.4
South West	172	15.2	61	13.9	48	14.9	13	11.2
South East	136	12.0	60	13.7	39	12.1	21	18.1
Midlands	79	7.0	20	4.6	19	5.9	1	0.9
Mid West	73	6.5	31	7.1	21	6.5	10	8.6
West	89	7.9	26	5.9	22	6.8	4	3.4
Total	1129	100.0	439	100.0	323	100	116	100

3.3 *The Questionnaire*

Following discussions between the ESRI research team and FÁS it was agreed that the following information would be sought from all respondent companies:

- * Size (employment and turnover/sales), economic sector, and occupational structure
- * Training activity in 1991 and 1992
- * Details of training by type and occupational structure
- * Future training needs of firms
- * Utilisation of FÁS services

Respondents in firms which participated in the TSS were asked to distinguish between TSS-aided and unaided training in the detailed record of training, and to assess the impact of the training subsidised by the TSS on productivity, quality, employment, market penetration and exports. The full questionnaire is presented in Appendix 2 of this report.

3.4 *Assessing the Net Impact of the TSS*

The principal objective of the TSS is to bring about an increase in the formal training of workers in enterprises in Ireland. The survey of firms was designed to examine the extent to which the scheme was successful in meeting this objective. We are concerned here not with the gross volume of training subsidised by the TSS but with the additional training which would not have been conducted if TSS aid had not been available. Theoretically, in any given enterprise the volume of *additional* training which can be attributed to the TSS – its *net effect* – can vary between 0 (if the training would have been undertaken without aid) and 100 per cent of TSS-aided training (if all TSS-aided training were in addition to what would have been conducted in the absence of aid). How then do we measure the net impact, or its inverse, the deadweight, of the scheme, given that we are dealing with a counterfactual – actions that actors might have taken in differing circumstances, but did not. We did ask respondents whether they would have undertaken less training if TSS aid had not been available, but, as we argued in Chapter 1, it is not *a priori* obvious whether such subjective assessments are likely to result in over or under-stating the extent of deadweight in the scheme.

In the natural sciences problems of this sort are usually resolved by experimental methods – the researcher experimentally introduces variation in conditions and observes their impact, controlling for other theoretically salient variables. Generally, social scientists are not able to dictate the treatment that their subjects receive, control the environment in which behaviour takes place, or even randomly assign cases to participant and control groups. The experimental methods employed by natural scientists may be approximated in the quasi-experimental designs employed in medical research – where, for example, individuals are randomly assigned to participant and control groups to assess the effectiveness of a new drug or treatment. Random assignment, however, poses ethical and political problems, and is not usual in social policy and labour market research. If participant and comparison group members are not randomly assigned, then the assessment of the effects of participation faces two difficulties. First, the two groups may differ, on average, in respect of some characteristics which affect the outcome being analysed. In the analysis of the effects of TSS grant-aid, the participant and comparison groups may differ in, for example, average company size, which may have an effect on training activity independent of participation in the TSS. To compare the net effects of the programme,

therefore, it is not sufficient simply to compare average training levels between the two groups: we need additional information on how the two groups differ in respect of those characteristic which are likely to affect training and to take that information into account in our analysis. To do so, we move to a multivariate regression framework which allows us to estimate the effects of participation in the scheme net of other characteristics of firms which affect training activity.

$$T = B_1 + B_2 * X_t + B_3 * P + U_t \quad (1)$$

Equation (1) is a regression equation which models the effects of both scheme participation and other theoretically salient variables on training. T is a measure of the volume of training activity (e.g., percentage of employees receiving training), X_t is a vector of variables which influence the level of training, and P is a dichotomous variable coded 1 if the firm participated in the TSS, 0 if not.

The second difficulty in comparing participant and control groups is that we may not have measured all of the relevant characteristics of firms, and that such unmeasured variables may be related both to the outcome and to participation in the scheme. For example, firms with a more positive evaluation of the benefits of training may be more likely both to apply for grant aid under the TSS and to engage in a greater level of training activity than firms with a less positive appraisal of training. If such unobserved variables are not taken into account then we may overestimate the effectiveness of the programme since we will be counting their effects (e.g., the effect of a "positive attitude" to training) as effects of participation in the programme. This problem of selection bias is an enduring issue with comparisons of this type, and has attracted a great deal of attention in empirical evaluation research (Heckman, 1979; Heckman and Robb, 1986).

The solution adopted here is a relatively simple one. We can think of participation in the TSS as two separate processes: (1) the decision to apply for TSS aid; and (2) the impact of participation in the scheme on the volume of training activity. Equation (1) above is the substantive equation modelling the effects of scheme participation. We can represent a participation model in Equation (2), where P is the probability of participating in the TSS,

$$P = B_4 + B_5 * X_p + U_p \quad (2)$$

and X_p denotes a vector of variables determining scheme participation.

Note that the endogenous variable, P , in Equation (2) is an exogenous variable in Equation (1). If there exists any variable omitted from both (1) and (2) which

influences both P (the probability of participation) and T (the training outcome), the residuals from the two equations would be correlated, and the coefficient B_3 would be a biased estimate of the effect of participation on T .

The most straightforward approach to overcoming the problem of correlated residuals is to use instrumental variables on the substantive Equation (1). In the present analysis the instrument is P^* , the fitted values of P from the participation Equation (1). P^* is highly correlated with P , but uncorrelated with U_p , the residuals from the participation equation. Identification of the parameter in the training equation requires that there is at least one variable in X_p – the vector of exogenous variables in Equation (2), the participation equation – that does not appear in X_t – the vector of exogenous variables in Equation (1), the training outcomes equation.

Chapter 4

THE IMPACT OF THE TRAINING SUPPORT SCHEME

4.1 Measures of Training Activity

The principal objective of the Training Support Scheme is to bring about an increase in the level of formal training of workers in Irish enterprises.⁶ In this chapter we examine the extent to which the scheme was successful in realising that objective. To do so we compare the levels of training activity in the sample of 323 firms that participated in the scheme and the 116 firms which did not. The sampling procedures for both participant and non-participant groups are described in Chapter 3, as are the methodological issues involved in the comparison. For those with a particular interest in the scheme as it applied to participant firms, we present selected summary statistics from the survey of participants in Appendix 1 of this report.

TSS-aided firms, by definition, all conducted training in 1992, whereas about 50 per cent of non-participant firms conducted no training whatsoever.⁷ This presents us with a problem, since it is not clear *a priori* whether the appropriate comparison group is all non-participant firms or those non-participant firms which undertook some training in 1992. To briefly reiterate our discussion of the comparative methodology in Chapter 3, if we believe that the comparison group is the population of firms which did not participate in the TSS in 1992, then the appropriate comparison group is the entire sample of 116 non-participant firms.

⁶ For the purposes of the survey "formal training" was defined on the questionnaire as systematic supervised training during which trainees are not engaged in production – this excluded *on-the-job* training. The training could be carried out on the premises or away from the company.

⁷ This indicator of training activity is likely to overstate the proportion of non-participant firms which did engage in training, since a substantial number of companies refused to participate in the survey on the grounds that they had conducted no training in 1992. Of 33 firms in the sample of non-participant firms which refused to participate in the survey, 13 (39%) refused because they had conducted no training in 1992. We have no information on whether any of the other companies which refused to take part had conducted any training.

If, on the other hand, we believe that firms which are characterised by a "positive attitude" towards training are more likely both to seek TSS aid and to engage in more training, then it may be more appropriate to compare TSS participants with non-participants which conducted some training in 1992. Our solution is to present data separately for both all non-participant firms and only those non-participant firms which conducted some training.

Table 4.1 presents the means of a series of indicators of the volume of training activity for TSS-aided and non-participant firms, distinguishing among the latter between all non-participants and those which conducted training in 1992. The average size of TSS participant firms, 78 employees, was significantly larger than the average size of all non-participant firms (46 employees). However, the average size of non-participant firms which engaged in some training in 1992 was 69, much closer to the mean size of TSS firms. Both were very substantially larger than the mean size of non-TSS firms which conducted no training whatsoever. This comparison would therefore suggest that smaller firms had a higher probability of engaging in no training whatsoever, and that there is little difference in the average size of TSS-aided firms and non-TSS firms which trained.

Table 4.1: *Mean Indicators of Training Activity, TSS-Participant and Non-Participant Firms*

	<i>TSS Firms</i>	<i>Non-TSS-participants</i>	
		<i>All Firms</i>	<i>Conducted Some Training</i>
No. of firms	323	116	57
No. of employees	77.8	46.1	69.0
Mean training days per employee	2.2	1.2	1.6
Mean training days per trainee	4.6	3.6	3.6
	%	%	%
% of employees receiving training	47.7	33.0	44.8
<i>Percent of total payroll:</i>			
Expenditure on training fees	1.8	0.9	1.5
Expenditure on trainee wages	1.2	0.4	0.7
Total training expenditure	3.0	1.3	2.1
TSS grant	0.4	-	-
Total expenditure on TSS-aided training (fees + wages)	1.1	-	-

Among TSS firms almost 48 per cent of employees received some training in 1992, about 45 per cent of employees in non-TSS firms which conducted training received training. Among non-TSS firms overall, however, only 33 per cent of employees received training. The ratio of total training days to total employment

was 2.2 among TSS participant firms and 1.2 among all non-participant firms, although when "non-trainers" are excluded, the mean ratio increases to 1.6 days per employee.

Among TSS firms total expenditure on training amounted to 3 per cent of payroll. This was substantially greater than the average expenditure on training for those non-TSS firms which did conduct training (2.1 per cent) and over twice the expenditure ratio of all non-TSS firms.

Table 4.2 shows the distribution of non-participant firms by firm size and indicates the proportion of firms in each size category which engaged in any training whatsoever in 1992. Just over 50 per cent of all non-participant firms conducted no formal training whatsoever in 1992. There was significant variation by firm size. About 31 per cent of firms with less than 20 employees conducted some training of their employees in 1992 compared with over 86 per cent of firms with more than 100 employees. While the general pattern is that larger firms were more likely to conduct some training, the relationship between size and training is not linear: a greater proportion of firms with between 21-50 employees conducted some training than firms in the 51-100 size category.

Table 4.2 *Training Activity by Firm Size, Non-TSS Participants*

<i>Size (Employees)</i>	<i>Number of Firms in Sample</i>	<i>No. of firms Conducting Training</i>	<i>% of Firms Conducting Training</i>
<i>Less than 20</i>	55	17	30.9
<i>21-50</i>	26	16	61.5
<i>51-100</i>	20	11	55.0
<i>101+</i>	15	13	86.6
<i>All non-participant firms</i>	116	57	49.1

Table 4.3 shows trainees as a percentage of total employment by firm size. Among firms which participated in the scheme there was little variation in the proportion of employees receiving training: about 45 per cent of employees received training in the smallest firms, compared with 49 per cent in the firms with 100 employees or more. Among the non-participant firms, about one-third of employees received training, with 17 per cent of employees in firms with less than 20 employees receiving training and just over 50 per cent of employees receiving training in firms with more than 100 employees. Among non-participant firms which conducted training, about 45 per cent of employees received training, and the proportion increased with firm size, although not in a linear fashion.

Table 4.3: *Trainees as a Percentage of Total Employees by Firm Size, TSS-Participant and Non-Participant Firms*

Firm Size (Employees)	TSS Firms	Non-TSS-Participants	
		All	Some Training
		%	
1-20	45.3	17.4	38.5
21-50	44.4	18.1	28.4
51-100	48.4	15.5	26.9
101+	49.2	50.9	55.7
Mean	47.7	33.0	44.8

Table 4.4 *Trainees as a Percentage of Total Employees for selected Economic Sectors, TSS-Participant and Non-Participant Firms*

Sector	TSS Firms	Non-TSS-Participants	
		All	Some Training
		%	
Chemicals	55.2	61.4	70.5
Construction	28.8	18.6	20.4
Engineering	43.3	24.6	34.6
Food, Drink & Tobacco	46.9	51.2	70.8
Printing & Paper	63.2	14.0	26.4
Mean	47.7	33.0	44.8

Table 4.4 shows the percentage of employees who received training for selected economic sectors.⁸ There was considerable sectoral variation in the percentage of employees receiving training. In the construction industry only 30 per cent of TSS-participant firms received training, compared with about 20 per cent of employees in non-TSS firms. In the printing and paper sector, 63 per cent of employees in TSS-aided firms trained, compared with only 14 per cent of employees in non-participant firms. The comparison of TSS-aided firms with non-participants which trained reveals no systematic pattern. In two sectors, chemicals and food, drink and tobacco, a higher proportion of employees in non-TSS firms received training than in TSS firms. In both cases, there was a number of large firms, with well over 100 employees, which conducted a significant amount of training without TSS aid. Their presence distorts the comparison between TSS and non-TSS firms in those sectors.

⁸ Only sectors with at least 10 firms in each category (TSS and non-TSS participants) are reported.

Table 4.5: *Duration of Training by Firm Size (Training Days per Trainee)*

<i>Firm Size (Employees)</i>	<i>TSS Participants</i>	<i>Non- Participants</i>
	<i>Days</i>	
1-20	14.2	7.5
21-50	5.7	6.6
51-100	5.6	5.5
101+	4.0	2.8
Mean	4.6	3.6

Table 4.6: *Duration of Training Selected Sectors (Training Days per Trainee)*

<i>Sector</i>	<i>TSS Participants</i>	<i>Non- Participants</i>
	<i>Days</i>	
Chemicals	3.1	2.8
Construction	6.8	6.3
Engineering	7.1	4.9
Food, Drink & Tobacco	2.1	2.7
Printing & Paper	3.9	5.9
Mean	4.6	3.6

Tables 4.5 and 4.6 compare the duration of training (training days per trainee) for TSS participants and non-participants. The average duration of training in TSS participant firms, 4.6 days per trainee, is somewhat longer than the duration of training in non-participant firms 3.6. The difference between the two is most pronounced among the smallest firms, where the duration of training in TSS firms was 14.2 days, compared with 7.5 days in the non participant firms. Moreover, the duration of training tended to be substantially longer in firms with less than 20 employees, whether they participated in the TSS or not. Among firms in other size categories, the differences in duration of training between TSS and non-TSS participants are not as great, although there is no clear pattern.

Arguably, the most appropriate measure for comparing the volume of training between firms is the ratio of total training days to total employment in the firm. The measure is standardised by firm size and it is equivalent to the product of: (1) the proportion of the workforce receiving training; and (b) the duration of that training. Table 4.7 shows the ratio of training days to total employment by firm size, distinguishing, for TSS-aided firms, between total and unaided training days. In general, the total number of training days per employee was higher among TSS-aided firms than among non-participants. On average TSS-aided firms

conducted 2.2 days of training per employee, compared with an average of 1.2 days per employee in all TSS firms and 1.6 days per employee among non-participant firms which trained. Note that the total for TSS-aided firms consisted of 0.8 days training carried out with TSS aid and 1.4 unaided days, the latter being slightly above the average for all non-participants and slightly below the average ratio for those which trained. *Ceteris paribus*, if all TSS aided training were additional, then the average unaided training among TSS participants should be equal to that for non-participants.

Table 4.7 *Training Days per Employee by Firm Size*,

Firm Size (Employees)	TSS Firms		Non-Participants	
	Total Training	Unaided	All Firms	Some Training
	<i>Days per Employee</i>			
1-20	6.5	3.1	1.3	2.9
21-50	2.5	1.3	1.2	1.9
51-100	2.7	1.5	0.9	1.5
101+	1.9	1.4	1.4	1.6
Mean	2.2	1.4	1.2	1.6

The greater level of total training among TSS-aided firms was most pronounced among firms with less than 20 employees. Total training in TSS-aided firms in this size category was over twice the ratio among non-participants which trained. The differences were much less among large firms. Generally, the differences between unaided training among TSS firms, and total training in unaided firms which trained were relatively small, suggesting that most of the differences in total training activity should be attributed to TSS aid.⁹ Moreover, the substantial differences in training between small TSS-aided firms and both larger firms and non-participants appears to be largely due to the scheme.

Comparing total training days per employee between TSS and non-TSS firms across different economic sectors, it is clear that firms in receipt of TSS aid carried out significantly more training in engineering, printing and construction sectors. If we compare unaided training with the average ratios among firms which trained, the differences are relatively small, suggesting that the differences in total training is a function of TSS aid. The large firms in the chemicals and food sectors (discussed above) again distort the comparison.

⁹ The total number of unaided training days per employee among TSS participants with less than 20 employees was substantially greater than in larger firms. This was mainly due to apprenticeship training, which accounted for a substantially greater share of total training activity in the small than in the larger firms.

Table 4.8 *Training Days per Employee for Selected Economic Sectors*

Firm Size (Employees)	TSS Firms		Non-Participants	
	Total Training	Unaided	All Firms	Some Training
	<i>Days per Employee</i>			
Chemicals	1.7	1.1	1.7	2.0
Construction	2.0	0.9	1.2	1.3
Engineering	3.1	1.8	1.2	1.7
Food, Drink & Tobacco	1.0	0.6	1.4	2.2
Printing & paper	2.4	1.8	1.6	1.6
Mean	2.2	1.4	1.2	1.6

Table 4.9: *Occupational Structure and per cent of Each Occupational Group Trained, TSS-aided and Non-Participant Firms*

Occupation	TSS-aided Firms		Non-Participant Firms			
	As % of Occ. Group	% of Occ. Group Trained	All Firms		Some Training	
			As % of Occ. Group	% of Occ. Group Trained	As % of Occ. Group	% of Occ. Group Trained
Managers	8.3	65.7	8.3	32.2	7.8	48.3
Supervisors	5.6	63.9	5.0	43.2	5.3	55.9
Prof/tech	5.1	59.5	6.6	44.4	7.7	52.3
Technicians	4.0	65.3	4.1	29.3	4.1	40.8
Sales	4.3	58.3	3.8	22.2	3.0	39.0
Admin/clerical	10.3	48.3	12.2	39.9	12.2	55.6
Crafts	6.6	38.2	9.2	24.2	7.4	41.0
Apprentices	1.8	55.0	1.7	22.8	1.3	41.8
Operatives	51.2	40.8	45.8	33.7	48.6	42.5
Other	2.7	33.3	3.0	25.4	2.7	38.6
All	100.0	47.6	100.0	33.0	100.0	44.8

Table 4.9 shows occupational structure and the percentage of each occupational group receiving training for both TSS-aided and non-participant firms. The occupational distribution of TSS aided firms is very similar to that of non-participants, although TSS-aided firms employed a slightly higher percentage of operatives. While a greater percentage of each occupational group received training among TSS-aided firms, the differences between TSS-aided and non-participant firms were greatest among managers, supervisors, technicians and sales people. This was true of comparisons between TSS-aided firms and either all non-participants or those which engaged in training.

Table 4.10 shows mean training days per employee by occupational group. As might be expected, apprentices received more training days per apprentice than any other occupational group. The ratio of total training days per employee was higher among TSS-aided firms than among unaided firms in each occupational group. However, the mean volume of *unaided* training in TSS-aided firms was lower than the total volume of training in five occupational groups in all non-participant firms (managers, supervisors, technicians, administrative/clerical workers and crafts-persons). When we compare unaided training in TSS-aided firms with total training in non-participants which trained, the volume of training was generally higher in the latter. The main difference between the TSS-aided and other firms appears to lie in the training of apprentices. TSS-aided firms provided an average of 20 days training per apprentice, of which just under 18 days were unaided (apprenticeship training *per se* is not eligible for aid under the scheme),

Table 4.10 *Training Days per Employee by Occupational Group*¹

Occupation	TSS Firms		Non-Participants	
	Total Training	Unaided	All Firms	Some Training
	<i>Days per Employee</i>			
Managers	4.3	1.5	1.6	2.5
Supervisors	2.9	1.5	1.7	2.3
Prof/tech	2.9	1.7	1.7	2.1
Technicians	2.5	1.3	1.4	1.9
Sales	2.0	1.2	1.1	1.9
Admin/clerical	1.6	0.7	1.4	2.0
Crafts	1.3	0.7	0.9	1.5
Apprentices	20.1	17.7	6.6	11.9
Operatives	1.4	1.1	0.7	1.0
Other	0.9	0.5	0.5	0.8
All	2.2	1.4	1.2	1.6

¹ "Training days per employee" refers to the mean number of training days in each occupational group divided by mean number of employees in that occupational group – thus, for example, the number of training days *per manager* among TSS-aided firms was 4.3.

and the volume of training of apprentices was substantially higher among TSS-aided firms than among non-participants, even those which had conducted training. Table 4.10 would therefore suggest that while TSS-aided firms did conduct substantially more training than unaided firms, TSS-aided and

non-participant firms do not appear to be significantly different with respect to training activities undertaken without state support, although TSS-aided firms did conduct more apprenticeship training than non-participants. This would suggest that the volume of additional training which can be attributed to the TSS may be quite limited in respect of most occupations.

Tables 4.11 to 4.14 show occupational structure and training levels by firm size. Occupational structures vary by firm size, and small firms tend to have a larger proportion of employees in managerial, supervisory and professional/technical occupations than larger firms. This pattern is true of both groups of firms, with the result that, within size categories, TSS-aided and non-participant firms are very similar with respect to occupational structure. Among TSS-aided firms there is little variation by size of firm in the percentage of employees which received formal training in 1992: in firms with less than 20 employees 45 per cent of employees received training, compared with 49 per cent

Table 4.11: Training Activity by Occupational Group, Firms with Less than 20 Employees

	TSS-Aided Firms			Non-Participant Firms		
	As % of Occ. Group	% of Occ. Group Trained	Days/ ¹ Total Employment	As % of Occ. Group	% of Occ. Group Trained	Days/ ¹ Total Employment
Managers	18.9	65.4	1.38	21.3	13.5	0.16
Supervisors	6.1	54.1	0.28	4.7	28.2	0.08
Prof/tech	6.4	62.5	0.59	7.3	14.8	0.06
Technicians	5.9	35.6	0.17	4.0	60.6	0.07
Sales	5.6	35.7	0.12	7.5	17.5	0.02
Admin/clerical	12.1	50.4	0.40	13.3	15.3	0.38
Crafts	10.3	21.4	0.45	8.3	5.8	0.18
Apprentices	6.4	50.0	2.25	1.3	0.0	0.00
Operatives	22.4	27.4	0.54	24.0	24.0	0.10
Other	6.0	53.3	0.16	6.2	3.8	0.00
All	100.0	45.3	6.45	100.0	17.4	1.30

¹ "Days/Total Employment" refers to mean number of days training received by the occupational group over total employment

Table 4.12: *Training Activity by Occupational Group, Firms With 21-50 Employees*

	<i>TSS-Aided Firms</i>			<i>Non-Participant Firms</i>		
	<i>As % of Occ. Group</i>	<i>% of Occ. Group Trained</i>	<i>Days/ Total Employment</i>	<i>As % of Occ. Group</i>	<i>% of Occ. Group Trained</i>	<i>Days/ Total Employment</i>
Managers	12.6	65.2	0.49	11.8	32.7	0.28
Supervisors	6.4	56.5	0.19	5.7	8.0	0.02
Prof/tech	4.1	58.7	0.15	9.6	30.4	0.19
Technicians	3.4	67.0	0.11	7.7	34.9	0.17
Sales	7.3	55.1	0.17	2.6	0.0	0.00
Admin/clerical	12.1	39.4	0.13	10.0	19.8	0.09
Crafts	8.2	31.8	0.09	17.6	4.0	0.10
Apprentices	2.7	35.6	0.22	3.8	18.5	0.27
Operatives	39.6	33.7	0.84	26.1	18.5	0.04
Other	2.7	20.9	0.01	4.2	53.7	0.04
All	100.0	44.4	2.53	100.0	18.1	1.20

Table 4.13: *Training Activity by Occupational Group, Firms With 51-100 Employees*

	<i>TSS-Aided Firms</i>			<i>Non-Participant Firms</i>		
	<i>As % of Occ. Group</i>	<i>% of Occ. Group Trained</i>	<i>Days/ Total Employment</i>	<i>As % of Occ. Group</i>	<i>% of Occ. Group Trained</i>	<i>Days/ Total Employment</i>
Managers	8.4	64.5	0.44	8.5	11.8	0.09
Supervisors	5.8	64.4	0.25	4.6	18.7	0.02
Prof/tech	4.9	35.3	0.10	2.3	6.5	0.00
Technicians	2.5	43.7	0.14	6.7	3.2	0.01
Sales	6.4	57.0	0.06	8.1	15.8	0.02
Admin/clerical	10.5	45.9	0.28	10.2	13.2	0.12
Crafts	6.3	25.9	0.04	7.5	4.7	0.01
Apprentice	2.7	57.0	0.59	1.0	0.0	0.00
Operatives	51.1	48.9	0.67	46.4	19.3	0.56
Other	1.7	9.9	0.01	2.9	9.7	0.01
All	100.0	48.4	2.70	100.0	15.5	0.85

Table 4.14: *Training Activity by Occupational Group, Firms With More Than 100 Employees*

	TSS-Aided Firms			Non-Participant Firms		
	As % of Occ. Group	% of Occ. Group Trained	Days/ Total Employment	As % of Occ. Group	% of Occ. Group Trained	Days/ Total Employment
Managers	6.1	67.0	0.23	5.0	65.3	0.12
Supervisors	5.0	66.9	0.13	5.0	71.7	0.15
Prof/tech	5.0	64.1	0.12	7.8	61.0	0.17
Technicians	4.1	69.0	0.08	1.5	70.0	0.04
Sales	3.0	63.7	0.07	1.2	66.5	0.07
Admin/clerical	9.2	51.1	0.13	13.7	59.9	0.21
Crafts	5.7	45.2	0.07	7.4	54.2	0.10
Apprentices	1.0	67.1	0.21	1.5	39.5	0.14
Operatives	52.4	41.3	0.68	54.9	43.8	0.37
Other	2.5	35.7	0.02	2.1	30.3	0.01
All	100.0	49.2	1.94	100.0	50.9	1.43

of employees of large firms. Among non-participant firms, however, smaller firms trained substantially fewer of their employees – for each of the three size categories below 100 employees, the percentage of employees trained was 18 per cent or less, whereas among firms with 100 or more employees over 50 per cent of employees received training in 1992.

The differences between the two groups of firms are particularly stark when we compare the ratio of training days received by each occupational group to total employment among small firms with less than 20 employees. Among the smallest TSS-aided firms the ratio of total days training to total employment was 6.45 days per employee, of which over one-third, 2.25 days, were received by managers, supervisors and professional/technical occupations, a further 2.25 days were received by apprentices, and 0.5 days by operatives. Among similarly sized non-participant firms, the ratio of total training days to total employment was 1.3 days, of which only 0.3 were received by managerial and professional occupations, a further 0.1 days were received by operatives, and the training of apprentices was negligible.

The differences between TSS-aided and non-participating firms are much less among firms with more than 100 employees. A similar proportion (50 per cent) of employees in each group received formal training in 1992, and the ratio of total days training to total employment was 1.94 days among large TSS-aided firms and 1.43 among non-participants. While TSS-aided firms showed a higher ratio of training days to total employment among managers than non-participant firms (.23 to .12), if we combine the three managerial, supervisory and professional

categories, there is little difference in the ratio of training days to total employment between aided and unaided firms (0.48 versus 0.44). The main difference between the two groups lies in the training of operatives: among large TSS-aided firms, the ratio of training days received by operatives to total employment was .68, compared with a ratio of .37 among non-participant firms. Our disaggregation of training by firm size and occupational group serves to reinforce our general conclusions that the differences between TSS-aided and non-participant firms are greatest among smaller firms, and that the impact of the TSS was, therefore, greater among smaller firms.

Indigenous firms are believed to conduct less training than foreign-owned firms, largely because the foreign-owned sector is more heavily concentrated in modern export industries and, therefore, more likely to invest in training in order to enhance competitiveness, whereas Irish firms, particularly those in traditional industrial sectors, are more oriented toward domestic markets, and, at least to some extent, sheltered from the full force of international competition.

Table 4.15 shows the percentage of employees trained and the ratio of training days to total employment for Irish-owned and foreign-owned firms by size. Among TSS-participant firms, foreign-owned firms trained a larger percentage of their employees than Irish firms, although the ratio of training days to total employment was slightly higher among the Irish firms. Among Irish-owned TSS participants, however, there was substantial variation by firm size, with smaller firms training a greater proportion of their employees and with a higher ratio of training days to total employment than among larger firms. Again, this is contrary to the expected relationship between firm size and the level of training activity. Among foreign-owned firms there is a positive relationship between training activity and firm size.

Table 4.15: *Training Activity by Ownership and Firm Size*

	<i>TSS Participants</i>			<i>Non-Participants</i>		
	<i>Trainees as % of Employment</i>	<i>Training Days/ Employment</i>	<i>N</i>	<i>Trainees as % of Employment</i>	<i>Training Days/ Employment</i>	<i>N</i>
	%	%		%	%	
Irish	36.5	2.4	212	20.0	0.9	97
< 50 Employees	44.0	4.1	155	17.0	1.2	74
> 51 Employees	34.0	1.8	57	21.6	0.7	23
Foreign	59.5	2.2	84	54.5	1.9	17
< 50 Employees	45.0	2.1	38	25.2	1.7	7
> 51 Employees	61.3	2.3	46	57.0	1.9	10
All Firms						
< 50 Employees	44.3	3.5	193	17.9	1.2	81
> 51 Employees	47.7	2.0	103	36.8	1.2	33

Comparing participant firms with non-participants, we find that TSS participants generally engaged in more training, and trained more of their employees than did non-participants. Foreign firms trained a substantially greater proportion of their employees (55 per cent) than did Irish-owned firms (20 per cent). And among non-participant firms, the relationship between firm size and the level of training activity was generally positive – although larger Irish firms did show a lower ratio of total training days to total employment than did smaller Irish firms. The comparison clearly points to the conclusion that TSS participant firms engaged in a greater level of training activity than non-participant firms, and that the differences in training activity were greatest among smaller Irish-owned firms.

Table 4.16 shows training activity by the percentage of total output exported and firm size, distinguishing between those firms which exported less than 90 per cent of their output and those which exported more than this proportion. Among TSS participants, "low-exporting" companies trained a higher percentage of their employees than did "high-exporting" firms, although the latter showed a lower ratio of training days to total employment. Controlling for firm size, we find a similar inversion of the expected size-training relationship, with smaller "low-exporting" firms engaging in a greater level of training than the larger "low exporters". Among "high exporters", the relationship between size and training was less clear, with smaller firms training less of their employees, but conducting more training days per employee. Non-participant firms showed lower levels of training activity than TSS participants. Among non-participants, "low-exporters" trained less than "high exporters", but among "low-exporters", larger firms trained less than smaller firms – mirroring the pattern found among TSS participants. Among "high-exporting" non-participants, there was no variation by firm size in the ratio of training days to total employment, although larger firms trained a larger proportion of their workforce. We cannot, however, place much confidence in this comparison because of the small number of cases.

Table 4.16: *Training Activity by Percentage of Total Product Exported and Size*

	TSS-Participants			Non-Participants		
	<i>Trainees as % of Employment</i>	<i>Training Days/ Employment</i>	<i>N</i>	<i>Trainees as % of Employment</i>	<i>Training Days/ Employment</i>	<i>N</i>
<90% exported	41.7	2.5	225	15.5	0.8	94
< 50 Employees	44.6	3.8	163	17.0	1.2	74
> 51 Employees	40.7	2.1	62	14.4	0.6	20
> 90% exported	55.3	2.0	71	53.5	1.8	20
< 50 Employees	43.2	2.3	30	25.6	1.8	7
> 51 Employees	56.5	1.9	41	55.1	1.8	13

4.2 *Assessing the Net Effects of the TSS*

In attempting to assess the impact of the TSS in stimulating a greater volume of training activity, we first look at whether respondents in firms which participated in the TSS in 1992 were of the opinion that their companies would have engaged in the same level of training in 1992 even if the TSS had not existed. Over half of the respondents replied that their companies would have engaged in the same level of training in 1992, even if the TSS had not existed. However, virtually the same proportion considered that without the TSS less training (40 per cent) or no training (8 per cent) would have been undertaken. These findings would suggest that in about half of all TSS-aided firms, the TSS had the effect of inducing a net increase in the level of training activity, and that in the other half the scheme subsidised training which would have taken place anyway.

Table 4.17: *Likely Level of Training if Training Support Scheme Had Not Been in Existence in 1992, All TSS Firms*

<i>Impact</i>	<i>Number</i>	<i>Percentage</i>
No Training at all in 1992	24	8.1
Less Training in 1992	120	40.4
Same Amount in 1992	153	51.5
No Answer	26	-
Total	323	100

Table 4.18 provides a breakdown of whether companies would have undertaken the same or less training in the absence of the TSS by firm size and shows that this admittedly subjective measure of the net impact of the TSS is related to firm size. Over 60 per cent of the smallest firms responded that they would have engaged in either no training whatsoever or in less training than they actually conducted in 1992 had the TSS not been in existence. This was true of 55 per cent of firms with 21-50 employees but only 27 per cent of firms with more than 100 employees. This would, therefore, suggest that the net impact of the TSS in promoting a greater level of training than would otherwise have taken place was greatest among smaller firms, and, conversely, that for a substantial majority of large firms the TSS represents a subsidy to training activities which would have been undertaken irrespective of the TSS. These findings may have implications for the design of the scheme: the deadweight element could be reduced if a greater proportion of small firms were to receive aid.

Table 4.18: *Likely Level of Training if Training Support Scheme Had Not Been in Existence in 1992, by Firm Size*

<i>Impact</i>	<i>Number</i>	<i>Percentage</i>
<i>Less than 20 Employees</i>		
Less or no training	59	60.8
Same level of training	38	39.2
<i>21-50 Employees</i>		
Less or no training	49	55.1
Same level of training	40	44.9
<i>51-100 Employees</i>		
Less or no training	17	41.5
Same level of training	24	58.5
<i>101+ Employees</i>		
Less or no training	19	27.1
Same level of training	51	72.9

It must be recognised, however, that this measure of the deadweight of the scheme relies on the subjective judgements of respondents regarding whether they would have engaged in an activity which is generally regarded as commendable if they had not received financial aid. This might bias responses toward understating the net impact, or overstating the deadweight, of the scheme. On the other hand, it is possible that respondents, cognisant of the concern to minimise deadweight, might suspect that answering that they would have engaged in their reported level of training, even without grant aid, would lead to a reduction in funding for the scheme. This would tend to bias responses in the other direction – towards overstating the net impact of the scheme and understating its deadweight. There is no rigorous way in which we can adjudicate between these opposing sources of bias if we rely only on the subjective responses of participants in the scheme.

Up to this point we have compared various measures of the volume of training activity in TSS-aided firms and non-participants, controlling for those factors which might have an effect on the level of training independent of participation in the TSS – e.g., size, sector, occupational structure, ownership and per cent of product exported. These comparisons suggest that TSS-aided firms conducted more training of their employees than did unaided firms but they do not allow us to rigorously assess the extent to which the greater level of training activity was due to TSS aid, net of other factors, nor to judge how much training might have been conducted in those firms in the absence of TSS aid. We now move to a multiple

regression framework to analyse systematically the effects of participation in the Training Support Scheme, net of other theoretically salient characteristics of firms. Table 4.19 shows the main variables used in the regression analysis.

Table 4.19 *Variables in the Regression Analysis*

Dependant variable:

TRAINING DAYS/ EMPLOYMENT	The total number of training days conducted expressed as a ratio of total employment in the firm.
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Independent variables:

PARTICIPATION	A dummy variable, coded 1 for participation in the TSS. The reference category is therefore non-participation.
SIZE	The total number of employees
MANAGEMENT %	The number of managers, supervisors and professional/technical workers expressed as a proportion of total employment.
FOREIGN	A dummy variable coded 1 if the firm is not majority Irish-owned.
EXPORTS %	Total exports expressed as a percentage of total output.
GROWTH	A dummy variable coded 1 if the company reported that sales or turnover had grown during 1992.
SMALL	A dummy variable coded 1 for companies with 20 employees or less.
Sector:	We specified dummy variables for all sectors in which there were at least 5 cases in the comparison group: chemicals, construction, physical distribution, engineering, food, and printing. The reference category included clothing and footwear, textiles, internationally traded services, and other industries.

Table 4.20 reports the results of the analysis of the determinants of the ratio of total training days to total employment. Equation A suggests that PARTICIPATION, and the percentage of managerial and supervisory workers in total employment have positive effects on the volume of training, firm SIZE has a negative but non-significant effect. None of the other variables, in the model – ownership, exports, growth, or economic sector – achieved significance.

Equation B includes the interaction between SMALL firms and PARTICIPATION to test whether small participant firms differ significantly in their volume of training activity. The SMALL*PART term is strongly positive and highly significant, and its inclusion reduces the effect of PARTICIPATION and MANAGEMENT% to only marginal significance. Equation B, therefore, suggests that the effects of the TSS in stimulating an increase in the number of training days conducted per trainee is mainly confined to small firms, those with 20 employees or less, while its effect on larger firms is likely to have been marginal.¹⁰

We are, however, concerned that this finding – that the net positive effect of the TSS is confined to small firms – may be an artefact simply of the graduated subsidy rates in the scheme. Firms with less than 50 employees were eligible for

Table 4.20 *Determinants of the Ratio of Total Training Days to Total Employment*

	Equation: A		B		C	
	Coefficient	T-ratio	Coefficient	T-ratio	Coefficient	T-ratio
PARTICIPATION	2.38	3.74	1.22	1.80	1.33	1.52
SIZE	-0.004	-1.22	0.001	0.20	0	0.06
MANAGEMENT%	0.05	2.95	0.03	1.75	0.03	1.76
FOREIGN	-0.5	-0.67	-0.02	-0.03	-0.02	-0.02
EXPORTS	-0.01	-1.61	-0.01	-1.45	-0.01	-1.42
GROWTH	0.7	1.27	0.84	1.54	0.85	1.55
SMALL*PART			3.35	4.44	3.21	3.20
MEDIUM*PART					-0.19	-0.20
<i>Sectors:</i>						
CHEMICALS	-0.6	-0.63	-0.27	-0.29	-0.28	-0.30
CONSTRUCTION	0.62	0.58	0.70	0.67	0.71	0.67
DISTRIBUTION	-1.59	-1.29	-1.75	-1.44	-1.75	-1.45
ENGINEERING	0.75	0.93	0.77	0.98	0.78	0.98
FOOD	-1.54	-1.58	-1.18	-1.23	-1.18	-1.23
PRINTING	-0.64	-0.57	-0.47	-0.43	-0.46	-0.42
Constant	1.23	1.40	0.85	0.99	0.86	1.00
R ²	0.124		0.167		0.167	
Adj R ²	0.097		0.138		0.136	

¹⁰ Our comparison of training by occupation suggested that TSS-aided firms conducted more training of apprentices than did non-participants. To control for this we estimated a series of models which added a variable measuring the number of apprentices employed to each of the equations reported in Tables 4.20 and 4.21, but found no significant effects (results not reported).

grants of up to 65 per cent of training fees, firms with 50-200 employees could receive up to 40 per cent, and firms larger than 200 employees could claim a maximum of 25 per cent. If the greater volume of training observed in small firms is simply due to the higher subsidy rate paid to smaller firms, then we would expect that the higher rate should have a similar effect in firms with between 21 and 50 employees since all were subject to the same subsidy regime. To test this we added an additional interaction term *MEDIUM*PART* in Equation C – *MEDIUM* is a dummy variable coded 1 for companies with between 21 and 50 employees. The effect of the interaction term is negative and non-significant while the *SMALL*PART* term remains positive and strongly significant, and the addition of the second interaction term adds nothing to the fit of the model. We conclude, therefore, that the principal effect of the TSS is to stimulate training in small firms, but that it has no additional effect in medium-sized firms, even though they are eligible for the same level of grant aid.

We noted above that it is not clear *a priori* whether the appropriate comparison group is all non-participant firms or those non-participant firms which undertook some training in 1992. While the population to which we wish to compare TSS-aided firms consists of all unaided firms, it can be argued that we should confine our comparison to firms which have demonstrated some commitment to training – i.e., to those firms which did conduct some training in 1992. Our solution elsewhere in this chapter was to present the evidence on both comparisons. Our regression analysis presented in Table 4.20 compares TSS-aided firms with all non-participants. In Table 4.21 we narrow the comparison to those firms which did engage in training in 1992. This represents a more strenuous test of the impact of the TSS: Substantively it asks whether, among a sample of firms which did engage in training in 1992, TSS aid led to a greater volume of training than would otherwise have occurred.¹¹

When we restrict the comparison to firms which engaged in some training in 1992 the effect of *SMALL*PART* remains positive and significant, but the general effect of *PARTICIPATION*, positive but marginally significant at best in Equation D, is eliminated with the inclusion of *SMALL*PART* in Equation E. Our findings would, therefore, suggest that the effects of the TSS in stimulating an increase in the number of training days per employee is mainly confined to small firms, those with 20 employees or less, while its effect in larger firms is likely to have been marginal if the comparison is with the population of similar firms in 1992, and non-existent if the comparison is confined to those firms which demonstrated some commitment to training in 1992.

¹¹ Statistically, the test is more strenuous because the observed differences in volumes of training are smaller when the comparison is limited to those firms which trained.

Table 4.21 *Determinants of the Ratio of Total Training Days to Total Employment Comparing TSS-aided Firms With Non-Participants Which Trained*

Equation	D		E	
	Coefficient	T-ratio	Coefficient	T-ratio
PARTICIPATION	1.38	1.59	0.22	0.25
SIZE	-0.004	-1.37	-0.003	-0.08
MANAGEMENT%	0.04	2.12	0.02	1.07
FOREIGN	-0.54	-0.64	-0.05	-0.06
EXPORTS	-0.02	-1.71	-0.01	-1.48
GROWTH	0.77	1.18	-0.05	1.49
SMALL*PART			3.32	4.07
<i>Sectors:</i>				
CHEMICALS	-0.64	-0.59	-0.29	-0.27
CONSTRUCTION	0.56	0.44	0.65	0.53
DISTRIBUTION	-2.08	-1.41	-2.24	-1.56
ENGINEERING	0.78	0.83	0.82	0.9
FOOD	-1.78	-1.55	-1.34	-1.19
PRINTING	-0.95	-0.72	-0.73	-0.56
Constant	2.66	2.19	2.2	1.84
R ²	0.093		0.136	
Adj R ²	0.059		0.102	

An enduring issue with comparisons of this type is the problem of selection bias (Heckman and Robb, 1986). In the present analysis the issue concerns the possibility that we may not have measured all of the relevant characteristics of firms, and that unmeasured variables may be related both to the outcome and to participation. For example, firms with a more positive evaluation of the benefits of investment in training might have been more likely both to apply to participate in the Training Support Scheme and to engage in a greater level of training activity. Our restricted comparison of firms which trained in 1992 in Table 4.21 attempted to control for one source of selection bias by taking account of one obvious and observable source of selection bias, undertaking training in 1992, but it does not take account of other unobserved variables which could potentially affect both participation in the scheme and level of training. We present below one relatively simple approach to controlling for such unobserved sources of selection bias.

We can think of participation in the TSS as two separate processes: (1) The decision to apply to participate in the TSS; and (2) the impact of participation in the scheme on training activity. These can be represented in two equations:

(1) is a participation equation, where P is the probability of participating in the TSS,

$$P = B_1 + B_2 * X_p + U_p \quad (1)$$

and X_p denotes a vector of variables determining scheme participation.

$$T = B_3 + B_4 * X_t + B_5 * P + U_t \quad (2)$$

(2) is the substantive equation modelling the effects of scheme participation on training, where T is a measure of the level of training activity, X_t is a vector of variables determining training, and P is a dummy variable coded 1 for participation. Equation (2) is the Ordinary Least Squares (OLS) model reported in Tables 4.20 and 4.21.

Note that the endogenous variable in Equation (1) is an exogenous variable in Equation (2). If there exists any variable omitted from both (1) and (2) which influences both P (the probability of participation) and T (the training outcome), the residuals from the two equations would be correlated, and the coefficient B_5 would be a biased estimate of the effect of participation on T .

The most straightforward approach to overcoming the problem of correlated residuals is to use instrumental variables on the substantive Equation (2). In the present analysis the instrument we use is P^* , the fitted values of P from the participation Equation (1). P^* is highly correlated with P , but uncorrelated with U_p , the residuals from the participation equation. Identification of the parameters in the training equation requires that there is at least one variable in X_p – the vector of exogenous variables in Equation (1), the participation equation – that does not appear in X_t – the vector of exogenous variables in Equation (2), the training outcomes equation. In the first stage of the two-stage least squares estimation, we regressed P on the vector X_t from Equation A above, plus a variable coded 1 if the company had used any of FÁS services in the two years prior to the interview. We then substitute P^* for P in Equation (2) in the Two-Stage Least Squares (TSLS) estimation of the training outcomes equations.

Table 4.22 compares the coefficients of the PARTICIPATION variables from the OLS estimates in Tables 4.20 and 4.21 with the corresponding coefficients from the TSLS estimates. In both comparisons the TSLS estimates of the effects of PARTICIPATION are higher than the OLS estimates but neither OLS nor TSLS estimates are significant. The TSLS coefficients for the interaction between participation and small firm size are slightly higher, suggesting that omitted variables appear to bias our OLS estimates of the effects of scheme participation

downwards. More generally, however, the pattern of results remain robust¹² to tests for omitted variable or selection bias, as do our conclusions: *ceteris paribus*, the Training Support Scheme resulted in a net increase in the volume of training activity in small firms, those with less than 20 employees, but its effect in larger firms is likely to have been marginal if we compare TSS participants with the entire population of similar firms which might have participated in the scheme in 1992, and non-existent if we compare TSS-aided firms with other firms which conducted some training in 1992 but did not participate in the scheme. This interpretation is consistent with our finding that there was a substantial element of deadweight in the scheme, as subjectively assessed by respondents in TSS-aided firms, and that the deadweight was greater among larger firms.

Table 4.22 *Effects of Possible Omitted Variables on Estimated Coefficients of Scheme Participation*

	Comparing All Firms		Comparing Firms Which Trained	
	OLS	TOLS	OLS	TOLS
OLS Equation:	B		E	
PARTICIPATION	1.22 (1.80)	1.92 (1.74)	0.22 (0.25)	0.70 (0.42)
SMALL*PART	3.35 (4.45)	3.42 (3.98)	3.32 (4.07)	3.80 (4.30)

The comparison of TSS with non-participant firms suggests that TSS firms were characterised by higher levels of training, whether measured in terms of the proportion of employees receiving training, total training days per employee, or expenditure on training. The greatest differences between the two groups were among small firms. Small non-participant firms were less likely to conduct formal training than larger firms, and both the proportion of total employees trained and the volume of training was substantially lower among small non-participant firms than among small TSS-aided firms. Among larger firms, however, the differences between TSS-aided and non-participant firms were relatively slight. These findings provide support for our general conclusion that the impact of the scheme was greatest among small firms.

The multivariate analysis provides additional support for this general conclusion regarding the impact of the TSS on small firms. The analysis also suggests, however, that when we control systematically for those factors expected

¹² The pattern of coefficient signs and standard errors in the TOLS estimates are generally similar to the OLS estimates for the other exogenous variables in Equations B and E.

to influence the level of training activity, the TSS resulted in additional training *only* in small firms, while any net positive effect of the TSS among larger firms is dubious. These findings are, moreover, consistent with the subjective assessments that levels of deadweight were higher in larger firms. We must, therefore, conclude that for a significant number of firms which participated in the scheme, the TSS had no discernible impact in increasing the level of employee training. In those, larger, firms the TSS subsidised training which would have been undertaken in the absence of the scheme, resulting in a subsidy to the operating costs of those enterprises and a net loss to the exchequer.

Chapter 5

CONCLUSIONS

Our review of the empirical evidence suggests that Ireland suffers from deficiencies in both qualifications and skills when compared with leading industrial countries. A relatively large proportion of the adult population has low educational qualifications, representing a poor basis for further education and training. There is evidence of a skills gap at operative, supervisory and management levels, particularly in smaller indigenous firms, which adversely affect productivity, competitiveness and growth prospects. The level of training of employees is lower than the European average and is unlikely to be sufficient to bridge the qualifications and skills gaps.

The principal objective of the Training Support Scheme is to bring about an increase in the level of formal training of workers in Irish enterprises and thus to reduce the skills gap. This study has been concerned with assessing the extent to which the scheme was successful in realising that objective.

5.1 Summary of Findings

Our survey collected detailed information on the training activities of a sample of 323 firms which received grant aid under the Training Support Scheme in 1992 and compared them with a comparison group of 116 firms which did not participate in the scheme in that year.

There was a good deal of satisfaction with the scheme among the sample of participant firms. Nearly 94 per cent of respondents considered that their company's investment in training aided by the TSS was at least adequately offset. More than a quarter (28 per cent) reported that it was more than offset. Only a minority (6 per cent), considered that their company's investment in the Training Support Scheme was not worthwhile.

The survey found that nearly half of all employees in the participant firms received formal training and about 20 per cent received training supported under the TSS. Just over half of all non-participant firms conducted no training whatsoever in 1992. Overall, one-third of employees in non-participant firms received formal training in 1992.

The average number of training days per employee among TSS-aided firms was 2.2, compared to 1.2 days among non-participant firms. Total expenditure on training (including training fees and trainee wages) represented 3 per cent of total payroll among TSS-aided firms and only 1.3 per cent among non-participant firms.

Part of the difference in the average levels of training between the two samples was due to differences in average firm size – 78 employees in TSS-aided firms and 46 employees in non-participant firms. Small non-participant firms were much less likely to conduct any formal training. Among the unaided group, only 31 per cent of firms with less than 20 employees conducted any formal training in 1992, whereas this was true of over 86 per cent of firms with more than 100 employees.

The impact of the TSS differed by firm size. Among firms with less than 100 employees we found that the volume of training – as measured by the percentage of employees receiving training, the number of training days per employee, or total expenditure on training as a percentage of total payroll – was substantially greater among TSS-aided firms than among non-participants. Among larger firms, however, the differences in training volumes between aided and unaided firms were not significant. The greater level of training found among TSS-aided firms was most pronounced among firms with less than 20 employees. Total training days per employee in TSS-aided firms in this size category was over twice the ratio among non-participants.

We were particularly concerned with the issue of deadweight – the extent to which training aided under the TSS would have been carried out had TSS aid not been available. We addressed this issue in two ways. First, we asked respondents in participant firms whether they would have conducted less training in 1992 if the scheme had not been in existence. Over half of all respondents were of the opinion that their companies would have engaged in the same level of training in 1992 even if the TSS had not existed, although virtually the same proportion considered that without the TSS less or no training would have been undertaken in 1992. This subjective assessment of the net effect of the TSS was related to firm size: a greater proportion of small firms responded that they would have engaged in less training than actually took place had the TSS not been in existence in 1992. We argued, however, that such subjective assessments of the net impact of the scheme are unreliable and that it is not obvious *a priori* whether they result in over or under-estimation of deadweight of the scheme.

Our second strategy to assess the net effects of the scheme was to conduct a multivariate analysis of the effects of the scheme, comparing participant and unaided firms and controlling systematically for those factors which are expected to influence the level of training independent of participation of the TSS. The multivariate analysis suggested that the effect of the TSS in stimulating a net

increase in training was confined to small firms (those with less than 20 employees), while its effect in larger firms was likely to have been marginal. This suggests that for a significant number of firms which participated in the scheme, the TSS had no discernible impact in increasing the level of training. Thus, for larger firms, the TSS resulted in a subsidy to training which would have been undertaken without State aid.

5.2 Policy Implications

The objective of the Training Support Scheme is to increase the level of training activity in Ireland in order to enhance the productivity of the workforce and improve company, industry and national competitiveness and performance. That objective seems appropriate in the light of the widespread belief that Irish firms are poor trainers by international standards.

The Training Support Scheme is popular with employers, as evidenced both by the favourable responses to our survey of scheme participants and by the fact that the scheme is oversubscribed – allocated funding for the scheme is generally fully committed by April/May of each year. At least part of the popularity of the scheme must be attributed to its demand-led structure, whereby firms determine their training needs and then receive grant aid to purchase that training on the market.

If a popular programme is oversubscribed, should the scale of the programme be increased? Our analysis would suggest that additional funding would be used. However, the very popularity of the programme may represent an opportunity to restructure the programme in such a manner as to enhance its effectiveness. Our findings suggest that the impact of the TSS was greatest among smaller firms: the level of deadweight was lowest among small firms and the multivariate analysis shows that it was only in small firms that the scheme induced a net increase in training. These findings imply that greater targeting of grant aid towards smaller firms would reduce the deadweight element of the scheme while enhancing its impact in promoting a greater level of training. Since 1992 changes have been introduced to the TSS, including a higher subsidy rate of up to 80 per cent of programme costs for owner-managed firms with less than 12 employees and a quota system dedicating 50 per cent of the total programme budget to firms with less than 50 employees. The analyses presented in this report would suggest that these modifications are appropriate and likely to enhance the effectiveness of the programme in promoting a greater volume of training among firms which are least likely to engage in training.

A second issue concerns the duration of training. Our survey indicates that the average duration of TSS-aided training was 4 days (or 32 hours) per trainee. Concerns have been expressed in previous evaluations (Deloitte and Touche, 1991; ESF Programme Evaluation Unit, 1992 and 1993; Fitz Gerald and Keegan, 1993)

that this duration is considerably less than originally proposed for the programme and likely to be insufficient to achieve the objectives of the programme. Our survey found that average duration of TSS-aided training was longer among small firms, so increased targeting towards smaller firms may have the effect of extending average duration. A further refinement may be to vary the grant rate, providing a premium for training courses of, for instance, 5 days or more.

A third issue concerns who should be trained with TSS aid. The *National Development Plan, 1994-1999* identified the encouragement of ongoing training of employees as a major Government priority. It also asserted that the objective of the Industrial Restructuring Programme, of which the TSS was the main component, was "to improve the managerial and supervisory skill levels of employees in existing enterprises" (Government of Ireland, 1993, p. 86). However, subsequent policies on enterprise-related training appear to have diluted this concentration on the skills of managers and supervisors. The *Operational Programme for Human Resources Development* (Government of Ireland, 1995) indicates that the Training for the Employed measure, which incorporates the TSS, is to enhance the skills of employees at all levels "from management to operative grades" (p. 87). This shift in emphasis seems unfortunate. Reviews of training policy in Ireland suggest that the central problem is at management level: they argue that managers have received insufficient training for specialist functions, that they are not aware of international best practice, and are consequently reluctant to invest in training as a source of productivity growth and competitiveness (NESC, 1993a; Roche and Tansey, 1992; O'Farrell and Hitchens 1989). This suggests both that management training is itself an essential pre-requisite to increased efficiency and competitiveness, and that increased management training may also contribute to an increase in the demand for training of all workers, since well-trained managers are more likely to be aware of the need for, and benefits of, training.

Our survey found that training of managerial, supervisory and professional workers accounted for a greater share of TSS-aided training than of unaided training. If deficiencies in management training constitute a barrier to improved competitiveness and to a closing of the skills gap, then consideration should be given to altering the balance in favour of an even greater emphasis on management training under the TSS. The survey also found, however, that the proportion of TSS-aided training received by managerial and supervisory occupations was substantially greater among smaller firms. This would suggest that greater targeting of smaller firms may have the additional effect of increasing the share of TSS-aided training received by managerial, supervisory and professional occupations. Alternatively, some alterations in the incentive structure of the

scheme – for example, to introduce a higher subsidy rate for managerial training – could have a similar effect.

Finally, we have argued that policy formulation in relation to enterprise-related training in Ireland suffers from an information deficit. While the weight of evidence points both to skills deficiencies and a low incidence of training, the empirical information is, in fact, quite limited. At present we lack basic information on who needs further training, how the costs of training are shared between employers and workers, and how State policy can best intervene to correct existing skills deficiencies. These information gaps inhibit attempts to formulate a coherent strategy to rectify skill deficiencies in the Irish economy. We have suggested that one element of a strategic approach to training would include a programme of research focusing on three priority areas: (1) Research on who is being trained, by whom, and to what effect; (2) Research to identify more precisely the nature and extent of skill deficiencies in Ireland – to identify the sectors, firm types, and occupations where skill deficiencies are most severe; and (3) Research to identify those measures which are most likely to increase the incidence of enterprise-related training and rectify the skills gap in Ireland.

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Appendix 1

SURVEY RESULTS FOR TSS PARTICIPANTS

In this appendix we present a summary of the main findings of the survey of the sample of 323 TSS-aided firms only.¹³

A.1 The Volume of Training Activity

We consider first a series of indicators of training activity for the entire sample of firms which participated in the Training Support Scheme in 1992. We subsequently examine variation in training activity by firm size and industrial sector.

Table A.1 presents mean values of indicators of training activity for both total training and TSS supported training for the sample of 323 firms which participated in the TSS in 1992. Average employment in TSS participant firms was 78 (not reported in Table A.1). The mean number of persons trained in each company was 37. On average, the training of 15 of these was supported by TSS grant aid.

Table A.1: *Mean Indicators of Training Activity Among TSS Participant Firms*

	<i>All Training</i>	<i>TSS Training</i>
Mean number of trainees	37.1	15.2
Mean number of days training	171.7	61.4
Mean percent of employees receiving training	47.7	19.5
Mean training days per employee	2.2	0.8
Mean training days per trainee	4.6	4.0

¹³ The findings reported in this appendix summarise the main results for TSS-aided firms presented in *Survey of Utilisation and Impact of the FAS Training Support Scheme* by P. J. O'Connell, M. Lyons and S. Leigh-Doyle (1994) the report to FÁS, which commissioned the survey.

The mean number of days of formal training was 172 per company, and, on average, 61 of these training days were supported under the TSS.¹⁴ Almost half (48 per cent) of all employees received some training and almost one-fifth (19.5 per cent) of employees received TSS-supported training.

The mean number of training days per employee (calculated as the ratio of total training days to total employment for all TSS participant companies) was 2.2 in respect of all training and 0.8 in respect of TSS-supported training. The duration of TSS-supported training (the ratio of training days to trainees), was 4.0 days per trainee, this was shorter than the average duration of all training – 4.6 days per trainee. This finding is somewhat surprising since one might expect that training supported by grant aid would be of longer duration than other training for which companies are liable for the full costs.

Among firms which participated in the TSS, the mean expenditure on training fees amounted to £16,400 or 1.8 per cent of total payroll in 1992. Expenditure on trainees' wages amounted to a further £10,900, or 1.2 per cent of payroll, with the result that the mean total expenditure on training was £27,200 or 3 per cent of the total annual payroll. The average TSS grant was £3,200, or 0.4 per cent of payroll and the average total expenditure on TSS-aided training was just over £10,100, or 1 per cent of annual payroll.

Table A.2: *Mean Expenditure on All Training and TSS-Aided Training Among TSS Participant Firms*

	£	as % of Total Payroll
Total expenditure on training fees	16,368	1.8%
Total expenditure on trainee wages	10,872	1.2%
Total training expenditures (including fees and wages)	27,240	3.0%
TSS Grant	3,233	0.4%
Total expenditure on TSS aided training (fees + wages)	10,101	1.1%

Table A.3 shows indicators of the share of TSS-aided training in total training. On average, over 41 per cent of all trainees, and 36 per cent of all training days, were supported by the TSS. Expenditure on TSS-aided training accounted for 36

¹⁴ For the purpose of the survey "formal training" was defined on the questionnaire as systematic, supervised training during which trainees are not engaged in production – this excluded "on-the-job" training. The training could be carried out on the premises or away from the company.

per cent of total training expenditure, and TSS grant aid accounted for 12 per cent of total training expenditure.

Table A.3: *TSS-Aided Training as a per cent of Total Training Activity and Expenditures*

	%
TSS-aided trainees as % of all trainees	41.6
TSS-aided training days as % of all training days	36.5
TSS grant aid as % of total training expenditures	11.9
Expenditure on TSS aided training as % of total training expenditures	37.1

These aggregate-level indicators of training activity and expenditures suggest that the TSS supported a very significant proportion of training among participant firms, with TSS-aided training accounting for between 36 per cent and 41 per cent of our measures of total training activity.

A.2 Levels of Training by Firm Size and Economic Sector

Table A.4 shows the number of trainees expressed as a percentage of total employment by firm size. There was little variation in the percentage of employees receiving training by firm size: about 45 per cent of employees in small firms, and about 50 per cent in large firms received some formal training in 1992. The percentage of employees trained under the TSS did, however, vary substantially by firm size, with about one-third of all employees in the smallest firms received TSS-supported training, compared with less than one-fifth of employees in large firms.

Table A.4: *Trainees as a Percentage of Total Employees By Firm Size (Mean)*

Size (Employees)	Total Trainees as % of Total Employees	TSS Trainees as % of Total Employees
	%	
1-20	45.3	35.4
21-50	44.4	30.7
51-100	48.5	24.6
101+	48.0	16.0
Mean	47.1	19.6

Table A.5 reveals very substantial variation in training activity by economic sector. The printing and paper products sector was the sector in which the highest percentage (63 per cent) of employees received some training. In both chemicals and textiles sectors, over half of all employees received some training. These

training patterns reflect differences in the complexity of the industries concerned. The internationally traded services sector had the smallest percentage of employees receiving training (28 per cent). There was less variation in the percentage of employees receiving TSS-aided training: in construction, engineering, printing and paper, and physical distribution between one-fifth and one-quarter of all employees received some training supported by TSS. The percentage of employees in internationally traded services was low both for all training and for TSS-aided training.

Table A.5: *Trainees as a Percentage of Total Employees by Economic Sector (Mean)*

Sector	Total Trainees as % of Total Employees	TSS Trainees as % of Total Employees
	%	
Chemicals	55.2	19.9
Clothing & Footwear	45.8	14.1
Construction	28.8	21
Engineering	40.1	25.6
Food, Drink & Tobacco	52.2	21.7
Printing & Paper	63.2	23.4
Textiles	50.3	14.2
Physical Distribution	40.7	24.8
Internationally Traded Services	28.2	21.8
Mean	47.1	19.6

Tables A.6 and A.7 show the ratio of total training days to total employment and training expenditures as a percentage of total payroll by firm size and economic sector, respectively. Table A.6 shows that very small firms, with less than 20 employees, had a substantially higher volume of training days per employee than other firms: total training days per employee was 6.4 days, almost three times the average of 2.2 days for the entire sample of TSS-participant firms. The higher incidence of training was reflected in training expenditures, which accounted for over 7 per cent of payroll in the smallest firms, compared with the average for the entire sample of 3 per cent of payroll. Among firms with more than 20 employees, both training expenditures and training days per employee fell as firm size increased.

The volume of TSS-aided training per employee closely mirrors the pattern found for total training, with the smallest firms conducting 3.4 TSS-aided training days per employee, falling to 1.2 days among firms with 21-50 employees, and

less than half a day per employee among the largest firms. Spending on TSS-aided training accounted for 5.4 per cent of payroll among firms with less than 20 employees, falling to 2.2 per cent of payroll among firms with 21-50 employees and 0.7 per cent of payroll among firms with over 100.

Table A.6: *Training Days per Employee and Training Expenditure as a Percentage of Payroll by Firm Size*

Size	Training Days per Employee			Training Expenditure as % of Payroll		
	Total	TSS-aided	Unaided	Total	TSS-Aided	Unaided
	Days			%		
1-20	6.4	3.4	3.0	7.8	5.4	2.4
21-50	2.5	1.2	1.3	3.5	2.2	1.3
51-100	2.7	1.2	1.5	3.0	1.6	1.4
101+	1.9	0.5	1.4	2.2	0.7	1.5
Mean	2.2	0.8	1.4	3.0	1.1	1.9

Table A.7: *Training Days per Employee and Training Expenditure as a Percentage of Payroll by Economic Sector*

Sector	Training Days per Employee			Training Expenditure as % of Payroll		
	Total	TSS-aided	Unaided	Total	TSS-Aided	Unaided
	Days			%		
Chemicals	1.7	0.6	1.1	2.7	0.9	1.8
Clothing	5.5	1.1	4.4	4.4	1.6	2.8
Construction	2.0	1.1	0.9	1.0	0.7	0.3
Engineering	2.9	1.3	1.6	3.0	1.4	1.6
Food, Drink, Tobacco	1.0	0.6	0.4	4.1	2.2	1.9
Printing & Paper	2.4	0.7	1.7	2.0	0.9	1.1
Textiles	1.7	0.7	1.0	2.2	1.0	1.2
Distribution	1.3	1.1	0.2	2.7	2.0	0.7
Internationally Traded Services	2.5	2.0	0.5	2.3	1.9	0.4
Mean	2.2	0.8	1.4	3.0	1.1	1.9

If we deduct TSS-aided training, we find that in firms with less than 20 employees, "non-TSS-aided" training amounted to 3 days per employee, and that such training in larger firms amounted to between 1.3 to 1.5 days per employee. Similarly, if we deduct expenditure on TSS-aided training, we find that the smallest firms spend an average of 2.4 per cent of payroll on "non-TSS-aided" training, and that expenditure on such training among larger firms increased from

1.3 per cent of payroll in firms with 21-50 employees to 1.5 per cent of payroll among the largest firms in the sample. That small firms which participated in the scheme engaged in a greater level of training and incurred greater training expenses in relation to both unaided training and training supported under the TSS than larger firms runs counter to expectations, and suggests some self selection on the part of small firms – i.e., that the small firms which participated in the scheme may tend to have an established commitment to training. We explore this issue in Chapter 4 and the analysis suggests that small participant firms engaged in a greater level of training than both larger participant firms and other small firms which did not receive TSS aid.

The highest incidence of training took place in the clothing and footwear sector, where an average of 5.5 days training per employee was conducted, of which just over 1 day was supported with TSS aid. This was followed by engineering (2.9 days) and internationally traded services sectors (2.5). The sector with the lowest incidence of training was food, drink and tobacco, where an average of 1 day of training per employee was conducted, and an average of less than half a day of TSS aided training. This sector reported a high ratio of training expenditure to payroll, suggesting that training costs in this sector may be unusually high.

A.3 The Share of TSS-Aided Training in Total Training

Table A.8 shows indicators of the share of TSS-aided training in total training by firm size. In general, TSS-aided training accounted for a smaller proportion of total training as firm size increased. Among the smallest firms, with less than 20 employees, TSS aid supported 78 per cent of total trainees and 53 per cent of total training days, while expenditure on TSS-aided training accounted for 70 per cent of total training expenditure. Among firms with over 100 employees, TSS aid supported 34 per cent of trainees and 27 per cent of training days, and expenditure on TSS-aided training represented 32 per cent of total training expenditure. This suggests, therefore, that the scheme is of substantially greater importance to the training activity of smaller firms.

There were two sectors in which the TSS played a particularly prominent role in the overall level of training activity. In internationally traded services, 77 per cent of all trainees were supported by the TSS, and the TSS accounted for over 80 per cent of both total training days and total training expenditure. In the construction industry, 73 per cent of all trainees were supported by the scheme, which accounted for 56 per cent of all training days and 73 per cent of total training expenditure. In physical distribution, over 60 per cent of all trainees were supported by TSS aid, and that aid subsidised 84 per cent of total training days and 74 per cent of total expenditure on training.

Table A.8: *Share of TSS Aided Training in Total Training Activity by Firm Size*

<i>Size (Employees)</i>	<i>TSS Trainees as % of Total Trainees</i>	<i>TSS Training Days as % of Total Training Days</i>	<i>TSS Expenditure as % of Total Expenditure</i>
%			
1-20	78.1	52.6	69.5
21-50	69.1	45.6	61.9
51-100	49.7	44.3	54.2
101-200	33.9	27.4	32.2
Mean	41.6	36.5	37.1

Table A.9: *Share of TSS Aided Training in Total Training Activity By Economic Sector (Mean)*

<i>Sector</i>	<i>TSS Trainees as % of Total trainees</i>	<i>TSS Training Days as % of Total Training Days</i>	<i>TSS Expenditure as % of Total Expenditure</i>
%			
Chemicals	36	32.9	32.9
Clothing & Footwear	30.7	19.5	35.3
Construction	73.1	55.6	72.9
Engineering	63.8	44.2	46.9
Food, Drink & Tobacco	41.5	54.7	54.4
Printing & Paper	37.1	28.4	46.5
Textiles	28.2	42.8	46.7
Physical Distribution	60.8	84.1	74.2
Internationally Traded Services	77.3	80.9	80.3
Mean	40.9	36.5	37.1

A.4 Training Activity by Occupational Group

We have seen that 48 per cent of all employees among the sampled participant firms received some training, and that 20 per cent of total employees received training supported by the Training Support Scheme. We turn now to the analysis of training by occupational group. Table A.10 presents data on the percentage of employees in each of 9 occupational groups which received formal training in 1992. About 65 per cent of all managers, supervisors and technicians received some training in 1992, and these were closely followed by professional, technical and sales personnel, almost 60 per cent of whom received formal training. About

55 per cent of apprentices received formal training and about 40 per cent of operatives and craftspersons received training.¹⁵

Table A.10: *Percentage of Occupational Groups Receiving Training, All TSS Firms*

	<i>All Trainees as Percentage of Employees</i>	<i>TSS Trainees as Percentage of Employees</i>	<i>TSS Trainees as Percentage of All Trainees</i>
	%		
Managers	65.7	44.6	67.9
Supervisors	63.9	36.4	57.0
Prof./Tech.	59.5	21.1	35.5
Technicians	65.3	38.9	59.6
Sales People	58.3	28.2	48.4
Admin/Clerical	48.3	22.4	46.4
Craftspersons	38.2	19.8	50.3
Apprentices	55.0	14.7	26.8
Operatives	40.8	11.8	28.9
Other	33.3	11.8	35.4
Mean	47.7	19.5	40.9

Managers were more likely to have received TSS-aided training than any other occupational group. Almost 45 per cent of all managers received TSS-aided training, compared with an average of just under 20 per cent of all employees. Supervisors and technicians were also more likely to receive TSS-supported training than other occupations. These differences are reflected in the percentage of trainees who were TSS-aided: 68 per cent of managerial trainees received TSS support, 60 per cent of technician trainees and 57 per cent of supervisory trainees were so aided, compared with 41 per cent of all trainees.

Tables A.11 to A.14 show the ratio of trainees to total employees by occupational group by firm size. About two-thirds of managers received some training in 1992, and this varied little by firm size. In other occupational groups, the percentage of employees who received some training increased somewhat with firm size. For example, the percentage of supervisors which received training increased from 54 per cent in the smallest firms to 67 per cent in the largest firms.

¹⁵ While apprenticeship training *per se* is not eligible for support under the TSS, additional training for apprentices (i.e., other than formal apprenticeship training) is eligible for support.

Table A.11: *Percentage of Occupational Groups Receiving Training,
Firms with 20 Employees or Less*

	<i>Percentage of Occupational Group Trained</i>	<i>Percentage of Total Group TSS-Aided</i>	<i>Percentage of Group Trainees TSS-Aided</i>
	%		
Managers	65.4	53.2	81.3
Supervisors	54.1	41.0	75.8
Prof/tech	62.5	48.4	77.5
Technicians	35.6	18.6	52.4
Sales	35.7	25.0	70.0
Admin/clerical	50.4	40.5	80.3
Craftpersons	21.4	16.5	77.3
Apprentices	50.0	10.9	21.9
Operatives	27.4	21.5	78.7
Others	53.3	50.0	93.8
All	45.3	35.4	78.1

Table A.12: *Percentage of Occupational Groups Receiving Training,
Firms With 21-50 Employees*

	<i>Percentage of Occupational Group Trained</i>	<i>Percentage of Total Group TSS-Aided</i>	<i>Percentage of Group Trainees TSS-Aided</i>
	%		
Managers	65.2	50.6	77.5
Supervisors	56.5	40.7	72.1
Prof/tech	58.7	35.5	60.5
Technicians	67.0	57.4	85.7
Sales	55.1	33.3	60.4
Admin/clerical	39.4	27.1	68.8
Craftpersons	31.8	18.2	57.5
Apprentices	35.6	15.6	43.8
Operatives	33.7	21.6	64.1
Other	20.9	7.7	36.8
All	44.4	30.7	62.1

Table A.13: *Percentage of Occupational Groups Receiving Training, Firms With 51-100 Employees*

	<i>Percentage of Occupational Group Trained</i>	<i>Percentage of Total Group TSS-Aided</i>	<i>Percentage of Group Trainees TSS-Aided</i>
	%		
Managers	64.5	41.0	43.5
Supervisors	64.4	42.5	65.9
Prof/tech	35.3	20.6	58.3
Technicians	43.7	15.8	36.2
Sales	57.0	46.7	81.9
Admin/Clerical	45.9	34.4	74.9
Craftpersons	25.9	11.7	45.4
Apprentices	57.0	24.5	43.0
Operatives	48.9	14.6	29.8
Other	9.9	4.1	41.7
All	48.4	24.6	50.8

Table A.14: *Percentage of Occupational Groups Receiving Training, Firms With 101 Employees or More*

	<i>Percentage of Occupational Group Trained</i>	<i>Percentage of Total Group TSS-Aided</i>	<i>Percentage of Group Trainees TSS-Aided</i>
	%		
Managers	67.0	42.2	63.0
Supervisors	66.9	35.4	52.9
Prof/tech	64.1	15.1	23.6
Technicians	69.0	41.2	59.7
Sales	63.7	19.6	30.8
Admin/Clerical	51.1	17.9	35.1
Craftpersons	45.2	22.6	50.1
Apprentices	67.1	11.3	16.8
Operatives	41.3	9.9	24.0
Other	35.7	7.9	22.2
All	49.2	16.4	33.3

In general, a smaller proportion of employees received training supported by the TSS as firm size increased [Column 2], and, therefore, the proportion of trainees who were supported by TSS also declined with firm size [Column 3].

Over 53 per cent of managers in firms with less than 20 employees received training supported under the TSS, and this was true of 42 per cent of managers in firms with over 100 employees. The percentage of operatives receiving TSS aid declined with firm size: 22 per cent of operatives in the smallest firms received TSS aid but only 10 per cent of operatives in the largest firms did. Large firms were much more likely to have taken responsibility for training of operatives. Almost 80 per cent of all operative trainees received TSS support in the small firms, while only 24 per cent of operative trainees in the large firms were aided.

The tables confirm the general conclusion that TSS-aided training was particularly important in small firms, but it also suggests that large firms did tend to rely on the TSS for training of managers and supervisors. In the smallest firms, over 80 per cent of managerial trainees and over 75 per cent of supervisory trainees were supported under the TSS, whereas in the largest firms, 63 per cent of managerial and 53 per cent of supervisory trainees received such support. When we compare the training of managers with that of operatives, the data would suggest that while larger firms were substantially less likely to rely on TSS aid for training of operatives than were small firms, they relied quite heavily on the TSS to train managers.

Table A.15: *Training Days Per Employee by Occupational Group*

	<i>Total Training Days per Employee</i>	<i>TSS-Aided Training Days per Employee</i>
	<i>Days</i>	
Managers	4.3	2.8
Supervisors	2.9	1.5
Professional/Technical	2.9	1.2
Technicians	2.5	1.2
Sales People	2.0	0.9
Administrative/Clerical	1.6	0.9
Craftspersons	1.3	0.6
Apprentices	20.1	0.8
Operatives	1.4	0.3
Other	0.9	0.4
Mean	2.2	0.8

Table A.15 shows the ratio of the number of days training received to the total number of employees in each occupational group. Apprentices stand out as the occupational group receiving the highest number of days training per employee (20), although less than 1 day per apprentice was supported under the TSS – apprenticeship training *per se* is not eligible for support under the scheme. Aside

from apprentices, managers received substantially more days training per employee (4.3 days) than any other occupational group, and 65 per cent of these days were TSS aided. Supervisors, professional/technical workers, and technicians received 2.5 to 2.9 days training per employee, and roughly half of these days were aided under the TSS. Operatives received about 1.4 days training per employee, and about 0.3 days training supported under the TSS.

Table A.16 shows the ratio of training days received to the total number of employees in each occupational group by firm size. Apprentices in small firms received substantially more training than in larger firms, although, in all size categories, only a small proportion of such training was supported under the TSS. Managers, supervisors, professional and technical workers, craftspersons and administrative and clerical workers also received substantially more training days in small than in large firms.

*Table A.16: Number of Training Days Received by Each Occupational Group Expressed as a Ratio of Occupational Group Employment, by Firm Size
(TSS-aided days as % of total days in parentheses)*

<i>Number of Employees:</i>	<i>Less Than 20</i>	<i>21-50</i>	<i>51-100</i>	<i>101 or More</i>
Managers	7.3 (87.6)	3.9 (82.1)	5.2 (50.9)	3.8 (53.6)
Supervisors	4.7 (89.1)	2.9 (73.9)	4.5 (50.5)	2.5 (37.8)
Prof./Tech.	9.3 (74.7)	3.7 (56.5)	2.0 (45.3)	2.4 (26.8)
Technicians	2.9 (68.4)	3.1 (69.0)	5.8 (6.6)	2.0 (55.6)
Sales People	2.1 (84.7)	2.3 (68.5)	0.9 (77.3)	2.4 (19.7)
Admin/Clerical	3.3 (86.3)	1.1 (66.1)	2.7 (80.2)	1.4 (38.8)
Craftspersons	4.3 (48.6)	1.1 (46.9)	0.6 (32.6)	1.3 (45.6)
Apprentices	35.1 (12.4)	8.0 (10.0)	21.6 (24.2)	20.1 (4.4)
Operatives	2.4 (48.0)	2.1 (18.1)	1.3 (49.9)	1.3 (17.2)
Other	2.6 (82.9)	0.2 (100.0)	0.7 (27.3)	0.8 (26.2)
Total	6.4 (52.6)	2.5 (45.6)	2.7 (44.7)	1.9 (26.6)

A.5 The Impact of the TSS

Comparison of levels of training 1991/1992

In attempting to assess the impact of the TSS in stimulating a greater volume of training activity, we first look at whether firms which conducted training in 1992 had also trained in 1991. Almost 72 per cent of firms reported that the company had also been involved in staff training in 1991 (Table A.17).

Table A.17: *Did the Company Also Undertake Training in 1991?*

	<i>Number</i>	<i>Percentage</i>
Yes	230	71.7
No	91	28.3
No Answer	2	-
Total	323	100

Companies were also asked whether their level of training activity in 1992 was greater or less than in 1991. A total of 116 firms responded that their level of training in 1992 was greater than in 1991, but to these must be added the 91 firms which had conducted no training whatsoever in 1991 but which gave no answer to the question. This yields a true response of 69 per cent (207 respondent companies) which increased their level of training from 1991 to 1992.

Table A.18: *Comparison of Level of Training in 1992 with that of 1991*

	<i>Number</i>	<i>Percentage</i>
<i>Training in 1992 was:</i>		
Greater than in 1991	207	68.8
About the same as 1991	56	18.6
Less than in 1991	38	12.6
No Answer	22	-
Total	323	100

Subjective Assessment of Deadweight

Over half of the respondents were of the opinion that their companies would have engaged in the same level of training in 1992 even if the Training Support Scheme had not existed. However, virtually the same proportion considered that without the Training Support Scheme less training (40 per cent) or no training (8 per cent) would have been undertaken in 1992.

We present a breakdown of whether companies would have undertaken the same or less training in the absence of the TSS by firm size in Chapter 4. That disaggregation suggests that this admittedly subjective measure of the net impact of the TSS is related to firm size. Over 60 per cent of the smallest firms responded that they would have engaged in either no training whatsoever or in less training than they actually conducted in 1992 had the TSS not been in existence.

Table A.19: *Likely Level of Training if Training Support Scheme Had Not Been in Existence in 1992, All TSS Firms*

<i>Impact</i>	<i>Number</i>	<i>Percentage</i>
No Training at all in 1992	24	8.1
Less Training in 1992	120	40.4
Same Amount in 1992	153	51.5
No Answer	26	-
Total	323	100

This was true of only 27 per cent of firms with more than 100 employees. This would suggest, therefore, that the net impact of the TSS in promoting a greater level of training than would otherwise have taken place was greatest among smaller firms, and, conversely, that for a substantial majority of large firms the TSS represents a subsidy to training activities which would have been undertaken irrespective of the TSS.

Value of Investment in the TSS

Nearly 94 per cent of respondents considered that their company's investment in training aided by the TSS was at least adequately offset. More than a quarter (28 per cent) reported that it was more than offset. A minority (6 per cent), considered that their company's investment in the Training Support Scheme was not worthwhile (Table A.20).

Respondents were asked to assess the impact of the training undertaken under the Training Support Scheme in 1992 on the following range of performance indicators: productivity, employment level, market share, level of exports, and quality/service.

Table A.20: *Assessment of Return on Company's Investment in the TSS*

	<i>Number</i>	<i>Percentage</i>
Investment More than Offset	87	27.6
Investment Adequately Offset	208	66.0
Investment not Worthwhile	20	6.4
No Answer	8	-
Total	323	100

Table A.21: *Employers' Beliefs about Impact of Training Support Scheme in 1992*

Nature of Impact	Area of Impact									
	Productivity		Employment		Market Share		Export Level		Quality of Service	
	No.	%	No.	%	No.	%	No.	%	No.	%
Substantial Positive	119	37.5	21	6.6	34	10.8	26	8.3	152	48.0
Small Positive	134	42.3	41	12.9	92	29.2	56	18.0	92	29.0
No Impact	59	18.6	249	78.9	174	55.2	222	71.1	71	22.4
Negative Impact	1	0.3	2	0.7	0	0	2	0.6	0	0
Don't Know	4	1.3	3	0.9	15	4.8	6	1.9	2	0.6
No Answer	6	-	7	-	8	-	11	-	6	-
Total	323	100	323	100	323	100	323	100	323	100

Productivity and quality/service were identified as the areas where the Training Support Scheme had most impact in 1992. Almost 80 per cent of respondents reported that the TSS had had a positive impact on productivity, and service/quality. Market share and levels of exports were seen to have been positively affected by 40 per cent and 26 per cent of respondents respectively.

Employment level was the area where the Training Support Scheme was considered to have had the least positive impact in 1992; only 19 per cent considered that the scheme had a positive effect on their level of employment and 80 per cent responded that the TSS had had no impact on employment. This finding is hardly surprising, since training is believed to *directly* effect productivity and quality or service, and any positive employment effects are likely to be indirect – i.e., contingent on increased productivity, quality and/or market share – and likely to arise in the medium term.

A.6 Conclusions

The survey of firms which participated in the Training Support Scheme in 1992 suggests that the TSS had a very significant impact, providing grant aid to subsidise the training of 42 per cent of all trainees in these firms, and 37 per cent of all training days.

Training of managers and supervisors accounted for a substantially greater share of TSS-aided training than of unaided training, suggesting that the TSS encouraged a greater emphasis on training these occupational groups. The effect of the TSS in promoting the training of managers and supervisors was particularly strong in small firms.

Among TSS-aided firms the ratio of total training days to total employment decreased with firm size, suggesting some element of self selection by small firms with a commitment to training that was independent of the TSS.

Nearly 94 per cent of respondents considered that their company's investment in training aided by the TSS was at least adequately offset. More than a quarter (28 per cent) reported that it was more than offset. However, over half of all respondents were of the opinion that their companies would have engaged in the same level of training in 1992 even if the TSS had not existed, although virtually the same proportion considered that without the TSS less or no training would have been undertaken in 1992. This subjective assessment of the net effect of the TSS was related to firm size: a greater proportion of small firms responded that they would have engaged in less training than actually took place had the TSS not been in existence in 1992.

APPENDIX 2

THE QUESTIONNAIRE



The Economic and Social Research Institute

Limited Company No. 18269 CHY 5335

4 Burlington Road Dublin 4 Ireland

SURVEY OF UTILIZATION AND IMPACT OF TRAINING AMONG EMPLOYERS IN IRELAND (February 1993)

Firm No. _____ Interviewer No _____

Interviewers name _____

The ESRI is undertaking a survey of employers on behalf of FAS. The aim of the survey is to discover employers' utilization and experience of formal training in general, and specifically the FAS Training Support Scheme. The Training Support Scheme was set up by FAS in 1990 to encourage and promote training in small and medium sized firms. The results of the survey will be an important input into the formulation of future training policy in respect of small and medium sized firms, and into the improvement of the Training Support Scheme in particular.

Your firm has been selected as one of a random sample. We would be grateful if you could spend about 15-30 minutes of your time talking about your use of FAS, the training which your company has undertaken and your experience of the Training Support Scheme. All the answers that you give will be treated in the strictest confidence by the ESRI and only aggregate figures will be released to any person or body outside the ESRI.

The questionnaire is in 3 main sections

SECTION ONE

To be asked of all respondents:

Firstly we would like to know what level of contact you have had with FAS, and some details of your company's recent involvement in training.

Q1(a) Have you used FAS recruitment or training services in the past two years? (i.e. 1991, 1992)

- Yes 1, ----> Go to Q.1(b)
- No 2, ----> Go to Q2(a)

A1.1

Q1(b) If YES (code 1) to Q1(a)

Did you use FAS in respect of any of the following services or schemes. If yes how satisfied were you? (Show Card A)

	Used	Not Used	Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Fairly dissatisfied	Very Dissatisfied	
In Company Training	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.1 A2.2
Specific Skills Training	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.3 A2.4
Apprenticeship	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.5 A2.6
Recruitment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.7 A2.8
Job-training Scheme	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.9 A2.10
Employment Incentive Scheme	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.11 A2.12
Training Support Scheme	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.13 A2.14
Company Training Advisory Service	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.15 A2.16
Other Training	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	A2.17 A2.18

(Please Specify _____)

Q1(c) If respondent used FAS services/schemes and was dissatisfied ask the following:
(Le any code 4 or 5 in Q1(b))

Can you tell me why you felt dissatisfied with the service/scheme?

Service/Scheme	Reason for dissatisfaction
1 _____	_____
2 _____	_____
3 _____	_____

A3.1

___ A3.2

___ A3.3

___ A3.4

___ A3.5

___ A3.8

___ A3.7

___ A3.8

___ A3.9

Q1(d) Was your company aware of the FAS Training Support Scheme prior to this survey?
(All firms with ID code 101-499 must be coded "Yes" 1)

Yes 1, ----> Go to 1(e) No 2, ----> Go to Q3a

A4.1

Q1(e) Did your firm ever participate in the FAS Training Support Scheme? (All those with ID codes 101-499 did; those with ID codes 501-699 may or may not have done so)

Yes 1, ----> Go to 1(f) No 2, ----> Go to 2a

A4.2

Q1(f) In what year(s) did the company participate in the TSS and how many persons were trained under the TSS in each year?

YEAR	NO. OF PERSONS TRAINED
1990 <input type="checkbox"/>	_____
1991 <input type="checkbox"/>	_____
1992 <input type="checkbox"/>	_____
Go to Q3(a)	

A5.1 A5.2

A5.3 A5.4

A5.5 A5.6

To be asked only of those companies which have not participated in the Training Support Scheme

Q2(a) Did your company apply for grant-aid under the Training Support Scheme?

Yes 1, ----> Go to Q2(c) No 2, ----> Go to Q2(b)

A6.1

Q2(b) IF NO (Code 2) to Q2(a) Ask:

Could you tell me why did you not apply?

___ A6.2

___ A6.3

_____ Go to Q3(a)

___ A6.4

Q2(c) IF YES (code 1) to Q2(a) Ask:

Was the application successful?

Yes 1, ----> Go to Q2(e) No 2, ----> Go to Q 2(d)

A6.5

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Q3(e) Could you tell me the number of persons you employed in each of the following occupational groups in 1992. For each of the groupings in which you had people employed, please indicate the numbers who received formal training and the total number of days spent on training (SHOW CARD B)

Occupational Group	Total No. Employed	Total No. receiving formal training	Total No. of Days	Total Persons TSS Grant Aided	Total Days TSS Grant Aided	
Managers (Senior, Middle and Junior)	_____	_____	_____	_____	_____	A9.1-A9.5
Supervisors	_____	_____	_____	_____	_____	A9.6-A9.10
Prof/Technical	_____	_____	_____	_____	_____	A9.11-A9.15
Technicians (betw. Craft & Professional)	_____	_____	_____	_____	_____	A9.16-A9.20
Sales People	_____	_____	_____	_____	_____	A9.21-A9.25
Admin/ Clerical	_____	_____	_____	_____	_____	A9.26-A9.30
Craftspersons	_____	_____	_____	_____	_____	A9.31-A9.35
Apprentices	_____	_____	_____	_____	_____	A9.36-A9.40
Operatives	_____	_____	_____	_____	_____	A9.41-A9.45
Other(Specify)	_____	_____	_____	_____	_____	A9.46-A9.50
Total	_____	_____	_____	_____	_____	A9.51-A9.55

Q3(f) Could you tell whether formal training in any of the following specific areas was undertaken by any members of your staff during 1992. For each area in which your staff was formally trained, please indicate the total number of persons trained, the total number of days training and the number of persons and days of training which were grant aided by the Training Support Scheme (SHOW CARD C)

TRAINING UNDERTAKEN IN 1992							
	Any staff trained in this area?		Total persons trained	Total Days	Total persons TSS grant-aided	Total days TSS grant-aided	
	Yes	No					
Strategic planning	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.1-A10.5
Management/ human resources	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.6-A10.10
Marketing/sales/ Languages	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.11-A10.15
Finance	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.16-A10.20
Info. Systems	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.21-A10.25
Technical/ New Technology	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.26-A10.30
Quality/Service	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.31-A10.35
Production/productivity	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.36-A10.40
Other Training	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A10.41-A10.45
(Specify _____)							
Total Days				_____		_____	A10.46 A10.47

Q3(g) How many males and females did you employ in 1992?
 How many of each received training in 1992?
 How many of each received training grant-aided by the TSS scheme in 1992?

	Male	Female	Total	
Total Employed	_____	_____	_____	A11.1-A11.3
Total Trained in 1992	_____	_____	_____	A11.4-A11.6
Total who received training under TSS scheme	_____	_____	_____	A11.7-A11.9

Q3(h) Please indicate whether any of the following types of formal training courses and programmes were attended by members of your staff in 1992. In respect of any training courses attended please give the total number of staff who attended and (if relevant) the number attending which were TSS grant aided.

	TRAINING ATTENDED IN 1992				Total Number TSS Grant- Aided	Total Days TSS Grant- Aided	
	Was this type of training undertaken?		Total No. trained	Total No. of Days			
	Yes	No					
Training programmes conducted by company trainers	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A12.1-A12.5
<i>Training provided by external organisations:</i>							
Training provided by FAS	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A12.6-A12.10
Training provided by other training company or organisation	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A12.11-A12.15
Training provided by equipment suppliers	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A12.16-A12.20
University courses	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A12.21-A12.25
Technical College courses	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A12.26-A12.30
Apprenticeships	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A12.31-A12.35
Other (Specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	A12.36-A12.40
Total Days			_____	_____	_____	_____	A12.41 A12.42

SECTION 2:

To be asked only of respondent companies which have participated in the Training Support Scheme in 1992 (Firms with ID Code in the range 101-499)

I now want to focus on the Training Support Scheme and to get your experiences and views of this scheme

Q4(a) Can you remember how you first became aware of the Training Support Scheme? A13.1

Yes ₁, No ₂ --> Go to Q4(c)

Q4(b) If YES (code 1) to Q4(a) Ask:
How did you first hear of it? (Tick one box)

- FAS promotional literature..... ₁
- FAS training advisor..... ₂
- Advertisements..... ₃
- Other source ₄

A13.2

(Specify _____)

Q4(c) Was the training supported by the Training Support Scheme in 1992 undertaken in-company or externally?

- In company only ₁
- Externally only ₂
- Both in-company and externally ₃

A14.1

ASK ALL

Q5(a) Did the Company also undertake training in 1991? A15.1

Yes ₁, No ₂ --> Go to Q5(c)

If Yes (code 1) to Q5(A) Ask

Q5(b) Was the level of training in 1992

- ... Greater than in 1991? ₁
- About the same as in 1991? ₂
- Less than in 1991? ₃

A15.2

Q5(c) If the TSS Grant Scheme had not been in existence in 1992, would your company have

- Undertaken no training at all in that year? ₁
- Done less training than you actually did? ₂
- Done about the same amount of training as you actually did? ₃

A15.3

Q6 Has the training undertaken under the Training Support Scheme in 1992 had a positive or negative impact in respect of the following indicators? (SHOW CARD D)

If the impact has been positive or negative, can you quantify its extent?

	Substantial Positive Impact	Small Positive Impact	No Impact	Negative Impact	Don't know
(a) Productivity	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
(b) Employment Level	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
(c) Market Share	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
(d) Level of Exports	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
(e) Quality/Service (e.g., ISO 9000)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

A16.1
A16.2
A16.3
A16.4
A16.5

Q7 Which of the following statements best describes your view on your company's investment in the Training Support Scheme...

- Our investment has been **MORE THAN OFFSET** by the training received and the grant aid 1
- Our investment has been **ADEQUATELY OFFSET** by the training received and the grant aid 2
- Our investment has not been worthwhile 3

A17.1

Q8 What do you think have been the main beneficial effects of the Training Support Scheme?

___ A18.1
___ A18.2
___ A18.3

Q9 Do you think there are any drawbacks/hindrances to participation in the Training Support scheme?

Yes 1, No 2

If Yes, please describe

A19.1
___ A19.2
___ A19.3
___ A19.4

Q10(a) What proportion of persons trained under the Training Support scheme in 1992 are still in your employment?

_____ %

A20.1

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Q10(b) If less than 100 % of employees trained in 1992 are still with the firm, ask:

Can you tell me the main reason for this? (Tick one box)

- | | |
|--------------------|----------------------------|
| Employees Quitting | <input type="checkbox"/> 1 |
| Employees Laid-off | <input type="checkbox"/> 2 |
| Other | <input type="checkbox"/> 3 |

A20.2

(Specify _____)

Q11(a) Are there any changes or improvements which you would suggest for the Training Support Scheme in the future ?

- Yes..... 1
 No 2 ----> Go to Q12

A21.1

Q11(b) (If YES (code 1) to Q11(a) Ask:
Please give details

___ A21.1

___ A21.3

___ A21.4

Ask All Respondents

Q12 Did your company participate in any of the following grant-aided company development schemes in 1992? (Tick one box on each line)

- | | Yes | No |
|------------------------------------|----------------------------|----------------------------|
| IDA Company Development Programme | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| IDA New Industry Grants Scheme | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| IDA (Type Unknown) | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| Bord Trachtála Market Place Scheme | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| Other (eg., Eolas, Sfadco, Udaras) | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |

A22.1

A22.2

A22.3

A22.4

(Please Specify _____)

A22.5

Q13(a) Looking ahead to the next two years, what do you see as your priority training needs? (SHOW CARD C) Tick one number in each column

- | | First
Priority | Second
Priority |
|----------------------------|----------------------------|----------------------------|
| Strategic planning | <input type="checkbox"/> 1 | <input type="checkbox"/> 1 |
| Management/human resources | <input type="checkbox"/> 2 | <input type="checkbox"/> 2 |
| Marketing/sales/Languages | <input type="checkbox"/> 3 | <input type="checkbox"/> 3 |
| Finance | <input type="checkbox"/> 4 | <input type="checkbox"/> 4 |
| Info. Systems | <input type="checkbox"/> 5 | <input type="checkbox"/> 5 |
| Technical/New Technology | <input type="checkbox"/> 6 | <input type="checkbox"/> 6 |
| Quality/Service | <input type="checkbox"/> 7 | <input type="checkbox"/> 7 |
| Production/productivity | <input type="checkbox"/> 8 | <input type="checkbox"/> 8 |

A23.1

A23.2

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Q13(b) Do you have any training priorities not covered on this list? If Yes, please describe

__ A23.3
 __ A23.4
 __ A23.5

Q14(a) Do you envisage a role for FAS in your future training?

Yes..... 1 ----> Go to Q14(b)
 No..... 2 ----> Go to Q15

A24.1

Q14(b) IF YES (code 1) to Q14(a) Ask:

What form should that role take ? (Tick one box on each line)

	Yes	No
Up-dating of skills by FAS	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Financial assistance with training	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Multiskill apprenticeships	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Other (specify)	<input type="checkbox"/> 1	<input type="checkbox"/> 2

A24.2
 A24.3
 A24.4
 A24.5

To be asked of all respondents

Q15 What is the main sort of product or service which your firm provides?

A25.1

Q16 What percentage of your output is exported? _____ %

A26.1

Q17(a) How many people (male/female) are employed full-time by your firm?.....

	Male	Female	TOTAL
	_____	_____	_____

A 27.1 -
 A27.3

And how many part-time employees (male/female) do you have?....

	_____	_____	_____
--	-------	-------	-------

A 27.4 -
 A27.6

17(b) During 1992-that is between January '92 and December '92 - did the number of staff employed by your company increase, decrease or remain the same? If there was an increase or decrease in staff numbers, please indicate by how much.

		Number
Increase.....	<input type="checkbox"/> 1	by _____ persons
Remain the same...	<input type="checkbox"/> 2	
Decrease.....	<input type="checkbox"/> 3	by _____ persons

A28.1

A28.2

Q17(c) Would you mind telling me approximately how much was the total payroll of your company in 1992? (Please include Gross wages/salaries plus employer social security contributions)

IRC _____

A29.1

Q17(d) During 1992 would you say that your company grew, declined or stayed about the same in terms of overall sales or turnover?

Company sales/turnover grew.....	<input type="checkbox"/> 1
Company sales/turnover declined.....	<input type="checkbox"/> 2
Company sales/turnover stayed about the same.	<input type="checkbox"/> 3
Don't know.....	<input type="checkbox"/> 4

A30.1

APPENDIX 2 - THE QUESTIONNAIRE

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Q18(a) Is your firm majority Irish owned?

Yes-Irish..... ₁ ----> Go to Q19
 No-not Irish... ₂

A31.1

Q18(b) (If not Irish owned) In what country is the majority of shares held?

A31.2

Q19 Are there any other comments you would like to make about the Training Support Scheme or other FAS services?

__ A32.1

__ A32.2

__ A32.3

Q20(a) Are you aware of the FAS National/Regional Training Awards Scheme?

Yes..... ₁
 No..... ₂ ---> Go to Q21

A33.1

Q20(b) If YES (code 1) to Q20(a) Ask:

How did you first hear of it? (Tick one box)

FAS promotional literature ₁
 FAS training advisor ₂
 Advertisements ₃
 Other source ₄

A33.2

(Specify _____)

Don't know/Can't remember ₅

Q20(c) Has your company participated in the National Training Awards Scheme?

Yes ₁ ----> Go to Q21 No ₂

A33.3

Q20(d) If NO (code 2) to Q20(c) Ask:
 Why not?

__ A33.4

__ A33.5

To be completed/checked by interviewer

Q21 Which FAS Region is company located in ?

Dublin North...	<input type="checkbox"/> ₁	South.....	<input type="checkbox"/> ₆
Dublin South...	<input type="checkbox"/> ₂	South East..	<input type="checkbox"/> ₇
Dublin West ...	<input type="checkbox"/> ₃	Midlands ...	<input type="checkbox"/> ₈
North East	<input type="checkbox"/> ₄	Mid West ...	<input type="checkbox"/> ₉
North West	<input type="checkbox"/> ₅	West.....	<input type="checkbox"/> ₁₀

A34.1

Q22 Which Industrial sector is business in?

- Chemicals 1
- Clothing and footwear. 2
- Construction 3
- Engineering 4
- Food, Drink, Tobacco 5
- Printing & Paper..... 6
- Textiles..... 7
- Physical Distribution. 8
- Internationally
Traded Services..... 9
- Other Manufacturing 10
- Other Services 11

A35.1

Q23 Is the business primarily manufacturing or services?

- Manufacturing 1
- Services 2

A36.1

Thank you for your co-operation with this survey.

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