Chapter 5

ENTERPRISE-RELATED TRAINING*

A. INTRODUCTION

The last decade has witnessed a re-blossoming of interest in the qualifications and skills of the workforce. While formal educational qualifications are one aspect of this, attention has increasingly been focused on the range of attributes or skills acquired through enterprise-related or -sponsored training, or other forms of post-compulsory school skill formation. Much of the impetus behind this stems from the belief that competitiveness, the efficient use of technology, and improvements in product quality and innovation require an adaptable and broadly skilled workforce, and the belief that some education and training systems are better than others in meeting these challenges.

Despite the importance accorded to the subject in books and articles, rather little of the comparative-based work which emphasizes training propensities as one explanation for the superior economic performance of a country or an enterprise has had much concrete to say on training [see Prais, Jarvis and Wagner (1989); and Steedman and Wagner (1989) for examples of exceptions to this]. On a representative comparative basis, little is actually known on basic empirical questions such as what the extent and nature of training actually are. Even less is known on the analytic and policy questions of why and how enterprises train, the resource costs and pay-offs to training, and whether some labour market and social structures provide more or different incentives for effective training. This state of affairs is due partly to the complexity of the issues and partly to the limited availability of training statistics. It is also due to the quality of the data currently available.

Nevertheless, with the appropriate caution, some broad conclusions can be drawn from an empirical examination of training statistics. In particular, they show that the propensity to participate in enterprise-based and enterprise-sponsored training may vary markedly between age groups, between the sexes and between workers of differing levels of education, and that the propensity to provide training varies across industries and across firms of different sizes.

These variations are discussed in detail in Section D below. Briefly, several of its findings are as follows. First, the profile of training participation by age shows two broad patterns. In some countries, especially those with strong systems of apprenticeship or where apprentices are separately identified in the data, the incidence of training declines consistently from the youngest to the oldest age group. In some other countries, training incidence tends to increase with age, reaching a peak within the 30-44 age band and then falls off. Second, while the measured overall incidence of training appears little different between men and women, further examination of data on types of training for several countries suggests that women are less likely to receive formal company training and/or employer-sponsored outside training. This may be of interest as some analysts find these training modes important for career development and wage growth. Third, better educated workers are nearly always more likely to receive additional training compared with less educated workers. To the extent that the further acquisition of human capital has an impact on earnings and economic opportunities, this complementarity may further aggravate the problems faced by the already disadvantaged. Fourth, considerable variation exists across industries in the provision of training. No dominant pattern is evident across countries, partly no doubt reflecting data quality and training definitions, and partly reflecting real institutional differences including education systems and the organisation of work.

But it is quite important to set these findings in the context of enterprise training issues and the conceptual, measurement and interpretative problems with the statistics. Section B, therefore, develops three central analytic issues concerning training. Section C tackles the definitional and measurement problems with these statistics and emphasizes that it is not valid to compare measured levels of training incidence or expenditures across countries — but that, while considerable caution remains necessary, it may be more feasible to analyse the patterns of training participation and provision and give them a comparative flavour. Section F concludes and summarises the chapter.
B. WHY UNDERSTANDING ENTERPRISE TRAINING IS IMPORTANT

1. Introduction

For years, analysts have tracked the contribution that education, generally in a pre-work context, makes to economic opportunities [see the review in Rosen (1977)]. Some analysts, from a theoretical perspective at any rate, would accord at least as, if not more, important a role to enterprise training and learning opportunities in contributing to earnings and skill formation, although untangling their respective roles is not easy [Mincer (1989)]. Arrow (1962) postulated “learning by doing” as one fundamental explanation of why per-capita growth in income and productivity exceeded the growth of physical capital. Becker’s (1975) theoretical framework of human capital begins with a long discussion on general and specific skill formation on the job; formal education is developed much later. Analysts in the segmented labour market tradition stress the development of internal labour markets and differences in on-the-job learning and training opportunities as one institutional feature generating inequalities in earnings [Doeringer and Piore (1971); Dickens and Lang (1985)]. Indeed, the vast majority of empirical work on training has focused on its impact on individual earnings; this research has generally found that there is a positive impact, though the extent varies by type of training, and the degree to which the relation reflects only productivity increases associated with training investments is not resolved (see the Box for brief descriptions of selected empirical work on training).

However, thorough empirical examination of training remains hampered by many uncertainties concerning how to measure types of training and their effects on firm performance and individual opportunities. While research effort has been growing, much still remains to be done to understand fully the determinants of training – why some workers receive more or different kinds, and what factors influence the training decisions of firms, as well as how such factors may vary across countries, industries, or firms within industries. The lack of high quality and detailed data makes this task all the more difficult. The next subsection considers several issues where a stronger understanding of enterprise training would be helpful.

2. What are the questions

Equity and access to enterprise training. To the extent that skill acquisition is one determinant of social and economic mobility, then access to opportunities to acquire skills is an issue of social importance. The amount and kind of training acquired is central to both human capital and segmented/dual labour market models [Dickens and Lang (1985); Rosen (1977)]. Basic human capital models view the pattern of investment in training, as well as the pattern of earnings over the life-cycle, as endogenously determined by individual maximisation of the discounted value of lifetime earnings. Segmented models generally focus on characteristics of firms and jobs, with learning opportunities in the “primary segment” substantially greater than in the “secondary segment”.

Discrimination is integral to many segmented models; some groups, such as women and minorities, find themselves disproportionately in jobs offering fewer learning opportunities. Human capital models more generally emphasize differences in the work horizons (less expected work experience) of labour market participants. A shorter pay-off period leads, in this view, to less investment in training by individuals and firms. A crucial issue in these perspectives, therefore, is the relative importance of institutional constraints on individual and enterprise decisions to undertake training [Thurow (1969)]. In many ways, all this is analogous to the much debated issues of access to schooling, although it is complicated because obtaining enterprise training is mediated by the hiring and retention decisions of firms. And these decisions are poorly understood [Brown (1979)].

Underinvestment in human capital by firms and individuals. Prominent in the analysis of enterprise training is a view that private market-based decisions on the part of firms and individuals will lead to less than socially optimum training. Skills and aptitudes are embodied in workers who can leave the firm at any time. The firm cannot be assured of recouping its investment and, therefore, one firm’s training potentially adds to the pool of skills available for others to poach [Finegold and Soskice (1988); Ryan (1987); Parsons (1989)]. As the social benefit of a marginal increase in training investment would exceed the benefit to the firm, there may be underinvestment.

Theoretical analysis of this has focused on the distinction between general and specific training [Becker (1975)]. Specific training is viewed as enhancing productivity only in the firm providing the training, while general training can be used in other enterprises. In its simplest formulation, employers will not pay for general training; a worker who has received such training has no particular incentive to stay because his/her productivity and wages will also be higher elsewhere. Specific training, on the other hand, is more likely to be paid by employers (or shared by firms and workers). Even though they can lose the investment if the worker leaves the firm, there is less incentive to leave as the newly acquired skills cannot be sold to a higher bidder. Firms will, however, concentrate their specific investments on workers whose expected likelihood of staying is perceived to be higher.

This formulation has been refined. First, analysis has dealt with the question of finance. Workers have to be able to borrow the funds to pay for general skills (and
any contribution they make to specific skill training). Liquidity constraints and the inability to use future skills as collateral, particularly among younger workers where one might expect greater investments, are generally thought severely to limit the option of borrowing [Parsons (1989); Brown (1989)]. Employers are apt to have better and cheaper access to capital markets to finance general training, but they need some way to ensure the repayment of the built-up debt. A variety of quite formal models exist attempting to devise wage and compensation schemes that raise job mobility costs [Parsons (1989)]. But in the real world, no individual is entirely immobile regardless of the theoretical possibility of elaborate contracts.

The distinction between general and specific training is, in practice, not clear. It is difficult to believe that learning to operate a lathe differs significantly across enterprises in the same industry. Some theoretical research has attempted to broaden "specificity" to include not only technical attributes, but organizational ones as well (e.g. codes and procedures of the firm, team work accommodations and others) [Williamson (1975)]. But it is often argued that organizations are more rationalized and bureaucratic today than in the past and that employees find organisations more similar in terms of how they operate [Jacoby (1990)]. Increasingly, therefore, analysts have argued that the two "types" of training are really complementary and conceptually difficult to distinguish [US Congress (1990)].

Firms could provide the general skills, but employees implicitly pay for it by receiving lower wages while in training than equally productive workers not in training. This has proven empirically difficult because it is rarely certain that "equally productive" workers are being compared. US research has generally found that people in jobs with greater amounts of training, or receiving more training, have higher wages compared with those not in training [Duncan and Hoffman (1978); Barron, Black and Loewenstein (1989)]. A recent study of Australian youth finds some evidence of lower wages for male, but not for female trainees [Chapman and Tan (n.d.)]. Apprenticeship systems are often cited, particularly the German dual system [Ryan (1987)]. Apprentice allowances for 15-18 year olds in Germany are well below the wages of adult workers. Some regard this as an implicit payment for the training, though it is also often noted that employers appear to bear substantial training costs [Ryan (1987)]. On the other hand, it is sometimes argued that not all of the on-site economic activity of apprentices is technical training because actual production is occurring, and that it is difficult to believe that it takes 2-3 years to get up to the average productivity of already trained workers in many apprentice slots [Schober (1981)]. In this perspective, apprentices both pay for at least some of the training — or perhaps the certificate which confers, not solely technical skills but diligence, whose quality is safeguarded by the state overseeing employer groups and trade unions — and provide firms, especially small artisan ones, with low-wage labour. Thus, the living allowance, while important, is only part of a highly institutionalised and regulatory framework for trying to assure quality training and the transition to the world of work [Marsden and Ryan (1990)].

The theoretical solution of workers paying for general skills would appear to hold just at the beginning of an employment relationship. Firms are not likely to know how much general skills will be necessary immediately or in the future, and often it is precisely these skills that can be applied to a variety of tasks as yet unknown that are needed [Streeck (1989); Bailey (1988)]. On introducing a new technology that requires an upgrading of the abilities of the current workforce, one does not empirically observe contracts that foresee either direct payment or temporary wage reductions to pay for the training (whether such "wage flexibility" would enhance training incentives and, if so, why it is rarely observed are separate questions). Workers with tenure at the firm presumably embody some specific skills and cannot easily be replaced by new recruits willing to work for less to pay for the general training.

Thus, as Oi (1962) noted, there are no easy ways of allocating training costs. In most cases, therefore, firms cannot completely protect themselves from losing their investments in worker training. Nor can they upgrade their workforce without making such potentially risky investments. As Bishop (1989) has emphasized, such factors would seem to make turnover even more important in firms' training decisions. This is a potentially important point. It may not be the nature of the training that determines whether and how much employers pay for training. Rather, it may be the firms' assessment of the probability that a worker will leave before the investment is recouped that is critical. In firms with highly developed internal labour markets or personnel redeployment systems for career development, workers may receive both "general" and "specific" training paid largely by the firm [Dore, Bounine-Cabalé and Tapiola (1989)].

Concern with the appropriation of skills can lead employers to reduce the number of training slots offered, or to do little training in hopes of poaching workers trained elsewhere. It is just not known how important this is1. As with other goods which have some collective attributes, the market is often seen as likely to produce less than would be optimal. Unfortunately, there is scant evidence on this fundamental issue of social costs and benefits, and existing statistics on training are not of such quality to greatly advance empirical research in this direction2.

The institutional and legal context of training. As a result of the belief that the collective good feature of training is of some importance, analysts have turned to examination of the institutional context of training.

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HOW STATISTICS HAVE BEEN USED IN SOME NATIONAL STUDIES ON TRAINING

Barron, Black and Loewenstein (1987)

Data source: Employment Opportunity Pilot Project survey.

Major findings: Attempts to assess the effects of firm size on the costs of training with ambiguous results. It seems that larger firms have higher monitoring costs and only hire workers with greater ability who are less costly to train, while increasing amount of on-the-job training given to these new hires.

Bartel (1989)

Data source: Columbia Business School survey on human resource practices and economic characteristics. Usable data received from 493 businesses (6.4 per cent response rate).

Major findings: Whether a company has a formal training programme is found to depend on size, the extent of reliance on internal promotions, physical capital intensity, and whether job candidates are required to take a formal test. Study was unable to consider training costs as very few firms were able to provide such data (study found no systematic characteristics associated with the probability of reporting training costs).

Bishop (1989)


Major findings: Training investments over the first three months for a typical new hire appear substantial and vary systematically by occupation, education, industry and size of firm. Most training time is being shown the job by a supervisor or watching others perform work. Supervisor’s productivity rating of typical new hire indicates that productivity growth is substantial the first year on the job. Productivity effects of training investment usually greater than wage effects, but this is not seen as evidence of the training being firm-specific as data on reported generality of training has much larger productivity than wage effects. No evidence that training has an effect on tenure or quits at smaller establishments, but positive effects on tenure exist at larger companies.

Duncan and Hoffman (1978)

Data source: Panel Studies on Income Dynamics, 1975 data on heads of households and spouses aged 18-64 who worked at least 500 hours in 1975.

Major findings: Time spent in on-the-job training increases earnings with a return similar for men and women, Blacks and Whites. Amount of training received is much higher for men compared with women, which is attributed to institutional factors as work experience does not open up training opportunities as much for Blacks or women as it does for white men. Very mixed evidence concerning whether current training is costly in terms of lower current wages.

Holzer (1990)

Data source: Employment Opportunity Pilot Project Survey of Firms in 1980 and 1982, including information on the most recently hired workers. Oversampling of large and/or low-wage firms.

Major findings: Training positively related to supervisor’s productivity growth ratings and to wage growth. Previous experience and job tenure have significant effects on productivity rating and wages (latter finding is independent of any productivity enhancing effects). Women employees have greater productivity growth than men, but their wages are significantly lower.

Lauthé (1990)


Major findings: Persons who received some employer-sponsored training were much less likely to go from employment to unemployment and more likely to experience occupational mobility compared with those who received no training. This finding was confirmed for all age groups, occupations and industries.

Lynch (1989)

Data source: Subsample of the National Longitudinal Survey youth cohort. Persons who had completed schooling by 1980, not in the military, and with wage data in both 1980 and 1983.
**Major findings:** About 15 per cent had received off-the-job training and 4 per cent company-based training. Women and non-Whites were much less likely to receive company-based training than white men. Company training is lower in areas with higher unemployment rates. Apprenticeship and off-the-job training received prior to current job had statistically significant effects on the log of current wages; receipt of company training with current employer has a positive wage impact, but being engaged in company training at time of survey has no effect on wages.

**Mincer and Higuchi (1988)**

**Data sources:** Panel Studies of Income Dynamics and sample of male employees from the Japanese Employment Status Survey.

**Major findings:** The duality hypothesis is examined in Japan and the United States by comparing wage profiles and turnover across industries. In both countries, industries with faster technological change exhibit steeper wage profiles and lower turnover rates, but profiles are much steeper and turnover lower in Japan. Attributes much of the difference to faster measured total factor productivity growth in Japan compared with the United States.

**Steedman and Wagner (1987, 1989)**

**Data source:** Sample of British and German establishments in clothing, metalworking and kitchen furnishings.

**Major findings:** Average labour productivity in German firms was found to be generally higher than in British ones, even when comparable capital equipment was installed. Differences between the two countries linked to much higher level of skills in German plants, itself related to training provisions and work organisation facilitating training.

**Tan (1989)**


**Major findings:** Men are more likely to receive formal company and on-the-job training compared with women. Complementarity exists between formal schooling and receipt of training. Company-based training has a statistically greater effect on earnings than other training sources. Receipt of company training is associated with less likelihood of becoming unemployed. Persistently high state unemployment rates (or greater cyclical volatility relative to the national rate) is associated with a lesser likelihood of receiving training.

**Vaughan (1989)**

**Data sources:** Summary of many US studies drawing on many sources.

**Major findings:** Summarises a range of estimates on training costs and average rates of returns for men. Average return ranges from 4 per cent to just over 25 per cent depending on data set used, sample of male workers examined and assumptions about depreciation of effects of training. The study argues that it is impossible to pick a single reasonable estimate, and notes that they cannot be compared with returns on other assets as they are not adjusted for risks and do not measure after-tax returns.

The way in which training is organised, financed and conducted can influence the way employment relations are structured, e.g. occupationally-based labour markets and internal administrative markets. Employment relations in turn can influence the organisation of training and views on skill requirements for jobs [Whittaker (1990); Dore and Sako (1989); Aoki (1988)]. The range of inter-related institutions, according to some analysts, which needs to be considered is rather large: the organisation of industry, firms and the work process, including recruitment processes and wage profiles, industrial relations, financial markets and their relation to industry and the state [Finegold and Soskice (1988); Streek (1989); Sako (1990)].

Institutional features such as seniority rights, pension-vesting rules and compensation packages, and legal or collectively bargained restrictions on layoffs and firings, which are part of the foundation of internal labour markets (or alternatively increase the cost of changing employers) are usually considered as means to reduce the risks associated with training investments made by firms. In addition, employment security gives established workers more incentive, compared with a situation with no security, to impart their knowledge to new recruits. The issue of employment security is so old that it was a central element of the guild structure.
apprenticeship system in the middle ages, and has been one feature of some labour market segmentation models [Mangum (1989); Piore (1968)].

Thus, comparative analyses of enterprise training have emphasized differences in employment mobility to help explain what are seen as differences in the amount of training given by firms. But observations about employment tenures do not necessarily translate directly into actual training propensities or investment. For example, they tell us little about recruitment processes making for good matches, promotion and career ladders. A case study of CNC operators in British and Japanese factories suggests the complicated nature of the relation of tenure and training [Whittaker (1990)]. The Japanese workers' tenure for each age group did tend to be longer compared with those in Britain. This study found, however, that British factories tended to give more training as measured to these particular workers, but that approach the issue as one of "more or less" was misleading. The entire approach to training and recruitment was different. British factories trained for a much narrower range of tasks, and recruited already experienced metal workers. Japanese workers were recruited from high schools, were expected to learn technical skills fast, especially from manuals, and learned a wider variety of tasks. This reflected quite different views of managers concerning skill requirements for jobs. While Japanese factories and workers in this sample were seen as better able to adapt to innovation which changed job contents, they already had a wider skill base. Such case studies suggest that simple approaches linking training with mobility patterns are likely to miss important factors. Thorough study of firm training must examine a range of organisational and human resource development practices - work design, compensation systems, career development and job rotation programmes - that can affect the kind of training given, when it is given, total training investments and the pay-offs. While there are quite interesting analyses of the institutional context of labour markets, currently little is known empirically about how such factors really affect training investments [Eyraud, Marsden and Silvestre (1990)].

The industrial relations system may also influence training investments. To the extent that unions promote measures which act to stabilize employment, they may strengthen incentives to provide training. However, this depends partly on what types of mechanisms promote security [Ryan (1987)]. For example, narrow and inflexible job classifications bargained to protect the senior workforce limits the scope of work that any particular employee will be expected to do and may lead to less, or a different kind of, training than if jobs were broadly defined [Kelly (1989)]. It has been suggested, for example, that Swedish unions, in the context of the solidaristic wage policy and in the broader context of an active labour market policy, have facil-

itated the development of rather flexible internal labour markets with broad job classifications, though accurate assessment of the impact on training investments is difficult [Osterman (1988)]. In terms of the distribution of learning opportunities, the influence of industrial relations systems may depend partly on their overall organisational framework, their bargaining power and the extent to which enterprise training and equity issues are considered to have high priority [Australian Department of Employment, Education and Training (1988); Soskice (forthcoming)]. German unions, works councils and chambers of commerce, backed by legal regulations and moral suasion, are often viewed as critical for the maintenance of quality apprenticeship programmes leading to a very high percentage of the workforce having qualifications [Streek (1989)]. The emphasis on formal credentials and merit has also been associated with far fewer supervisory staff per worker and more blurred professional demarcation lines [Maurice and Silvestre (1982)]. Even in the United States, there is currently some movement towards joint union-management training programmes. Such programmes tend to emphasize career development and lifetime education, rather than training requirements for particular jobs [Ferman, Hoyman and Cutcher-Gershenfeld (1990)]. A recent comparison of France and Great Britain suggests how collective agreements can reinforce the different labour market structures, skill classifications, and the type of training most likely to be provided [Eyraud, Marsden and Silvestre (1990)]. While there are clearly differences across firms and industries within each country, the dominant pattern of training in Great Britain has been occupationally-based apprenticeship with considerable inter-firm movement, while France is more internal labour market oriented and somewhat less inter-firm mobility exists.

Finally, enterprise training may be affected by different provisions to collectivise the cost. France, for example, has had a national training tax since 1971. Currently at 1.2 per cent of the wage bill, firms can avoid the levy by spending that much on legally prescribed training activities [CEREQ (1989)]. Since 1976, Germany has had a national levy system which can be activated only if the supply of formal apprentice slots offered does not exceed by at least 12.5 per cent the number of youth seeking such slots [Taylor (1981)]. Australia has recently passed legislation on training which requires firms with annual payrolls over $A 200 000 to spend 1 per cent from 1 July 1991 and 1.5 per cent from 1 July 1992 of their payroll on eligible training expenditure. The problem is to get a grip on what effect such provisions, or other kinds of government-based incentives, really have on the content, amount and returns to enterprise training, and that is very difficult. The French system, for example, was introduced with some hope of making formal training opportunities more equal across social groups. While the proportion of unskilled workers receiving
some training has increased over time, it still remains far behind managerial formal training opportunities. Nor is there much evidence that the “training” gap between small and large enterprises has been much bridged despite insurance funds provisions designed to pool resources, making it easier for small firms to engage in off-the-job formal training [Verdier (1987)]. However, training levies do not operate in a vacuum. Training requirements are, after all, not the same in all jobs and firms have very different job structures. Moreover, levies are obviously only one possible way of training incentives being influenced by governments. In any case, much more research is needed on the impact of government-based involvement on enterprise incentives to engage in training.

3. Conclusion

This section has outlined three main issues on enterprise training, emphasizing as well the paucity of empirical evidence on such fundamental questions as the extent, if any, of underinvestment. There are other issues, e.g. the impact on training of shifts from mass production to product and process flexibility, and the more conventional issue of measuring the impact of training on individuals wages and labour market careers (see the Box for a description of some of the studies on this latter issue). While much attention has been given to national differences in labour market structures, their connection to training incentives is not well understood empirically. And there sometimes seems to be some confusion between conjectures concerning training incentives per se, and the type or content of training. Enterprise training systems evolve within the limits of the existing organisation of industry with its traditions. Therefore, knowing the amount and the incidence of training, while of importance, may miss equally germane issues of how efficiently training and work are structured, and whether some systems are better able to adapt to changing circumstances, to say nothing of the impact of management practices and overall investment strategies on training [Finegold and Soskice (1988); US Congress (1990)].

The next section presents an examination of the data sources and of the descriptive training statistics to be used in this chapter. It focuses particularly on the limitations of the data as these are formidable impediments to a thorough grasp of the policy issues involved in enterprise training.

C. TRAINING STATISTICS: PROBLEMS OF DEFINITION, MEASUREMENT AND INTERPRETATION

The data presented in this chapter come from two sources and Annex 5.A presents details for each country. First are data derived from labour force-type surveys (or supplements to such surveys). Information has been collected for Australia, Finland, France, Germany, Ireland, Spain, Sweden, Great Britain and the United States. Second are data derived from enterprise/establishment surveys or administrative data derived from enterprises. Information has been collected for Australia, Canada, France, Japan, the Netherlands, Norway and Great Britain, and for selected countries from the 1984 EEC labour costs surveys (Denmark, France, Germany, Italy and the United Kingdom).

The methods of measurement used for generating these data vary greatly. The definitions of and questions on training, reference periods, population or enterprise coverage and survey methods differ from one country to another, and within countries from one type of survey to another. Each of these factors will affect any attempt to compare the statistics. The purpose of this section is to examine the problems posed.

Consider first some general issues of definition. What is and what is not enterprise-sponsored training is not precise. Alternative modes of training may lie on a continuum from quite formal classroom-based to quite informal interactions among coworkers or may even include situations where new hires simply ask questions or watch others do the work. Moreover, some training necessarily is a joint product with production, and there may be no clear point where one stops and the other starts. Some surveys try to structure their questions, either to individuals or enterprises, to make such distinctions while others do not. Sometimes the existing statistics from surveys lack much precision as to whether the training undertaken was informal or formal on the job, or more formal courses taken either in or outside the enterprise. As a result, depending on the survey, data may include a myriad of types of training in unknown proportions. Often the statistics are vague about the extent to which the training was completely, partially or not at all sponsored by the enterprise or consortia of enterprises, or individuals or public authorities, or some combination. While some surveys ask respondents whether more formal training courses taken by workers were paid for by the enterprise, this in itself does not necessarily mean that the fees covered the full cost of the training [Vaughan (1989)]. Countries may have very different balances between the many possible types of training. The lack of precise information on this or the use of different definitions to arrive at statistics with the same nominal label makes comparisons misleading.

Equally, the statistics generally only indicate, within the framework and scope of a given survey, how many employed persons engaged in some kind of training, or how many training events occurred, or how many hours on average the training lasted, or how much the enterprise spent on training. They cannot be used as any indication of what proportion of the workforce has
certain kinds of qualifications or how many people receive qualifications through enterprise training or whether the training was successful or not. Measures of training are input—rather than output-based. Developing output indicators of skills and qualifications, however, poses fundamental measurement problems. Even if two firms or two countries were shown in the statistics as spending the same amount on training or training the same proportion of their workforce, the content and effectiveness could be different. Conversely, firms or countries shown in the statistics as spending less on enterprise training could be more effective in training. They may not need to invest as much or in the same manner because of the quality of new recruits from the formal education system or because of the way in which work is organised. Understanding enterprise training is not simply an issue of comparing quantities of a measure called training [Dore and Sako (1989); Aoki (1988); Steedman and Wagner (1989)].

Consider some specific examples of the comparative limitations of training statistics. A widely available descriptive statistic is the incidence of training. Thought of simply, this is the number of employees undergoing training divided by employment. But practice is straightforward with respect to neither the numerator nor the denominator. First, the range of activities that can be included as training vary widely and the methods of eliciting responses to training questions are not the same. The 1989 supplement to the Australian labour force survey attempted to gather information on structured courses taken inside and outside the enterprise as well as information on unstructured (on-the-job) training activities in the firm among persons who had worked as a wage or salary worker at some time over a 12-month period from the time of being surveyed. Prompt cards were shown to respondents listing possible forms of each kind of training, e.g. unstructured training activities included asking questions of coworkers, self-learning and watching others do the work. The US supplement to the January 1983 Current Population Survey simply asked if any skill improvement training had been undertaken while with the current employer. Possible responses to code included informal on-the-job, formal company programmes, schooling and other, but details of what might be entailed in each of these were not spelled out to respondents. French administrative data from enterprises explicitly exclude employers' reporting anything but, legally mandated, formal off-the-job training (inside or outside of the enterprise, but excluding apprentices under contract). Finally, a 1986-1987 establishment survey for Great Britain tried to gather information on formal in-house and external training with supervisors or managers filling out a quite detailed questionnaire with a list of kinds of courses. On-the-job training was to be restricted to structured, supervised activities in which little useful output was produced. These surveys gave the overall incidence of training as defined as: Australia, 79.0 per cent; United States, 35.8 per cent; Great Britain, 48.3 per cent; and France, 26.6 per cent. Formal training only gave estimates of 34.9, 11.8, 34.8 and 26.6 per cent, respectively. Excluding France, the estimates for on-the-job training as defined were 71.8, 14.9 and 32.9 per cent, respectively (see Table 5.1b and Table 5.2).

Although the surveys differ in many respects, there appear to be quite large differences in measured training incidence. The definitions, which are at least rather clear, except in the case of the United States, are quite dissimilar. There is simply no generally recognised or standardized definition of types of enterprise training. In theory, of course, even identical survey instruments could still result in different estimates of enterprise-related training due, among other things, to country-specific institutions and history such as the importance of full-time vocational education, the propensity of individuals to take training on their own time and at their own expense, actual differences in the training activities of firms and other factors. In reality, it is not really feasible to determine how much the differences are real or how much they reflect definitional and other survey-related factors. A priori, it seems likely that surveys which stimulate the memory of respondents will pick up more training events. This would seem to be especially the case with many forms of on-the-job training. Relatively fewer respondents to surveys may consider “asking coworkers questions” to be on-the-job training unless specifically prompted, even though many analysts would consider this to be one form of training. It is not as memorable an event as having taken (say) a four-week training course. Considering only “formal company training” generates statistics that are seemingly less disparate, although the United States remains a clear outlier. However, lack of disparity is at best only a very rough criterion for comparability. Of all the surveys analysed, the British definition of on-the-job training, for all the questions it raises concerning how enterprises actually understood the definition, probably does the better conceptual job of separating training from experience on the job. The point is that definitions and methods of generating responses may significantly affect results, and both differ across countries.

Another important issue for interpreting the measurement of training activities is the reference period. Reference periods range from at the time of the survey (the labour force survey of France), the last four weeks (the labour force surveys of Ireland, Germany, Spain and Great Britain), six months (the 1987 Swedish survey), a one-year period (Australian and Finnish labour force surveys, and the enterprise-based data of Canada, France, Japan, the Netherlands and Norway, and the establishment survey of Great Britain), to since working in the current enterprise or job (survey of workers from the Japanese enterprise survey and the US labour force survey). It seems likely that the
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<td>In-house courses</td>
<td>All</td>
<td>Excluding apprentices</td>
<td>All</td>
<td>Excluding apprentices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td>(2)</td>
<td>(1)</td>
<td>(2)</td>
<td>(1)</td>
<td>(2)</td>
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<tr>
<td>All persons</td>
<td>79.0</td>
<td>34.9</td>
<td>34.4</td>
<td>4.6</td>
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<td>7.8</td>
<td>2.4</td>
<td>25.4</td>
<td>14.4</td>
</tr>
<tr>
<td>15-19 years</td>
<td>92.6</td>
<td>30.3</td>
<td>16.1</td>
<td>9.0</td>
<td>8.2</td>
<td>19.8</td>
<td>7.1</td>
<td>20.0</td>
<td>19.0</td>
</tr>
<tr>
<td>20-24 years</td>
<td>83.2</td>
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<td>8.1</td>
<td>28.0</td>
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<tr>
<td>25-34 years</td>
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<td>26.9</td>
<td>7.1</td>
<td>42.2</td>
<td>15.0</td>
</tr>
<tr>
<td>35-44 years</td>
<td>64.6</td>
<td>31.5</td>
<td>38.1</td>
<td>1.5</td>
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<td>14.8</td>
<td>2.0</td>
<td>38.0</td>
<td>13.5</td>
</tr>
<tr>
<td>45-49 years</td>
<td>49.0</td>
<td>20.4</td>
<td>27.6</td>
<td>0.6</td>
<td>0.6</td>
<td>22.7</td>
<td>0.1</td>
<td>9.5</td>
<td>7.1</td>
</tr>
<tr>
<td>50 years +</td>
<td>78.8</td>
<td>35.1</td>
<td>73.9</td>
<td>3.3</td>
<td>2.5</td>
<td>32.8</td>
<td>5.7</td>
<td>26.0</td>
<td>13.5</td>
</tr>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15-19 years</td>
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<td>76.0</td>
<td>7.7</td>
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<td>7.3</td>
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<tr>
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<td>18.7</td>
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<td></td>
<td>28.6</td>
<td>7.3</td>
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<tr>
<td>25-34 years</td>
<td>35.6</td>
<td>4.8</td>
<td>8.7</td>
<td>8.3</td>
<td>6.5</td>
<td>2.9</td>
<td></td>
<td>40.6</td>
<td>15.6</td>
</tr>
<tr>
<td>35-44 years</td>
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<td>4.3</td>
<td>4.0</td>
<td>4.0</td>
<td>1.3</td>
<td></td>
<td>43.8</td>
<td>18.1</td>
</tr>
<tr>
<td>45-49 years</td>
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<td>2.6</td>
<td>2.2</td>
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<td>0.1</td>
<td></td>
<td>39.2</td>
<td>15.9</td>
</tr>
<tr>
<td>50 years +</td>
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<td>0.7</td>
<td>0.7</td>
<td>1.7</td>
<td>0.01</td>
<td></td>
<td>31.0</td>
<td>10.5</td>
</tr>
<tr>
<td>Women</td>
<td>79.4</td>
<td>34.6</td>
<td>35.0</td>
<td>4.3</td>
<td>3.7</td>
<td>7.8</td>
<td>3.4</td>
<td>25.1</td>
<td>14.5</td>
</tr>
<tr>
<td>15-19 years</td>
<td>20.2</td>
<td>11.5</td>
<td>70.9</td>
<td>8.1</td>
<td>22.1</td>
<td>6.0</td>
<td></td>
<td>20.0</td>
<td>9.5</td>
</tr>
<tr>
<td>20-24 years</td>
<td>32.8</td>
<td>4.2</td>
<td>21.2</td>
<td>6.5</td>
<td>12.0</td>
<td>6.9</td>
<td></td>
<td>19.0</td>
<td>7.9</td>
</tr>
<tr>
<td>25-34 years</td>
<td>44.6</td>
<td>2.2</td>
<td>3.5</td>
<td>3.3</td>
<td>4.2</td>
<td>1.9</td>
<td></td>
<td>40.4</td>
<td>11.8</td>
</tr>
<tr>
<td>35-44 years</td>
<td>36.3</td>
<td>1.7</td>
<td>2.0</td>
<td>1.8</td>
<td>2.8</td>
<td>0.1</td>
<td></td>
<td>36.7</td>
<td>10.6</td>
</tr>
<tr>
<td>45-49 years</td>
<td>29.5</td>
<td>0.5</td>
<td>1.5</td>
<td>0.5</td>
<td>1.5</td>
<td>0.01</td>
<td></td>
<td>27.8</td>
<td>7.5</td>
</tr>
</tbody>
</table>

<sup>a</sup> The incidence of training is calculated as the number of employed persons, within the framework and coverage of each country's survey, who said they had received some kind of training during the reference period divided by the total number counted as employed. See Annex 5.A for the details on the definitions of training, the population coverage, reference periods and other aspects of the surveys.

<sup>b</sup> Age groups for Australia and Finland refer to 15-24, 25-34, 35-44, 45-54 and 55-64. Age groups for Spain refer to 16-19, 20-24, 25-34, 35-44, 45-49, and 50 and over. Age groups for Sweden refer to 16-25, 25-34, 35-45, 46-55 and 56-64. Age groups for Great Britain refer to 16-19, 20-24, 25-34, 30-39, 40-49, 50-64 (men) and 50-59 (women). Age groups for the United States refer to 16-19, 20-24, 25-34, 35-44, 45-54, and 55 and over.

<sup>c</sup> Column 1 includes all training activities as outlined in Annex 5.A. Column 2 shows receipt of in-house training courses (Australia) and having taken a formal company programme (United States).

<sup>d</sup> Column 1 includes all training activities as outlined in Annex 5.A. Column 2 excludes, from both the numerator and denominator, apprentices under contract (France) and apprentices in the dual system (Germany).

<sup>e</sup> Data refer to all employed persons. Calculation includes a small number of non-respondents.

<sup>f</sup> The incidence for all persons aged 50-64 was calculated from information in the source cited below on the reported incidence for persons aged 50-59 and men aged 60-64. All other figures shown were taken directly from the source cited below. The age-specific data in the source had been rounded to the nearest per cent.

Sources:
- Australia: How Workers Get Their Training, Australia, Canberra: Australian Bureau of Statistics, 1990, Table 1.
- France, Germany, Ireland and Spain: Unpublished data from each country's labour force survey provided by their respective statistical agencies. See Annex 5.A.
shorter the reference period, the fewer training events will be picked-up. However, a long reference period may also result in under-reporting of training because of recall problems. The data show that the measured incidence of training is much lower when the statistics refer to a period of one month or less compared with a one-year period (see Tables 5.1a and 5.1b). However, it is rather difficult to say how much of an effect the dissimilarities in reference periods might have compared with other survey differences or compared with reality. Recall problems are probably neither independent of the way questions are asked nor of the type of training events the survey is trying to capture. For example, simply asking whether any training was received at any time while with the current employer may generate statistics rather different from asking about the same indefinite reference period, but making precise to respondents what is to be included in training. A priori, the appropriate reference period is not clear and depends on what one wants to measure. As a practical matter, one year (for both labour force and enterprise surveys) would seem, on the basis of past research on other types of recall problems, a possible compromise [Horvath (1982)]. Even one year may, however, be too long for accurate recollection of on-the-job training.

In addition to the above, as soon as the training questions refer to other than the current enterprise/job, the training events covered could include those which occurred in different enterprises, in different industries and different occupations from workers' current status. If considerable mobility exists, unless additional information is collected, this could affect measured differences in training incidence across, for example, industries or firms. For some purposes, such as simply counting individual training, this may not be a problem. However, it is often precisely such cross-industry and firm comparisons that are needed.

Also of importance is the employment count in the denominator of the incidence rate. In many household surveys, it is those currently employed. In others, it is persons who worked at some time during the reference period used for gathering training statistics. For enterprise surveys or administrative data, measured incidence is often the number of workers reported as hav-

Table 5.1b. Incidence of training among employees by age and sex as measured in enterprise-based surveys or administrative data

<table>
<thead>
<tr>
<th></th>
<th>France</th>
<th>Japan</th>
<th>Netherlands</th>
<th>Norway</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any training</td>
<td>Within last two years</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All persons</td>
<td>26.6</td>
<td>75.3</td>
<td>36.7</td>
<td>25.0</td>
</tr>
<tr>
<td>Men</td>
<td>28.8</td>
<td>80.2</td>
<td>40.4</td>
<td>28.0</td>
</tr>
<tr>
<td>Women</td>
<td>22.8</td>
<td>60.6</td>
<td>25.8</td>
<td>18.0</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-24 years</td>
<td>n.a.</td>
<td>73.1</td>
<td>33.6</td>
<td>n.a.</td>
</tr>
<tr>
<td>25-34 years</td>
<td>n.a.</td>
<td>78.7</td>
<td>41.6</td>
<td>n.a.</td>
</tr>
<tr>
<td>35-44 years</td>
<td>n.a.</td>
<td>74.7</td>
<td>35.1</td>
<td>n.a.</td>
</tr>
<tr>
<td>45-54 years</td>
<td>n.a.</td>
<td>66.5</td>
<td>19.1</td>
<td>n.a.</td>
</tr>
<tr>
<td>55-67 years</td>
<td>n.a.</td>
<td>66.5</td>
<td>19.1</td>
<td>24.6</td>
</tr>
</tbody>
</table>

* aIncidence refers to the number of wage and salary workers in private, semi-public and co-operative sector enterprises of 10 or more employees who undertook at least one formal training period under the charge of the enterprise training plan during 1988, divided by the number of permanent employees at the end of the calendar year. On-the-job training, training leave and training which occurred in the context of training insurance funds (Fonds d'Assurance Formation) are excluded. Apprentices under contract and youth following the stages d'initiation à la vie professionnelle (SIYV) are excluded from both the numerator and denominator. For other details, see Annex 5.A.

b) Data are based on the responses of a sample of workers in the 1989 survey of training activities in private sector enterprises with 30 or more regular employees. Column 1 refers to the proportion of employees in each group who said that they had received off-the-job training at some point during their tenure at the current enterprise. Column 2 refers to those who said that they had received some off-the-job training while at the current enterprise within the most recent two years. The original source gives this latter figure as a proportion of the sample who said they had undertaken training at some time. The figures shown here have been recalculated to include all employees in the sample in the denominator. The age groups refer to those under 30, 30-44, 45-54, and 55 and over. For more details, see Annex 5.A.

c) Data refer to 1986 for firms with 5 or more employees, excluding government, education and health organisations. Training refers only to formal in-house or external courses which were financed in part or in whole by the enterprise. Schooling, apprenticeships and on-the-job training are excluded.

d) Data are based on the responses of a sample of workers in the 1989 employer-based training survey. Data refer to the twelve months prior to the survey. One-person enterprises and enterprises with less than two employees are excluded. Training refers only to formal training organised as a course which was either partly or completely paid for by the enterprise. Apprenticeships, on-the-job training and shop steward training are excluded.

Sources: France: Statistique de la formation continue financée par les entreprises, Centre d'Études et de Recherches sur les Qualifications, La Documentation Française, Paris, December 1989, Table 8 (provisional 1988 data).


Netherlands: Data were provided by the Central Bureau of Statistics.

ing training as defined over the reference period divided by the number of workers at the enterprise at a point in time, i.e. it is not a measure of the number of workers now at the enterprise who undertook training during the reference period (the 1989 Japanese survey of private enterprises is an exception). Some surveys exclude certain kinds of workers from the count, e.g. Japanese data only count regular workers in enterprises with 30 or more of them, and the denominator in French administrative data is restricted to permanent workers on the payroll at the end of the year. Thus, even the seemingly simple statistic “incidence of training” is actually measured in a variety of ways which must affect comparability.

Finally, consider measures of employer expenditure on training. What is and is not included in expenditures differs across countries and surveys. In principle, training costs borne by employers include both direct and indirect costs (including foregone output while training is being undertaken); moreover, this should be net of indirect or direct subsidies. But accurate measurement can be rather taxing and only rarely attempted. Indeed, some research has shown that very few firms keep records of even direct training expenditures [Bartel (1989)]. Dissimilarities in expenditure data encompass both the definitions of expenditures and the definitions of what kinds of training are to be included. For example, data on the costs of vocational training for Japan exclude the wages of those engaged in training, and contain only several expenditure items, which seem to include only off-the-job training, such as costs of facilities for training, commissions and allowances for trainers. The establishment-based survey for Great Britain tried to collect training expenditures which included structured/supervised on-the-job training as well as expenditures for off-the-job training activities. Expenditures included wages while being trained and wages of those doing the training, facilities and equipment, and other items. The Australian employer survey and the administrative data for France are based only on expenditures for formal training (in principle, structured on-the-job training is included in the Australian definition, but indications are that very little on-the-job training is structured). In addition, the coverage of enterprises/establishments and industries differs across these surveys. Enterprise coverage ranges from one or more employees (Australia and Canada) to 30 or more regular employees (Japan). Sometimes coverage refers to the private sector and sometimes to both the private and public sectors. Some countries exclude agriculture (Australia, Japan, Great Britain and the EEC labour costs surveys). And, while the EEC labour costs surveys cover production industries, they include only part of the service sector (wholesale and retail distribution, insurance and credit institutions). For all these reasons, one would expect to observe cross-country differences in reported training expenditures. For example, the global figures presented in this chapter range from about 0.4 per cent of average monthly labour costs (Japan) to 8.8 per cent of annual average earnings (Great Britain) (see Table 5.7). But disentangling real differences in effort from ones of definitions and coverage would be rather difficult.

In summary, international comparisons of the levels of widely used training statistics can be very misleading. This chapter, therefore, will only examine variations in training between subgroups of the employed or subsectors of the economy to assess training incidence and provision within countries. These observed patterns will then be given a comparative perspective on the assumption that they are more readily comparable.

D. PATTERNS OF TRAINING PARTICIPATION AND PROVISION

This section presents data on the incidence of training cross-classified by variables such as age, sex, educational attainment, occupation, firm-establishment size and industry. Information on training expenditures by industry is also examined. Analysis of training patterns by age, sex and educational attainment is important for understanding who has access to training. Examination of training opportunities or spending across industries and firms is useful for understanding who, at least in the first instance, provides training and the types of training provided. Because the data sometimes refer to training ever received since joining the current enterprise, sometimes to those currently receiving training, and sometimes to those having received training over a 1-24 month period prior to the survey, there can be a problem with respect to the terminology used. To simplify matters, this section will employ phrases such as “the incidence of training varies” and “group X is more likely to receive training compared with group Y”.

1. Who receives training

i) Demographic and tenure patterns of training

The association between training and demographic groups is presented in Table 5.1a (labour force-type surveys) and Table 5.1b (enterprise-based surveys). There are several patterns. First, generally the labour force survey data show little difference between women and men. The enterprise-based data, on the other hand, suggest that women are less likely to receive training (Norway is an exception where the difference is clearly small). The latter refer to formal off-the-job training, while on- and off-the-job is usually, sometimes explicitly and sometimes implicitly, included in the former. It is possible that women, on average, are less likely to receive certain kinds of more formal training and the issue of types of training is taken up in the next subheading.
Second, in Australia (overall training incidence), France, Germany, Ireland, Spain and Great Britain young people are much more likely to receive training and the incidence declines steadily with age. The pattern is somewhat different for Finland, Sweden, the United States, Australia (in-house courses), the sample of workers in the Japanese enterprise survey and, to some extent, Norway. The relationship of training and age is more curvilinear, with the maximum peak generally in the age range of 30-44. The main difference in these latter countries concerns youth and older workers: with the exception of the United States and Finland, the lowest measured incidence occurs among older workers.

These different patterns likely point to both institutional features of the labour market which impact on the timing of some training as well as survey differences concerning training questions, definitions and reference periods. For France and, especially, Germany, the observed pattern is strongly related to apprentices virtually all of whom are under the age of 25 (although excluding apprentices does not change the fact that training incidence declines with age). The overall Australian incidence pattern is largely due to the wide definition of unstructured on-the-job training activities; it would seem that most young people upon entering employment receive some help from coworkers, for example, and such informal learning is of less importance for already established workers. This is confirmed by considering only receipt of in-house training courses shown in Table 5.1a.

Some researchers have attempted to interpret incidence-based data showing that older workers (and in some contexts youth) are less likely to receive training as indicating the life-cycle of training investments [Tan (1989)]. And one US model has formalised the relation between enterprise-specific training investments and employment mobility patterns [Jovanovic (1979)]. This model notes the observed high turnover of American youth (which can be extended to new hires) and argues that firms will be reluctant to provide extensive training until workers have proven their stability.

Close examination of these data suggest the difficulty of truly separating the factors underlying the patterns. A simple youth employment turnover model would not seem applicable to Germany, for example, without the further specification of important aspects of the dual system and other institutional features of the labour market. Australian information on tenure and training received over a period of a year shows the overall incidence declining with tenure [ABS (1990a), Table 5]. This, however, is largely the result of more recent hires receiving more unstructured on-the-job training. Longer tenured workers are somewhat more likely to receive formal in-house and employer-supported external training courses. Data for the United States (not shown here, but drawn from the source listed in Table 5.1a) show the measured incidence of training increasing with tenure even while controlling for age. The differences are especially pronounced for formal company programmes, but much less so for informal on-the-job training. While structured and formal activities may be more firm-specific and investment-intensive compared with informal training, the very limited evidence is more nuanced. For example, the large majority of respondents in the Australian survey believe that the in-house courses provided transferable knowledge: this was 73 per cent for general induction courses and as high as 87 per cent for trades courses [ABS (1990a), Table 29]. Of course, as the probability of separation declines with tenure, firms may more readily provide a mix of "general" and "specific" training. If this is true, it would be consistent with a link between turnover probabilities and training provision. The question is how empirically strong the link is and whether or not it differs by labour market structures.

In the Japanese and US surveys, where the reference period is the time spent with the current enterprise, the lower training incidence reported by older workers compared with prime-age and younger (Japan only) workers might reflect life-cycle investments. However, it could as easily reflect problems of recalling training that occurred among those who had been with the firm for a long time, changes in the training practices of firms, or could reflect the fact that a number of older workers were relatively recent hires who already had the skills wanted by the employer. United States data on typical new hires do show that older workers tend to enter jobs where the amount of training time estimated by supervisors is less compared with middle-age and younger workers [Bishop (1989)]. However, according to the US data used in this chapter, only about 9 per cent of wage and salary workers aged 45 and over had less than one year of tenure, and in each of three tenure categories (less than one, one to less than five, and five years and over) these workers also had a lower incidence of training than either those aged 25-34 or 35-44. The overall pattern for the United States, therefore, would not appear to be related to many older workers being recently hired. But distinguishing life-cycle effects from recall problems or real changes in enterprise training is not possible with these data. Japanese data in column 2 of Table 5.1b shows that the incidence of off-the-job training within the last two years is lower among older workers. In addition, Japanese data on tenure and receipt of training indicate that those with under five years of tenure were less likely to say they received training within the last two years at the enterprise, but there is little difference for the other tenure groups, and the receipt of training at any time while at the enterprise increases steadily with tenure [Japanese Ministry of Labour (1989), Annex Table 12]. There may be some life-cycle effects showing through in these data, but other, including survey-related, factors also surely play a role.
<table>
<thead>
<tr>
<th>Country</th>
<th>On-the-job training</th>
<th>Off-the-job training</th>
<th>Total training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formal company</td>
<td>Informal</td>
<td>Pre-school</td>
</tr>
<tr>
<td></td>
<td>training</td>
<td>supervised</td>
<td>training</td>
</tr>
<tr>
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</tr>
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</tr>
<tr>
<td></td>
<td>79.0</td>
<td>4.6</td>
<td>4.6</td>
</tr>
<tr>
<td>France</td>
<td>12.7</td>
<td>4.6</td>
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<tr>
<td>Germany</td>
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<td>4.6</td>
<td>4.6</td>
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<td>Ireland</td>
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<td>4.6</td>
</tr>
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<td>2.4</td>
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<td>4.6</td>
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<td>Great Britain</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(1)</td>
<td>48.3</td>
<td>14.4</td>
<td>14.4</td>
</tr>
<tr>
<td>(2)</td>
<td>32.9</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>United States</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>35.8</td>
<td>14.9</td>
<td>14.9</td>
</tr>
</tbody>
</table>

Notes:
- a) See Annex 5A for details on the classification of training and for the definition of "training".
- b) Includes both employer-sponsored and publicly-sponsored training.
- c) Includes training consisting of external courses and training at a university or vocational school, the figure in parentheses refers to credit hours of training sponsored by the employer and excludes a very small portion of training sponsored by government programmes.
- d) Refers to training for on-the-job skill development or refresher training.

Source: See Annex 5A for details on the classification of training and for the definition of "training".
These findings do provide some useful information about who receives training, but they also illustrate that incidence data must be used rather cautiously as a guide to the total investment in training that particular groups have received or receive. Quite apart from simply participating in training, other considerations are the types of training different workers receive.

**ii) Type of training received**

Previous research has suggested that the type of training received is of importance. The effects on individuals' wage growth seems to vary by training source and some groups appear to have access to different kinds of training [Lynch (1989); Tan (1989); Barron, Black and Loewenstein (1989); Bishop (1989); Chapman and Tan (n.d.)]. In so far as it can be determined, training incidence by source from both labour force and enterprise/establishment surveys is shown in Table 5.2.

The aggregate statistics present no real pattern. While on-the-job training is a more important source than formal company training in Australia and the United States, there is little difference for Great Britain. This is possibly due to the much more restricted definition of on-the-job training in the British establishment survey. Data by sex (not shown here, but drawn from the sources listed in Annex 5.A) for France and Germany suggest little difference in the source of training between men and women, while Irish data show women less likely to be in apprenticeship training and more likely to have received “workplace only” training. Further examination of the survey data for Australia indicates little difference by sex in the receipt of in-house training courses, although women participate less in employer-supported external courses. In the United States, women appear to participate less in formal company programmes, and if they receive schooling as a source of skill improvement, it is less likely to have been employer-supported compared with men. Although caution is required in pushing these data too far, such findings, in addition to some research suggesting that the impact on wage growth is greater for more structured compared with less structured training, lend some support to the view that women may be at a disadvantage in the training market [Tan (1989); Bishop (1989); Stacey and To (1990)]. Moreover, these statistics say nothing about the actual content of the training received, which may be rather different if only because of dissimilarities between men and women in their occupational and industry status [see Duncan and Hoffman (1978); OECD (1988)].

Data by age drawing on the sources listed in Annex 5.A also reveal differences. Thus, apprentices and those alternating school and work in France, Ireland and Germany are largely young people under the age of 25. Australian youth are more likely to receive informal on-the-job training and to have studied for an educational qualification, and less likely to receive in-house and employer-supported external courses compared with those aged 25-54. The pattern for the United States is a bit different still. Young workers participate less than prime-age and older workers in each measured source of skill improvement training.

**iii) Educational attainment and training incidence**

Among the factors which influence the receipt of training, educational attainment or qualifications appears in the literature as of major importance. To some extent, enterprise training received by individuals must be influenced by basic aptitudes and skills learned in the formal setting of schools. And it is often suggested both that school-based learning is likely to have some impact on the rate at which individuals can learn additional skills and that enterprises may find the cost of a unit of training to be less for the more formally qualified. Alternatively, enterprise training could substitute for schooling or compensate for inadequate pre-work education.

Table 5.3 shows information on the reported incidence of training by educational attainment. There are, however, several important caveats. First, data on educational attainment are as difficult to compare as are training statistics. Second, these data include persons who are still in a formal school environment and countries seem to follow different practices with respect to classification. For example, almost all German apprentices in the dual system are classified as having less than upper secondary education as they have not yet finished their apprenticeship. And a significant number of respondents in the French labour force survey, many of whom said they were engaged in some form of training, are classified as having not declared their attainment. The information has been adjusted as described in the notes to the table.

Consistent with the evidence from many other sources, workers with higher “levels” of educational attainment are generally more likely to receive additional training, although there are minor exceptions (Australia and Japan for the two middle groups of attainment as classified here, and Spain for the two higher levels of attainment, a result which is due to workers who had completed some post-secondary education citing university as their source of training). The importance of apprentices, by definition counted as receiving training, is quite clear in Germany and France where those classified as Group C (vocationally-oriented education) are more likely to receive training compared with other groups. In both Australia and the United States, workers who have completed at least one university degree are more likely to receive training in all of the major categories of enterprise training statistics gathered in each survey compared with other educational groups. Finally, although not shown here, a different survey of individuals in Great
<table>
<thead>
<tr>
<th>Educational attainment</th>
<th>Australia</th>
<th>France</th>
<th>Germany</th>
<th>Ireland</th>
<th>Japan</th>
<th>Spain</th>
<th>Sweden</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than upper secondary (Group A)</td>
<td>69.2 (22.4)</td>
<td>1.3</td>
<td>27.1 (7.4)</td>
<td>8.7</td>
<td>67.7 (26.0)</td>
<td>0.2</td>
<td>17.6</td>
<td>17.1 (3.7)</td>
</tr>
<tr>
<td>Completed upper secondary (Group B)</td>
<td>87.5 (36.6)</td>
<td>3.8</td>
<td>9.9</td>
<td>10.7</td>
<td>70.1 (32.2)</td>
<td>4.0</td>
<td>30.3</td>
<td>31.0 (10.3)</td>
</tr>
<tr>
<td>Completed some post-secondary (Group D)</td>
<td>83.4 (32.8)</td>
<td>4.1</td>
<td>(12.2)</td>
<td>68.9 (31.0)</td>
<td>8.7</td>
<td>38.1</td>
<td>41.9 (14.8)</td>
<td></td>
</tr>
<tr>
<td>Completed at least one university degree (Group E)</td>
<td>91.4 (57.3)</td>
<td>4.9</td>
<td>12.2</td>
<td>85.0 (45.6)</td>
<td>4.2</td>
<td>42.4</td>
<td>55.6 (18.6)</td>
<td></td>
</tr>
<tr>
<td>Vocational, non-academic training (Group C)</td>
<td>80.4 (37.6)</td>
<td>9.2</td>
<td>7.4 (15.5)</td>
<td>9.6</td>
<td>n.a. (n.a.)</td>
<td>n.a.</td>
<td>23.1</td>
<td>n.a. (n.a.)</td>
</tr>
</tbody>
</table>

a) Unless otherwise indicated, the incidence of training is based on all the forms of training as outlined in Annex 5.A. All other details concerning these data are also shown in the annex. With the exception of Japan, the data shown here are derived from labour force types of surveys.

b) Data will include employed persons still in the education system and their educational attainment refers to the highest level reached at the time of the survey, unless otherwise indicated.

c) Educational attainment refers to: (Group A) did not attend highest level of secondary education; (Group B) completed upper secondary; (Group D) other; (Group E) bachelor degree or diploma, and post-graduate degree or graduate diploma; and (Group C) trade qualification or apprenticeship, or post-secondary certificate. Figures in parentheses refer to having received in-house training courses.

d) Special care is required with the educational attainment data used here. Almost one-third are classified as having received no diploma or degree, and it is possible that some of this group are 20-24 years of age and still in school. Moreover, it also appears that most persons under the age of 20 are classified in the survey as having not declared (or were not asked) what, if any, diploma they had received (all those working as apprentices under contract, 87 per cent of whom were aged 15-19, were so classified). Given that, educational attainment refers to: (Group A) BEPC (brevet d'études du premier cycle) only and all classified as having no degree or diploma; (Group B) BAC (baccalauréat) or brevet professionnel; (Group D) BAC plus two years; (Group E) diplôme supérieur, which can include university or technical-based diplomas; and (Group C) CAP (certificat d'aptitude professionnelle), and all persons who had not yet finished their studies, approximately 30 per cent of whom were classified as apprentices under contract or engaged in alternating school-work training. About 26 per cent said they were following their initial studies. If the group who did not declare their degree is excluded, the proportion of Group C currently receiving some training is 1.9 per cent. The proportion of all persons who did not declare their educational attainment receiving some training is 56.7 per cent. And more than half of all those in the survey who said that they were involved in some kind of training were classified as having not declared their educational attainment.

e) Special care is due partly to the fact that some categories of vocationally-oriented training are mixed with more academic training. Educational attainment refers to: (Group A) Ohne Schulabschluss, and Hauptschulabschluss or Realschulabschluss without having completed a professional or vocational qualification. In the German classification scheme, the large majority (80 per cent) of current apprentices in the dual system are counted in this educational attainment group as they have not yet finished their apprenticeship. However, between 80 and 90 per cent who start an apprenticeship will obtain the certificate. Two figures are, therefore, shown for Group A. The first includes current apprentices. The second (in parentheses) excludes 85 per cent of apprentices and, instead, counts them in Group C as defined below; (Groups B and D) Fachhochschul and Hochschulabschluss without having graduated or having received vocational qualifications, and Meister/Technikerabschluss or equivalent. Note, therefore, that this group includes some who would normally be classified in Group C; (Group E) Hochschulabschluss graduate; and (Group C) Berufliches Praktikum or Lehre oder ausbildung. Figure in parentheses, as outlined above, includes 85 per cent of current apprentices in the calculation.

f) Data shown here refer only to wage and salary workers aged 15-49. Educational attainment refers to: (Group A) no formal education, primary level and intermediate O level. This latter attainment level probably includes some vocationally-oriented schooling; (Group B) leaving certificates; (Groups D and E combined) university and higher university; and (Group C) third level non-university.

g) Educational attainment refers to: (Group A) primary or junior high school; (Group B) high school; (Group D) junior college or two-year technical college; and (Group E) university. Two figures are shown. The first refers to those who received any off-the-job training since joining their current enterprise. The figures in parentheses refer to those who received any off-the-job training within the most recent two years. The original source gives this figure as a proportion of those who have undertaken some training at any time. The figures shown here have been recalculated to include all workers sampled in the denominator.

h) Data shown here refer only to wage and salary workers aged 16-69. Educational attainment refers to: (Group A) Anáfilicas y sin estudios (illiterate and without studies) and Primarios (primary); (Group D) Medios, incluye formación profesional (intermediate and vocational education); (Group D) Medios al superior (pre-university, medium level track in officially recognised schools or universities); (Group E) Superior (university and above).

i) Data refer to all employed persons. Educational attainment refers to: (Group A) Kortare än 9 år, Grundskola mottar och Gymn högst 1 år (upper secondary education of at most one year or less); (Group B) Gymn mer än 2 år (upper secondary education of more than two years); (Group D) Efter gymn högst 2 år (post-upper secondary education at most two years); (Group E) Efter gymn mer än 2 år (post-upper secondary education of more than two years); and (Group C) Gymn högst 2 år (upper secondary education of at most two years). Calculations include a small number of non-respondents.

j) Educational attainment refers to: (Group A) less than high school; (Group B) high school; (Group D) one to three years of college; and (Group E) four or more years of college. Figures in parentheses refer to having taken a formal company programme.

Sources: See Table 5.1a for Australia, France, Germany, Ireland, Spain, Sweden (Table 1987:6 of the source cited) and the United States. See Table 5.1b for Japan.
## Table 5.4. Incidence of training among employees by selected occupational groups

<table>
<thead>
<tr>
<th></th>
<th>Non-manual occupations</th>
<th>Manual occupations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Higher level</td>
<td>Lower level</td>
<td>Skilled</td>
</tr>
<tr>
<td></td>
<td>Any training(^a)</td>
<td>Formal company training(^a)</td>
<td>On-the-job training(^a)</td>
</tr>
<tr>
<td>Australia</td>
<td>92.0</td>
<td>60.4</td>
<td>85.5</td>
</tr>
<tr>
<td>Finland</td>
<td>58.0</td>
<td>n.a.</td>
<td>42.5</td>
</tr>
<tr>
<td>France</td>
<td>6.6</td>
<td>3.6</td>
<td>27.0</td>
</tr>
<tr>
<td>(1)</td>
<td>46.0</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>(2)</td>
<td>43.6</td>
<td>n.a.</td>
<td>33.3</td>
</tr>
<tr>
<td>Ireland</td>
<td>14.4</td>
<td>9.7</td>
<td>6.6</td>
</tr>
<tr>
<td>Japan</td>
<td>38.5</td>
<td>n.a.</td>
<td>32.3</td>
</tr>
<tr>
<td>(1)</td>
<td>56</td>
<td>44</td>
<td>37</td>
</tr>
<tr>
<td>(2)</td>
<td>23.2</td>
<td>18.3</td>
<td>9.3</td>
</tr>
<tr>
<td>Great Britain</td>
<td>62.0</td>
<td>16.7</td>
<td>14.5</td>
</tr>
<tr>
<td>Norway</td>
<td>43.0</td>
<td>n.a.</td>
<td>35.4</td>
</tr>
<tr>
<td>Spain</td>
<td>5.6</td>
<td>1.7</td>
<td>6.3</td>
</tr>
<tr>
<td>Japan (1 and 2)</td>
<td>1.9</td>
<td>1.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Great Britain (1)</td>
<td>38.3</td>
<td>16.0</td>
<td>17.5</td>
</tr>
<tr>
<td>Great Britain (2)</td>
<td>43.0</td>
<td>n.a.</td>
<td>35.4</td>
</tr>
<tr>
<td>United States</td>
<td>62.0</td>
<td>16.7</td>
<td>14.5</td>
</tr>
</tbody>
</table>

\(^a\) Occupational groups:
b) Any training refers to all training sources listed in Annex 5A. Sum of components will not add to the total.
c) Formal company training for Australia, Great Britain (1, establishment survey data) and the United States refers to having taken in-house courses, on- and off-the-job training away from the normal workstation, and formal company programme, respectively. For Finland, formal company training refers to professional or trade union training provided within the framework of a structured course that is partly or wholly sponsored by the employer. For Great Britain (2, labour force survey), it refers to off-the-job training irrespective of the location of the training, including schools, skill centres and government training workshops. For France (2, administrative data), it refers to having followed at least one training programme and/or having received training leave. For Japan (1), it refers to enterprise responses concerning who received off-the-job training during 1988, while Japan (2) refers to workers who said they received some off-the-job training while at their current enterprise within the most recent two years. For Norway, it refers to any formal training organised as a course and partly or completely paid for by the enterprise. Courses on shop stewards responsibilities and apprenticeships are excluded.
d) On-the-job training refers to activities undertaken to improve skills other than structured courses (being shown how to do the job, asking questions of co-workers, watching others and self-learning) in Australia, informal on-the-job training in the United States, and workstation training with a significant supervisory content and little useful output produced in Great Britain (1). For Great Britain (2), it refers to the response that training was on-the-job. For France (1, labour force survey data), on-the-job cannot be distinguished from formal training. The combination in this table includes alternating school-work, apprentices under contract, and following a post-school training course or training period. For Germany, on-the-job and formal company training cannot be distinguished. The combination used in this table includes apprentices in the dual system, received training in the current workplace only, and alternating vocational school-workplace training. The figures in parentheses for Germany exclude apprentices in the dual system from both the numerator and denominator. For Ireland, the combination of formal company and on-the-job training refers to workplace only training, apprenticeship, and alternating school-workplace training. The Irish data refer only to wage and salary workers aged 15-49. For Spain, on-the-job training cannot be distinguished from formal company training. The combination in this table refers to those who said that they received training related to economic activity which occurred in other than an officially recognised institution/centre. The Spanish data refer only to wage and salary workers aged 16-49.

Sources: See Table 5.1a for Australia (Table 3 of the source cited), Finland (Table 5 of the source cited), France (1), Germany, Ireland, Spain, Great Britain (2) (Table A1.2 of the source cited) and the United States. See Table 5.1b for France (2) (Table 13 of the source cited using provisional 1988 data), Japan (1 and 2) (Annex Tables 3 and 12, respectively, of the source cited) and Norway. See Table 5.2 for Great Britain (1) (Figure 4.6 of the source cited).
Britain from the one used for this chapter also found measured training incidence over a three-year reference period to be greater for those with qualifications above CSE (completed upper secondary or more compared with those with less than upper secondary as in Table 5.3) [Employment Department (1990), Table A5.5, p. 55].

These findings are of some importance for the issue of training access. Education and post-school training seem to be complements. One implication is that, on average, less formal schooling probably leads to more limited training opportunities and possibilities for augmenting human capital. To the extent that the distribution of human capital affects the distribution of earnings and income, this complementarity can lead to greater inequalities among workers, all other things equal [Thurow (1969); Duncan and Hoffman (1978)].

Given the considerable evidence that less formal education is associated with a greater likelihood of experiencing unemployment, and the more limited research suggesting that receipt of training also somewhat reduces unemployment probabilities, this complementarity may even further aggravate the problems faced by the disadvantaged [Tan (1989); Laulhé (1990); OECD (1989)].

iv) Occupations and training incidence

Occupations, though often hazily defined for comparative purposes, are likely to vary considerably in the amount of training required and in the ways in which post-schooling training is acquired. Some occupations, such as categories of professional workers, are likely to receive much of their initial training in school settings and then continue with more formal company programmes. Others, such as labourers, may only receive informal on-the-job training. Further, given the generally high correlation between formal educational attainment and occupational status, one would expect to see clear differences in receipt of training across occupations. Table 5.4 shows the incidence of training by selected higher and lower level non-manual occupations, and for skilled and unskilled manual workers.

There are several common patterns, but also several dissimilarities. First, among non-manuals the total measured incidence of training is greater for the higher compared with the lower level (the only exception is Spain). In most cases, this relationship holds for both formal company training and on-the-job training as they have been defined in this chapter.

Second, data shown for the manual occupations exhibit no clear pattern. In France (labour force survey data only), Great Britain (establishment survey only) and Japan, skilled non-manual workers are somewhat less likely to receive training compared with the unskilled. For the other countries (including French administrative data and the British labour force survey), the opposite result holds for the overall incidence of training. In some instances, this partly reflects classification differences. For example, in the French labour force survey apprentices under contract are classified as unskilled workers, while the administrative data for France explicitly exclude apprentices from the training count. In Germany, on the other hand, a large number of apprentices in the dual system are occupationally classified here as skilled manuals (for Germany this includes cabinet-makers, machine fitters, precision instrument-makers and others). In the British establishment survey, the way in which the data were presented necessitated putting personal service workers together with non-skilled manuals. If, however, one considers only off-the-job training, where separate data were available, the incidence is lower among other manuals compared with skilled/semi-skilled manuals. The same survey also shows that the duration of training per worker (and per trainee) is greater for this latter group compared with personal service/other manuals [Deloitte Haskins and Sells, and IFF Research Ltd. (1989), pp. 23-24].

Third, the overall incidence of training tends to be higher among non-manuals than manuals (exceptions are lower level non-manuals compared with skilled manuals in Germany and the United States). Fourth, formal company training seems generally more likely to be received by individuals in non-manual occupations compared with those in manual jobs. Finally, according to data for Australia and the United States (not shown here, but taken from the sources listed in Annex 5.A), non-manuals are much more likely to receive additional school-based or external training courses.

That the sources of training seem to vary across occupational groups is not surprising and consistent with other research. An important question, of course, is the amount of time invested and the pay-offs to different kinds of training. Both Bishop (1989) and Duncan and Hoffman (1978), using very different training measures, found that training time in many non-manual occupations was considerably above that in manual ones. Bishop (1989) has also estimated, although results were not presented for occupational groups, that the wage gains from more formal training modes tended to be greater than from other types of training. As with the education-training relation, those in higher positions may be better able, on average, to further augment their status relative to others down the hierarchy. However, it should be remembered that the statistics presented here are snapshots of training events with occupational status often, although not always, referring to the time of the survey. Particularly with surveys which attempt to capture training over a long reference period, such statistics do not tell us whether any individuals who received training moved up job or occupational ladders as a result of that training.
2. Who provides training

i) Firm/establishment size and training

Considerable attention has been devoted to the study of training propensities and employer size. This is partially related to the view that small firms are an important source of jobs for young people and because during the 1980s much interest was given to the role of small (or new, depending on the data set) firms in employment creation and destruction [OECD (1987)]. Research on firms' training investment decisions has also focused on size factors, generally arguing that larger firms are likely to invest more in workers due to better access to capital markets, more extensive internal labour allocation, better screening of job candidates to obtain the more "able", hence less costly to train and monitor, and lower employee turnover (and more training may lead to less turnover) [Bar- tel (1989); Bishop (1989); Barth, Cordes and Haber (1989)].

Table 5.5 shows the proportion of enterprises or establishments – an important distinction to bear in mind – either reporting some training activity or training expenditures, and the incidence of training by size class9. Smaller firms do seem less likely to report training expenditures or training activity compared with larger ones. This should be nuanced by the fact that, for example in Australia, Canada and France, the reporting of expenditures or of supporting or directly providing training or of having had at least one trainee over the past year, respectively, refers only to formal training as defined in each data set. Interestingly, however, the Japanese data also refer to off-the-job training. While size differences clearly exist, they appear less extensive. Great Britain includes one form of on-the-job training in its statistics and these also show less extensive establishment size differences. Training incidence also differs by size, although the variation seems quite different across countries. In Australia (labour force survey), the overall reported incidence is little different, a result which seems to reflect the wide definition of training used. More significant incidence differences appear for formal in-house courses. The is also apparent in the French, Canadian and Dutch data, but not as evident in either the Japanese or British statistics. However, the actual definitions of formal training and their application in practice are dissimilar, and the disaggregation by size class is not the same. Thus, it is not clear how one might appropriately interpret such findings9.

The data in Table 5.5 generally refer to all enterprises/establishments in the respective surveys. Focusing only on firms who report that they train can nuance the results. Thus, in the British survey the duration of training in smaller establishments tends to be as long as in larger ones. Formal training hours per employee among small Australian employers who reported training expenditures were greater than in larger firms. The measured incidence of formal training in Canadian businesses who provided or supported such training, at about 42 per cent, is considerably above the 27 per cent taken over all companies. Finally, average hours of formal training per trainee in France appear little different across size classes with the exception of very large enterprises (see Annex 5.A for the data sources from which this information is drawn). If generalisable, such findings suggest that one critical question is why some firms train and others appear not to train.

ii) Industry and training

A fertile area of research on training has taken industries as the unit of analysis. This has been the focus of case studies, either of firms in the same country or comparisons of firms in the same industry classification across countries [see, for example, Steedman and Wagner (1987)]. Some researchers have attempted to examine characteristics of industries such as measured physical capital intensity, labour turnover, types of product markets, the size of enterprises, occupational mix, productivity growth or measures of technological change, and then link them to training propensities [CEREQ (1989a); Tan (1989); Chapman and Tan (n.d.); Dayan, Géhin and Verdier (1986); Deloitte Haskins and Sells, and IFF Research Ltd. (1989)]. Given the fragile nature of the training data, this will not be attempted here. Rather, this subsection presents several summary statistics on training incidence (Table 5.6) and training expenditures (Table 5.7). Calculations of the correlation coefficient between these two measures indicates that they are positively and highly correlated. Therefore, discussion will focus on the incidence statistics. Quite aside from the definitional and other differences in available training statistics, and the fact that they are a mixture of labour force survey and enterprise-based data, the industrial classifications and detail available differ considerably from country to country, so additional caution is required.

Judging from the unweighted standard deviation and coefficient of variation in Tables 5.6 and 5.7, there are considerable differences in training incidence and expenditures across industries. For reference, the tables also list examples of industries with relatively high and relatively low reported training. Of course, one would not necessarily expect the same industries to show up as "high" or "low" trainers in each country. Nonetheless, non-durable manufacturing industries such as textiles and/or clothing do tend to have a relatively low training incidence in most countries, and the financial sector is a high incidence industry in the majority of cases.

Probing a bit more deeply reveals that retail trade, an industry usually associated with high labour turnover, has an overall measured incidence of training at or above average in some countries. This is true for France (labour force survey data, with a more mixed
<table>
<thead>
<tr>
<th>Enterprises reporting training</th>
<th>Australia (1)</th>
<th>Canada (2)</th>
<th>France (3)</th>
<th>Japan (4)</th>
<th>Netherlands (5)</th>
<th>Great Britain (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sizes</td>
<td>n.a.</td>
<td>22.1</td>
<td>55.8</td>
<td>73.8</td>
<td>n.a.</td>
<td>80.0</td>
</tr>
<tr>
<td>Under 10 employees</td>
<td>n.a.</td>
<td>27.0</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>10-19 employees</td>
<td>n.a.</td>
<td>17.5</td>
<td>35.3</td>
<td>68.5</td>
<td>n.a.</td>
<td>76.0</td>
</tr>
<tr>
<td>20-49 employees</td>
<td>n.a.</td>
<td>55.0</td>
<td>55.4</td>
<td>85.3</td>
<td>n.a.</td>
<td>82.0</td>
</tr>
<tr>
<td>50-499 employees</td>
<td>n.a.</td>
<td>47.8</td>
<td>81.3</td>
<td>91.3</td>
<td>n.a.</td>
<td>93.0</td>
</tr>
<tr>
<td>500-1999 employees</td>
<td>n.a.</td>
<td>86.0</td>
<td>97.5</td>
<td>96.8</td>
<td>n.a.</td>
<td>96.0</td>
</tr>
<tr>
<td>2,000 and over</td>
<td>n.a.</td>
<td>88.1</td>
<td>92.0</td>
<td>97.5</td>
<td>n.a.</td>
<td>100.0</td>
</tr>
<tr>
<td>Training incidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All sizes</td>
<td>79.0 (34.9)</td>
<td>27.0</td>
<td>29.2</td>
<td>31.0 (36.7)</td>
<td>25.0</td>
<td>43.0 (31.0)</td>
</tr>
<tr>
<td>Under 10 employees</td>
<td>76.5 (19.9)</td>
<td>18.0</td>
<td>n.a.</td>
<td>n.a. (n.a.)</td>
<td>n.a. (n.a.)</td>
<td>n.a.</td>
</tr>
<tr>
<td>10-19 employees</td>
<td>19.0</td>
<td>7.9</td>
<td>24.5</td>
<td>26.8</td>
<td>10.0</td>
<td>38.0 (26.0)</td>
</tr>
<tr>
<td>20-49 employees</td>
<td>80.3 (26.4)</td>
<td>15.0</td>
<td>10.7</td>
<td>29.0 (32.0)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>50-499 employees</td>
<td>20.0</td>
<td>20.9</td>
<td>38.8</td>
<td>40.7</td>
<td>25.0</td>
<td>42.0 (30.0)</td>
</tr>
<tr>
<td>500-1999 employees</td>
<td>32.0</td>
<td>33.9</td>
<td>35.0</td>
<td>41.5</td>
<td>46.0</td>
<td>41.0 (29.0)</td>
</tr>
<tr>
<td>2,000 and over</td>
<td>48.0</td>
<td>49.3</td>
<td>36.6</td>
<td>47.8</td>
<td>n.a.</td>
<td>48.0 (37.0)</td>
</tr>
</tbody>
</table>

a) See Annex 5.A for a description of the contents of the sources cited below.

b) Australia (2) refers to private and public sector employers who reported training expenditures over the period July-September 1989. Size classes are 1-19, 20-99, and 100 or more employees. Australia (1) refers to the incidence of all training activities over a 12-month period during 1988-1989 as estimated in the labour force survey supplement. Size classes are 1-19, 20-99, and 100 or more employees at the location (establishment) of the main employer during the reference period as estimated by respondents to the labour force survey supplement. Figures in parentheses refer to in-house training courses. The response "do not know" to the number of employees at the location is included in the total.

c) Enterprises reporting training refers to private sector companies who said that they supported or directly provided formal training for their employees. Training incidence refers to the reported number of formal training programme participants (reported events of training as an employee could participate in more than one programme and be counted twice) per 100 employees of all companies, including those not supporting or providing training. Size classes refer to under 10, 10-49, 50-99, 100-499, 500-999 and 1,000 or more employees. In cases where establishments of a multi-location company reported separately, the data were added up to the company level.

d) Enterprises reporting training refers to the proportion of private, semi-public and co-operative enterprises with 10 or more employees that had at least one employee who followed a formal training period or course in the context of the enterprise training plan, through training insurance funds (Fonds d'Assurance Formation) or training leave as reported on spending Declaration No. 2483 for 1988. The figure for smaller enterprises may be underestimated due to underreporting of training undertaken in the context of the insurance funds. The incidence of training is the reported number of employees who had some formal training within the enterprise training plan and/or training leave during 1988, divided by the number of permanent employees at the end of the year. Apprentices under contract and those in the stage d'initiation à la vie professionnelle (StIVP) are not counted.

e) Enterprises reporting training refers to the proportion of private sector enterprises who, in 1989, said that they do some training, irrespective of whether they have a formal training plan. Training incidence refers to the percentage of workers whom enterprises said had received some off-the-job training at some time during 1988. The figures in parentheses refer to the percentage of workers sampled who said that they had received some off-the-job training within the most recent two years at the current enterprise. Size classes for each statistic presented refer to 30-99, 100-299, 300-499, 500-999 and 1,000 or more regular workers.

f) Training incidence refers to external or formal in-house training financed in part or in whole by the firm. Size classes refer to 5-99, 100-499, and 500 and over.

g) Enterprises reporting training refers to establishments in the private sector, excluding some retail and financial enterprises where data were collected at the central headquarters of the organisation, who reported any off- or on-the-job training activity during a 12-month period over 1986-1987. Size classes refer to 10-24, 25-49, 50-499, 500-999, and 1,000 and over. Figures for the size class of 50-499 were estimated from information on the private sector preweighting matrix on page 74 of the source cited below. Training incidence includes off- and on-the-job as defined in Annex 5.A. Training incidence for the size class of 50-499 was calculated as an unweighted average of figures presented on page 25 of the source cited below. The figure for the overall incidence was taken from Table 9.1 of the source cited below. Figures in parentheses refer to off-the-job training. The figures shown, being based on just part of the sample, are not comparable to those given in other tables in this chapter.

Sources: Australia: Column 1, see Table 5.1a (Table 4 of the source cited). Column 2, Employer Training Expenditure, Australia, July to September 1989, Canberra: Australian Bureau of Statistics, 1990, Table 1.


France: Unpublished final data for 1988 provided by the Centre d'Etudes et de Recherches sur les Qualifications, CEREQ.

Japan: See Table 5.1b (Annex Tables 1, 3 and 13 of the source cited).

Netherlands: See Table 5.1b.

Great Britain: See Table 5.2 (Tables 6 and 7 in Annex 1, and Figure 4.8 and Table 9.1 of the source cited).
<table>
<thead>
<tr>
<th>Industry</th>
<th>High incidence</th>
<th>Low incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oil and gas, finance and investment</td>
<td>Agriculture, clothing and footwear</td>
</tr>
<tr>
<td></td>
<td>Finance, insurance and general services to business</td>
<td>Construction and related</td>
</tr>
<tr>
<td></td>
<td>Finance and insurance services, forestry, public/social services</td>
<td>Restaurants and hotels, construction</td>
</tr>
<tr>
<td></td>
<td>Office machinery, electricity, finance</td>
<td>Textiles, clothing</td>
</tr>
<tr>
<td></td>
<td>Office machinery, education</td>
<td>Textiles, clothing</td>
</tr>
<tr>
<td></td>
<td>Personal services, repair of vehicles/consumer goods</td>
<td>Leather goods, textiles, certain transportation/communication industries</td>
</tr>
<tr>
<td></td>
<td>Machinery, paper products, hotels</td>
<td>Textiles, glass, miscellaneous services</td>
</tr>
<tr>
<td></td>
<td>Banking/finance, repairs, furniture, personal services</td>
<td>Food/beverage, retail distribution, agriculture</td>
</tr>
<tr>
<td></td>
<td>Finance, construction, wholesale/retail trade</td>
<td>Textiles, misc. manufacturing</td>
</tr>
<tr>
<td></td>
<td>Finance, metals, machinery</td>
<td>Textiles, misc. manufacturing</td>
</tr>
<tr>
<td></td>
<td>Finance, synthetic fibres</td>
<td>Leather goods, retail trade</td>
</tr>
<tr>
<td></td>
<td>Electricity, gas and water, banking and insurance</td>
<td>Agriculture, mining</td>
</tr>
<tr>
<td></td>
<td>Health care, retail trade</td>
<td>Textiles, construction</td>
</tr>
<tr>
<td></td>
<td>Banking, finance, insurance, business services, and other services</td>
<td>Other manufacturing, agriculture</td>
</tr>
<tr>
<td></td>
<td>Public administration, finance, insurance and real estate, hospitals</td>
<td>Agriculture, retail trade, entertainment/recreation</td>
</tr>
</tbody>
</table>

* Summary statistics on training incidence across industries

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of industries</th>
<th>Average incidence of training</th>
<th>Unweighted standard deviation</th>
<th>Coefficient of variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>48 (48)</td>
<td>79.0 (34.9)</td>
<td>10.2 (16.6)</td>
<td>0.13 (0.48)</td>
</tr>
<tr>
<td>Canada</td>
<td>9</td>
<td>27.0</td>
<td>11.3</td>
<td>0.42</td>
</tr>
<tr>
<td>Finland</td>
<td>11</td>
<td>34.4</td>
<td>11.3</td>
<td>0.33</td>
</tr>
<tr>
<td>France</td>
<td>(1)</td>
<td>97</td>
<td>14.6</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
<td>63</td>
<td>3.6</td>
<td>0.78</td>
</tr>
<tr>
<td>Germany</td>
<td>(1)</td>
<td>50</td>
<td>12.7</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
<td>33</td>
<td>8.3</td>
<td>0.50</td>
</tr>
<tr>
<td>Ireland</td>
<td>37</td>
<td>7.8</td>
<td>5.2</td>
<td>0.67</td>
</tr>
<tr>
<td>Japan</td>
<td>(1)</td>
<td>10</td>
<td>31.0</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
<td>10</td>
<td>36.7</td>
<td>6.2</td>
</tr>
<tr>
<td>Netherlands</td>
<td>45</td>
<td>25.0</td>
<td>21.3</td>
<td>0.85</td>
</tr>
<tr>
<td>Sweden</td>
<td>9</td>
<td>25.4</td>
<td>10.1</td>
<td>0.40</td>
</tr>
<tr>
<td>Great Britain</td>
<td>(1)</td>
<td>17 (17)</td>
<td>48.3 (34.8)</td>
<td>15.3 (12.0)</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
<td>10</td>
<td>14.4</td>
<td>4.1</td>
</tr>
<tr>
<td>United States</td>
<td>20 (20)</td>
<td>35.8 (11.8)</td>
<td>13.7 (8.0)</td>
<td>0.38 (0.68)</td>
</tr>
</tbody>
</table>

* Unless otherwise indicated, the figures for training incidence are based on all training activities as described for each country source in Annex 5.A.
* Figures in parentheses refer to in-house formal training courses.
* The group listed as high (low) incidence represents an aggregation of Sectors L and M (Sector 1) of the Canadian company classification code. Multi-industry companies were assigned the code of the establishment with the largest gross income.
* France (1) is based on administrative data from the training spending Declaration No. 2483 and refers to 1987. France (2) is based on the March 1989 labour force survey.
* Germany (1) is based on the April 1989 labour force survey. Data for Germany (2) refer to June 30, 1988 and come, in essence, from a payroll survey based on the social security system. The survey covers all employees who are mandatorily covered by the social security system. It excludes civil servants, the self-employed, unpaid family workers and workers whose hours of work are below the minimum requirement for mandatory social security coverage. Training refers to employees classified as being in occupational training.
* Data refer only to wage and salary workers aged 15-49.
* Japan (1) refers to enterprise replies concerning the proportion of workers who received some off-the-job training in 1988. Japan (2) refers to the proportion of sampled workers who said that they had received some off-the-job training within the last two years at their current enterprise.
* Great Britain (1) is based on an establishment survey and the figures in parentheses refer to off-the-job training either conducted at the establishment or at another site. Great Britain (2) is based on the Spring 1989 labour force survey.
* Figures in parentheses refer to having received training in a formal company programme.

Sources:
Australia: Unpublished data from the supplement to the Labour force survey in Annex 5.A provided by the Australian Bureau of Statistics.
Canada: See Table 5.5 (Chart 8 of the source cited).
Finland: See Table 5.1a (Table 4 of the source cited).
France: (1) See Table 5.1b (Table 33 of the source cited).
France (2), Germany (1), Ireland and Great Britain (2) (Table A1.1 of the source cited): See Table 5.1a.
Japan (1 and 2): See Table 5.1b (Annex Tables 3 and 13 of the source cited).
Netherlands: See Table 5.1b.
Sweden: See the Table 5.1a (Table 1987:5 of the source cited).
Great Britain (1): See Table 5.2 (Figures 4.2a and 4.3b of the source cited).
United States: See Table 5.1a.
<table>
<thead>
<tr>
<th>Number of industries</th>
<th>Average expenditure (%)</th>
<th>Unweighted standard deviation</th>
<th>Coefficient of variation</th>
<th>Relatively high spending</th>
<th>Relatively low spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984 EEC Labour Cost Surveya:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>37</td>
<td>2.1</td>
<td>2.55</td>
<td>1.23</td>
<td>Retail distribution, transportation equipment</td>
</tr>
<tr>
<td>France</td>
<td>39</td>
<td>1.6</td>
<td>0.67</td>
<td>0.41</td>
<td>Office machinery, rubber/plastics</td>
</tr>
<tr>
<td>Germany</td>
<td>39</td>
<td>1.8</td>
<td>0.89</td>
<td>0.49</td>
<td>Retail distribution, credit</td>
</tr>
<tr>
<td>Italy</td>
<td>39</td>
<td>0.3</td>
<td>0.28</td>
<td>0.93</td>
<td>Clothing manufacturing, retail of shoes/leather</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>38</td>
<td>1.3</td>
<td>0.54</td>
<td>0.42</td>
<td>Construction, electrical engineering</td>
</tr>
<tr>
<td>Other sources:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australiab</td>
<td>11 (10)</td>
<td>2.2 (1.7)</td>
<td>0.89 (0.98)</td>
<td>0.40 (0.58)</td>
<td>Electricity, gas and water, communications</td>
</tr>
<tr>
<td>Canadae</td>
<td>9</td>
<td>C$160 per employee</td>
<td>56.7</td>
<td>0.35</td>
<td>Machinery and equipment, transport equipment, electrical and electronic products</td>
</tr>
<tr>
<td>Francef</td>
<td>97</td>
<td>2.5</td>
<td>1.50</td>
<td>0.60</td>
<td>Electricity, gas and water, office machinery</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td>30</td>
<td>0.4</td>
<td>0.24</td>
<td>0.60</td>
<td>Electricity, gas and water, finance</td>
</tr>
<tr>
<td>(2)</td>
<td>30</td>
<td>0.7</td>
<td>0.30</td>
<td>0.43</td>
<td>Electricity, gas and water, real estate</td>
</tr>
<tr>
<td>Netherlandsg</td>
<td>7</td>
<td>1.5</td>
<td>0.98</td>
<td>0.65</td>
<td>Finance, transportation/communication</td>
</tr>
<tr>
<td>Great Britainh</td>
<td>10</td>
<td>8.8</td>
<td>3.81</td>
<td>0.43</td>
<td>Retail trade, health/education</td>
</tr>
<tr>
<td>Apprentices: 1984 EEC Labour Cost Surveya</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apprentices as a percentage of total employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td></td>
<td>5.1</td>
<td></td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td></td>
<td>0.03</td>
<td></td>
<td>-0.08</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td>7.1</td>
<td></td>
<td>0.92</td>
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</tr>
<tr>
<td>Italy</td>
<td></td>
<td>0.7</td>
<td></td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td></td>
<td>2.2</td>
<td></td>
<td>0.89</td>
<td></td>
</tr>
<tr>
<td>Correlation of training expenditures with the ratio of apprentices to total employment across industries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

a) See Annex 5.A for details on industry coverage and definitions. Expenditure refers to vocational training expenditure (including apprentice pay) as a percentage of average monthly labour costs. Note that the definitions of apprentices can vary significantly across countries. Given the negative correlation between the proportion of apprentices to total employment and reported vocational training expenditures (including apprentice pay) across industries in France, it is possible that the data largely reflect reporting requirements of French enterprises based on the 1971 French law on further training which excludes apprentices.
b) See Annex 5.A for details of what is included in training expenditures. Reported ratio is as a percentage of gross wages and salaries. Figures in parentheses for Australia refer to the private sector.
c) See Annex 5.A for details of what could be included in training expenditures. Data are expressed in Canadian dollars as average expenditures per employee over all companies. The group listed as relatively high (low) spending represents an aggregation of Sectors F, G and H (Sectors P, Q and R) of the company classification code. Multi-industry companies were assigned the code of the establishment with the largest gross income.
d) Japan (1) is based on training expenditure (excluding trainees' wages) as a percentage of average monthly labour costs, while Japan (2) includes expenditures for hiring and recruitment. See Annex 5.A for details.
e) See Annex 5.A for details of what is included in training expenditures. Reported ratio is as a percentage of gross wages and salaries.
f) Expenditure refers to the sum of estimated per annum labour and non-labour costs of training per employee, divided by the annual average wage rate. Information on training costs as a ratio of labour costs were only cited in the original source for all industries combined. That reported ratio was 8.1 per cent.

picture for the administrative data), Germany, Australia (considering all types of training measured) and Great Britain (establishment survey). Concerning the first two countries, the above-average training incidence in trade is basically the result of apprentices (under contract in France and in the dual system in Germany). About one-fourth of German apprentices are in retail trade industries (and retail trade accounts for about 16 per cent of wage and salary employment); for France the figures are 35 and 16 per cent, respectively. As the measure considered here is overall training incidence, this finding might not be considered surprising. While high turnover results in wastage and perhaps more employer reluctance to commit big investments in training, it also does increase the need for continual induction training, much of which may be rather unstructured and short. This interpretation is suggested both by the fact that retail trade in Australia is a relatively low trainer once unstructured training activities are excluded, and that the duration of training in retail trade in the British survey was relatively short.

But this is not the only possible interpretation. The German dual system is rather structured with apprenticeships lasting generally three years (though some do quit prior to the formal termination of the programme and there are two-year courses as well). While not all of that period is devoted to structured training, there may be real differences in labour market organisation across countries. The "same" industry may be rather different from one country to another in terms of how work is organised, the use made of skills and the methods in which skills are acquired and recognised, and other factors. As noted in Section B, such factors may well have an impact on the type and content of training. In this context, one comparison of a sample of hotels in Germany and Great Britain did reveal important dissimilarities in training provision, work organisation and the qualifications of workers across a variety of tasks [Prais, Jarvis and Wagner (1989)]. In particular, the large majority of workers in management, reception and the supervisory level of housekeepers had vocational qualifications/training in Germany, while this was true of a much smaller proportion of British workers. Moreover, labour requirements were lower and productivity higher in the German compared with the British sample.

These two interpretations are not mutually exclusive. They do once again show, however, the difficulties which can arise when comparing different data sources and definitions of training. Depending on the training data gathered and the way the questions are posed, there is no particular reason why industries with high turnover would necessarily show a relatively low incidence of training (it is also not necessarily true that high turnover industries are the same from country to country, and the actual level of turnover varies considerably across countries). Moreover, sectors like retail trade are not homogeneous, even in countries where, on average, training appears relatively low. Many very small firms coexist with large department store chains. Industry aggregate figures can only give a limited picture. Indeed, the whole question of turnover and training is rather complicated. For example, while not specifically referring to retail trade, the British establishment survey found that 38 per cent of establishments said that one drawback to training was that "employees leave for better paid jobs or better prospects" [Deloitte Haskins and Sells, with IFF Research Ltd. (1989), p. 40]. But the same survey also showed that enterprises with above average amounts of training were more likely to cite turnover as a training drawback compared with below average trainers. The real issue, of course, is whether and to what extent enterprises train less or differently because of the fear of turnover. On this, there is currently little direct comparative evidence.

Within manufacturing industries there is considerable variation. In Germany, France and Japan (though nomenclatures and industry detail are different) certain machinery-related industries have an above average training incidence, while a similar category for Great Britain (electrical engineering) is below average on measured incidence (in terms of days of training per employee, however, this group is well above average in Great Britain).

Finally, although it is rather difficult to summarise, there are industry differences in the type of training most likely to be offered. In Australia, there are large variations in receiving in-house formal training courses; the incidence is quite high, relative to the average, in finance and investment, community services, electricity, gas and water, and communication, and low in agriculture, clothing and footwear, and textiles. In Great Britain, off-the-job training (within or outside the enterprise as measured in the establishment survey) is relatively high in health care, education and retail trade, but relatively low in most of the manufacturing sector. The proportion who took a formal company programme or followed a structured course financed in whole or in part by the employer is considerably above average in public administration and the financial sector in the United States and Finland, respectively. The white-collar and blue-collar distribution of employment likely varies between these industries and the previous discussion of training by occupation suggested the relative importance of formal training among non-manuals. Differences in the occupational mix could account for some of these results.

Table 5.7 contains some additional expenditure data for selected countries from the 1984 EEC Labour Costs Survey. This survey attempts to break down labour costs into a number of components including vocational training expenditures. Information is also collected on the number of reported apprentices. Examination of the data raises some doubts concerning
Chart 5.1

Training expenditures by industry in France, 1975 and 1987

<table>
<thead>
<tr>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Agriculture, forestry and fishing</td>
</tr>
<tr>
<td>2 Meat and milk</td>
</tr>
<tr>
<td>3 Other food</td>
</tr>
<tr>
<td>4 Coal</td>
</tr>
<tr>
<td>5 Oil and gas</td>
</tr>
<tr>
<td>6 Utilities</td>
</tr>
<tr>
<td>7 Ferrous metals</td>
</tr>
<tr>
<td>8 Non-ferrous metals</td>
</tr>
<tr>
<td>9 Building materials</td>
</tr>
<tr>
<td>10 Glass</td>
</tr>
<tr>
<td>11 Basic chemicals</td>
</tr>
<tr>
<td>12 Pharmaceuticals</td>
</tr>
<tr>
<td>13 Iron and steel</td>
</tr>
<tr>
<td>14 Machinery</td>
</tr>
<tr>
<td>15 Electrical and electronics</td>
</tr>
<tr>
<td>16 Transport equipment</td>
</tr>
<tr>
<td>17 Naval, aeronautical and arms</td>
</tr>
<tr>
<td>18 Textiles</td>
</tr>
<tr>
<td>19 Leather</td>
</tr>
<tr>
<td>20 Wood and furniture</td>
</tr>
<tr>
<td>21 Paper and cardboard</td>
</tr>
<tr>
<td>22 Printing and publishing</td>
</tr>
<tr>
<td>23 Rubber and plastics</td>
</tr>
<tr>
<td>24 Construction</td>
</tr>
<tr>
<td>25 Wholesale food</td>
</tr>
<tr>
<td>26 Other wholesale</td>
</tr>
<tr>
<td>27 Retail food</td>
</tr>
<tr>
<td>28 Other retail</td>
</tr>
<tr>
<td>29 Repairs</td>
</tr>
<tr>
<td>30 Hotels and restaurants</td>
</tr>
<tr>
<td>31 Transportation</td>
</tr>
<tr>
<td>32 Business services</td>
</tr>
<tr>
<td>33 Personal services</td>
</tr>
<tr>
<td>34 Renting and real estate</td>
</tr>
<tr>
<td>35 Insurance</td>
</tr>
<tr>
<td>36 Finance</td>
</tr>
<tr>
<td>37 Non-market services</td>
</tr>
</tbody>
</table>

*Source:
Statistique de la formation professionnelle continue financée par les entreprises, Centre d'Études et de Recherches sur les Qualifications, Paris, December 1989, Table 41.*

*a) See Source and Annex 5.A for items included in training expenditures.*
Chart 5.2

Incidence of training by industry in France, 1975 and 1987

1) Agriculture, forestry and fishing
2) Meat and milk
3) Other food
4) Coal
5) Oil and gas
6) Utilities
7) Ferrous metals
8) Non-ferrous metals
9) Building materials
10) Glass
11) Basic chemicals
12) Pharmaceuticals
13) Iron and steel
14) Machinery
15) Electrical and electronics
16) Transport equipment
17) Naval, aeronautical and arms
18) Textiles
19) Leather
20) Wood and furniture
21) Paper and cardboard
22) Printing and publishing
23) Rubber and plastics
24) Construction
25) Wholesale food
26) Other wholesale
27) Retail food
28) Other retail
29) Repairs
30) Hotels and restaurants
31) Transportation
32) Business services
33) Personal services
34) Renting and real estate
35) Insurance
36) Finance
37) Non-market services

Source:
See Chart 5.1.

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a) Training incidence includes formal off-the-job training within the enterprise training plan, training leave and training courses taken in the context of training insurance funds.
their comparability and usefulness. First, the high correlation of apprentices and vocational training expenditures suggests that apprentice pay accounts for most of the reported training expenditures; but in France, it would appear that the data reported are actually quite similar to the reporting requirements for the training levy, which explicitly excludes apprentices. Second, industries reporting relatively high vocational training expenditures to average monthly labour costs are also those with a relatively high proportion of apprentices in total employment. Finally, while the definitions of apprentices likely vary across these countries, the relative importance of people in apprenticeships in Denmark and Germany compared with Italy and the United Kingdom does at least accord with prior beliefs. In both Germany and Denmark, apprenticeships are fairly widespread. They account for 8 per cent or more of reported employment in industries such as mechanical engineering, instrument engineering and all retail distribution industries in Germany, and transportation equipment and retail distribution in Denmark. In all five countries, the large majority of apprentices are employed in industry and construction (it should be remembered that coverage is also much more complete in industry, see Annex 5.A).

iii) Further examination of France

France has a number of industry-based studies using training statistics which have a fairly long history [see CEREQ (1989a); Géhin (1989) and the bibliographies to each]. Until 1974 the legal obligation on recognised training activities was 0.8 per cent of gross wage and salaries. Currently it is 1.2 per cent (0.8 per cent for the enterprise training plan, 0.3 per cent for financing youth alternating school and work, and 0.1 per cent for training leave).

Charts 5.1 and 5.2 show, for 1975 and 1987, training expenditures and training incidence by industry, respectively. Several remarks are worth making. First, both expenditures and incidence have increased over time. The relative effects of the legal spending obligation, changes in actual training and recruitment practices, changes in the occupational structure of employment and other factors are not easy to determine and appear, in fact, to vary considerably across industries [Géhin (1989); Dayan, Géhin and Verdier (1986)].

Second, industry rankings have changed little, especially with respect to expenditures. It is possible to identify three groups. The first, which includes financial institutions, electricity, gas and water, combustible minerals, transportation and petroleum, is composed of industries with relatively high expenditures throughout the period compared with the average. But these industries are hardly homogeneous in other respects. Their employment patterns have been quite different, declining by more than half in combustible minerals, stagnating in transportation, and positive in the financial sector. The second group huddles around or just above the legal spending requirement and includes a number of service sector industries as well as construction, textiles and leather products. Some analysts have seen their observed spending as driven largely by changes in the law, noting as well that they tend to rely more on informal on-the-job training and apprenticeships, neither of which are included in enterprise reporting for the training levy. They also tend to be industries with relatively high turnover and a large number of small firms [Podevin (1989)]. Finally, a diverse group - chemicals, iron and steel, pharmaceuticals, electronic goods, insurance and automobiles are examples - is in the middle spending range. The diversity of this group is shown by the fact that it includes "high-tech" with fast investment growth and some growth in employment, and industries which experienced quite large declines in employment over the period (iron and steel, and automobiles are examples). Thus, while one observes some distinct industry-based spending patterns, there appears to be substantial diversity on other factors10, 11.

E. SUMMARY AND CONCLUSIONS

1. Summary

Chapter 5 has presented an examination of representative training statistics available in a number of OECD countries. Despite the importance accorded to the issues and the prevalence of some widely-accepted ideas about country traits, however, it is very difficult to use these statistics to even scratch the surface of the main questions. The major findings of the chapter are:

- Existing statistics on training are not comparable, and often they are not particularly transparent with respect to what is or is not to be considered training. It currently makes little sense, therefore, to compare levels of descriptive statistics on training incidence or training expenditures from one country to another;
- This lack of comparability is due to more than different data sources, methods and definitions used in collecting training data. Training is a variable mediated by a number of economic and social institutions. Depending on the nature of the school system and the organisation of work, for example, the training required and the way in which it is acquired for what on paper might appear to the analyst the same "work" can vary a lot. To be meaningful, therefore, training statistics must be analysed and understood in close connection with the social and institutional context: within which skills and qualifications are acquired and used;
- Some empirical patterns to training participation which, despite comparability problems, do help answer the training access issue, are worth emphasizing. These are:
a) Consideration of the profile of training incidence by age shows two broad patterns. In some countries, the measured incidence of training declines consistently from the youngest to the oldest age group. This pattern is noticeable in countries recognised as having strong apprenticeship systems like Germany, in countries where apprentices are explicitly identified in the data like France and Ireland, and in Spain and Great Britain. In other countries, training incidence tends to increase with age reaching a peak within the 30-44 age band and then falls off. In this latter group, the main difference concerns the relative training incidence between young and older workers. In Australia, Sweden, Japan and, to a minor extent, Norway, the incidence for youth is higher than for older workers. Data for the United States and Finland show the opposite;

b) With several exceptions, the overall incidence of training is little different between men and women. However, considering the types of training received does reveal instances where women are less likely to receive formal company training and/or employer-sponsored outside training;

c) In general, workers with higher levels of educational attainment are more likely to be counted as receiving some training compared with those with less formal education;

d) Higher level non-manual and skilled manual workers are more likely than their lower level and less skilled counterparts to receive training, although there are exceptions which, however, appear partly to reflect country-specific classification practices.

Analyses of training across industries and firms of different sizes have been of particular importance in the literature. The findings on these two subjects are:

a) Considerable variation in the incidence of and spending on training exists across industries. Industries scoring "high" or "low" on training exhibit no straightforward cross-country pattern, although the financial sector tends to score high and clothing and textiles tend to score low in the majority of cases. The lack of a clear pattern may be partly due to data sources and definitions and partly due to real institutional differences, including education systems and work organisation, which impact on training propensities. Available data for France suggest that inter-industry variations in training expenditures and training incidence are positively correlated with the skill structure of employment and negatively correlated with the proportion of employment in relatively small enterprises;

b) Large firms/establishments tend to spend a higher proportion of their wage bill on training activities and to train, in some manner, a higher proportion of their employees compared with smaller firms. The extent to which this reflects better access to capital markets, lower employee turnover, differences in the occupational structure of employment, differences in the types of training statistics collected or other factors is not clear. At least on the occupational mix, French and Japanese data suggest that training incidence increases with firm size for most occupational groups, although variations remain between relatively high and low skilled occupations;

c) Time series data for France suggest that, while training expenditures as a percentage of gross wages and salaries have tended to rise, at least partially due to changes in the tax levy, the relative ranking of industries has changed little. However, it is not easy to derive other common characteristics, e.g. employment growth, to distinguish high from low spenders.

2. Conclusions

Besides presenting training statistics, Chapter 5 has also emphasized that the gap between what is actually known about training on an international basis and what would be required in relation to the main analytical and policy questions is large. Concern about training will not disappear and could well increase. This implies first that there is the need for considerably more effort in sharpening the definitions, collection methods and other aspects of gathering information in improving the transparency of the descriptive statistics and in developing appropriate international standards. If the transparency of the statistics used for comparative analysis is not substantially improved, there would appear to be little chance for effectively dealing with more directly policy-related issues. Efforts to go beyond the collection of descriptive data will necessarily have to spell out the hierarchy of questions to which answers are sought and decide on the best way(s) in which survey instruments can be constructed. This will not be an easy task. It will likely involve an iterative process of continually sharpening the issues and increasing the reliability and validity of the data. Without such work, however, comparative statements about training that one often reads will largely remain in the realm of interesting conjectures.
NOTES

* This chapter draws upon material prepared for the OECD Secretariat by Professor Thomas Bailey, Teachers College, Columbia University, New York, with the assistance of Ms. Donna Merritt.

1. On the question of fear of turnover, a survey of British establishments found that 38 per cent gave this as one drawback to training [Deloitte Haskins and Sells, with IFF Research Ltd. (1989), p. 40]. However, the issue is whether, or to what extent, enterprises actually train less because of this fear. Bishop (1989) found a statistically significant interaction between large enterprises in his sample and the training intensity of typical new hires, and found that greater intensity of training was associated with longer expected tenure. But the effect was rather small (a doubling of training intensity raised expected tenure by 1.3 per cent in large enterprises). Bartel (1989) found that a proxy measure of employee tenure was associated with a higher likelihood of companies having a formal training programme, but this does not necessarily mean that they train more compared with those having no formal programme.

2. Concerning underinvestment in training, one US study pulled together the findings of the wage effects of training for men. The average rate of return varied from 4 to 25 per cent, depending on the sample of workers and the assumed rate of depreciation [Vaughan (1989)]. Such a wide range does not provide a good guide to the issue. From a comparative perspective, matters are a bit more complicated. One could easily find that training generates returns. Even if the marginal return on training was equal to those of other assets for any given country, it would not necessarily follow that different labour market arrangements might not lead to a different pattern and amount of investment, or to a more efficient structure of training and work [Soskice (forthcoming); Chapman and Tan (n.d.)].

3. Employment tenures and mobility in Japan are often cited in the context of training incentives. For those with less than one year of tenure, the likelihood of remaining an additional year appears much higher in Japan compared with countries like the United States or Australia [OECD (1984)]. After about five years of tenure, however, these differences almost disappear. Such differences could have an impact on training investments; or they could affect the timing of investments by firms. Although not shown in Chapter 5, a preliminary examination of cross-industry (one-digit) data for Australia, Japan and Great Britain could find no evidence that industries with higher retention rates also had a higher measured incidence of training. However, the data are probably too aggregate to yield meaningful results.

4. Other studies have also noted that Japanese workers' range of tasks tend to be rather broader compared with some other countries, although there are also large differences in Japan across industries and firms of different sizes. For example, Lincoln, Hanada and McBird (1986) found, after controlling for variations in technology, firm size and unionisation, that almost 50 per cent more job functions were assigned to specialists rather than more general workers in US manufacturing plants compared with Japanese plants. Osterman (1988), and Maurice and Silvestre (1982) have argued that work organisation/job classifications tend to be broader in Sweden and Germany than in either the United States or Great Britain.

5. On the other hand, Higuchi's (1987) study of 83 Japanese plants operating in the United States and 41 US-owned plants seems to confirm some typical ideas on training propensities. Twice as many workers in the Japanese plants received some training during 1985 compared with those in US plants, even though the latter had hired proportionately more new workers. Reported per-worker training expenditure was two and a half times larger in the Japanese plants. This study had only limited firm-specific data, however. In particular, firms were not distinguished by technology or work organisation, variables often thought to affect the amount and type of training.

6. The data used in this chapter do not exhaust all possible sources on training. For example, there are several longitudinal surveys in the United States and one, youth-based, in Australia with some information on training. In several countries, there are private organisations that have conducted different kinds of surveys on training provision.

7. For several countries - Australia, Canada, France, Japan, the Netherlands, Great Britain, and the EEC labour costs survey - information on training spending (as a per cent of the wage bill or per employee) is available by size of enterprise or establishment. These data also show that smaller enterprises in general spend proportionately less than larger ones as expenditures and training are defined in each country's data source. On another measure of training effort, Bishop (1989) found a curvilinear relation between training hours investments in typical new hires and establishment size in the United States. He also finds, however, that reported increases in productivity (based on supervisor's ratings) consistently show greater increases moving through the size categories.
8. These results are averages which can mask many important differences. For example, small enterprises in some industries may train a lot, the structure of occupations or work may vary greatly among enterprises of different sizes and so forth. Both French administrative data and Japanese enterprise survey data allow some examination of training, as defined in each source, by several occupational groups classified by size of enterprise. In France, formal training opportunities for each of four occupational groups increase consistently with size, and the difference in the proportion of low-skilled manuals compared with high level non-manuals who receive training is less in large than in small firms (whether the actual content of the work tasks or the actual content of the training is the same is not known). In Japan, there is the same tendency, but the differences in the incidence of training are, in any case, relatively small across occupations in most size classes. See CEREO (1989b) and Japanese Ministry of Labour (1989).

9. The increases in training incidence and expenditure in France between 1975 and 1987 occurred in each firm-size class. For example, training expenditures among firms with 10-19 employees went from 0.7 per cent of gross wages and salaries in 1975 to 1.33 per cent in 1989 (preliminary figure), while training incidence went from 3.6 to 7.8 per cent. Among enterprises with 500-1,999 employees, the figures are 1.49 to 2.92 per cent, and 19.5 to 36.1 per cent, respectively.

10. Two simple cross-section regressions were performed on the French data for 1987 to “explain” industry variations in spending and in training incidence. Independent variables were the proportion of engineers and executives in total employment (Skill), the proportion of employment in firms with less than 50 employees (Small), women as a proportion of employment (Women), and short-term employment growth from 1985 to 1987 (G). The results were (standard errors in parentheses):

\[
\begin{align*}
\text{Spending} &= 2.59 + 0.037 \text{ Skill} - 0.039 \text{ Small} \\
&\quad (0.062) (0.013) (0.011) \\
\text{Incidence} &= 24.4 + 0.491 \text{ Skill} - 0.428 \text{ Small} \\
&\quad (5.7) (0.114) (0.100) \\
&\quad - 0.098 \text{ G} - 0.094 \text{ Women} \\
&\quad (0.123) (0.077)
\end{align*}
\]

\[R^2 = 0.58, N = 37\]

\[R^2 = 0.71, N = 37\]

11. These French industry aggregates can easily mask enormous differences across enterprises and over time for the same enterprise. Even in low spending industries, there may be firms that engage in much training and vice versa. Moreover, that industry rankings in France changed little does not mean that firms’ training activities exhibit any regular pattern, consistently being “low” spenders or “high” spenders. A recent French study attempted to examine, in a longitudinal context from 1982 to 1985, variations in reported training [Verdier and Jansoln (1988)]. Stable firms were defined as those whose spending varied less than 5 per cent per year and variable firms as those whose spending changed by more than 5 per cent per year. Several results are interesting. First, only about one-third of the enterprises in the panel were classified as stable and stability for the large majority of them represented essentially no change in spending. Second, stable firms were largely those at the legal minimum while variable ones were a mixture of relatively high and low spenders (19 per cent of them with spending over 2 per cent, but fully 20 per cent had reported spending averaging 1 per cent or less). Third, fully 86 per cent of firms with more than 500 employees were variable spenders and over 50 per cent of small firms were so classified. Fourth, the relation between changes in the level of employment and training expenditures was negative. The whole issue of the determinants of firms’ training activities and their changes over time appears complicated.
Annex 5.A

SOURCES AND DEFINITIONS OF TRAINING STATISTICS USED IN CHAPTER 5

The methods of gathering statistics on training, the definitions of what constitutes training, the reference periods for counting training events and the population coverage vary widely among OECD countries. Moreover, these features can also vary significantly across surveys within a given country. International comparisons using basic statistics such as the incidence of training, the sources of training and training expenditures are extremely hazardous. Comparisons of these statistics which attempt to judge whether training is greater in one country compared with another are not likely to be valid. Furthermore, most of the statistics used in this chapter refer to reported training over some specified reference period. They cannot be used to indicate how many working people in general have received qualifications at some time during their career in the labour force. This Annex outlines the key features of the data sources used in the tables for Chapter 5.

Australia 1


Type of survey: Supplement to the regular labour force survey.

Reference period: The last 12 months from the time of being surveyed. One-fourth of the sample for the supplement was interviewed in March, April, June and July 1989, respectively.

Coverage: Persons aged 15-64 who had a wage or salary job at some time during the twelve months of the reference period. Training information gathered is based on all employers worked for over the period not just the current employer. However, some published statistics allow one to distinguish those who have worked continuously with the same employer from those who changed employers.

Training questions: Questions were asked of respondents concerning external training courses, in-house training courses and on-the-job training (activities other than structured training courses) undertaken to improve skills over the reference period. Respondents were also asked whether they had studied for an educational qualification during 1988. For external courses and educational qualifications, information was obtained about employer support, e.g. payment of tuition. To ascertain training activities, prompt cards listing the range of types of training under each heading were shown to respondents. External and in-house training courses include general induction training, basic health and safety training, management training, trade/craft training and others. Participation in on-the-job training could include watching others do the work, asking questions of coworkers, being shown how to do the job and self-teaching. Some external courses could have been taken while the respondent did not have a job.

Unless otherwise noted, the training categories used in this chapter are:

Formal company training refers to the taking of in-house and/or external training courses. Where appropriate, each type is usually shown separately in Chapter 5. Where possible, the taking of external courses is further separated into those financed, in whole or in part, by the employer and those not financed by the employer;

On-the-job training refers to activities other than structured courses undertaken to improve skills;

University or vocational school-based training refers to having studied for an educational qualification.

Responses: Multiple responses were possible. Published data do not necessarily give an estimate of the overall incidence of employer-sponsored training. That is, when reference is made to the total incidence of training in Chapter 5, it may include some persons who undertook external training courses (and no other kind of training); which were not financed, in whole or part, by an employer. Footnotes to the tables provide the details.

Australia 2


Type of survey: Enterprise survey.

Reference period: July 1 to September 30, 1989.

Coverage: Sample of enterprises covering all industries in the private and public sector – except agriculture, forestry, fishing and hunting, private households with domestic staff, overseas embassies and permanent defence forces. All units who reported at least one employee are included. No information on the number of employees who received training was collected.

Training questions: Employers were asked to provide fairly detailed information on training expenditures, if any, over the reference period for formal training activities whether conducted in-house or external to the firm. The types of training include induction training, general supervisor training, health and safety training, specific occupational training and others. Expenditures counted include the paid time of those receiving training, gross wages and salaries of training personnel, fees paid to consultants and outside institutions, and other expenditures such as equipment (if the primary purpose was to use the equipment for

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training), consumables, travel to attend courses and donations to other organisations for training activities. Informal on-the-job training was excluded from the survey.

For purposes of Chapter 5, expenditures are expressed as a ratio to the gross wage and salary bill, and, unless otherwise indicated, refer to all enterprises irrespective of whether they reported any training expenditure.

Canada


Type of survey: Enterprise survey with the sample drawn from the Statistics Canada Business Register.

Reference period: 1 November 1986 to 31 October 1987, or another recent twelve month period which was to be specified on the questionnaire.

Coverage: Sample of private sector business register establishments reporting employees excluding government service industries, education service industries, health and social service industries, religious organisations and political organisations. However, about 1 600 multi-establishment firms were classified in these categories when the company's establishment with the largest gross income belonged to one of them. In the publication, this group is part of the "other" industry category which also includes industry not known.

Training questions: Survey was designed to collect information on whether or not companies supported or directly provided formal training, and whether or not companies spent money on formal training. Training was to be restricted to formal programmes directly provided or supported by the company which had a structured plan and objectives designed to develop employees skills and competences. This could be either on-the-job, in a classroom or a specially-equipped training site, or through a combination of on-the-job experience and classroom instruction. Classroom instruction could take place during or after working hours at either a company location or post-secondary institution. Self-paced learning which is monitored and meets the above criteria could be included in formal training. Training is measured as the number of events of formal training over the reference period rather than the number of employees who had at least one formal training programme and could also include training undertaken by workers who subsequently had left the company. Depending on how companies reported training, it is possible that a worker who participated in more than one programme could have been counted more than once. Thus, the incidence of training shown in Table 5.5 and Table 5.6 refers to the number of formal training programme participants (events) over the reference period divided by paid employment during the first complete week of October 1987 or the closest pay period.

The survey also attempted to collect information on training expenditures. If companies said that they had supported or directly provided formal training, they were also asked if they had a training budget. The 15 per cent of companies who responded yes were asked how much the budget was for the reference period and were asked to check items that were included in the budget. Expenditures on directly provided or supported employee training could include tuition, wages and salaries of employees, wages and salaries of instructors, costs of travel, accommodation, rent, training materials, adminis-

tration costs, machinery and other overhead costs. Expenditures were not to include indirect costs such as lost employee time. Companies without a training budget, but who said they provided or supported formal training, were only asked to provide figures on how much they spent on directly provided and supported formal training. Published data show reported expenditures per employee over all companies, per employee for companies who provided or supported training, and per participant in training rather than expenditures as a per cent of the wage and salary bill. The data in Chapter 5 refer to expenditures per employee averaged over all companies.

Finland


Type of survey: Supplement to the regular labour force survey conducted once a year up to 1987 and every two years since.

Reference period: Survey is conducted over the September-December period and the training question used in Chapter 5 refers to the prior twelve months. Data in Chapter 5 refer to the September-December 1987 survey.

Coverage: All persons aged 15-64. The total size of the sample is approximately 9 000 persons. Data in Chapter 5 refer to training received while in a wage or salary job.

Training questions: A number of questions are posed to respondents concerning training over the last six and last twelve months, and the last week. For Chapter 5, the question focused on is whether respondents had received training in the last twelve months during which they received their normal salary. Training is defined as any professional or trade union training provided within the framework of a structured course that is partly or wholly sponsored by the employer. A question is also asked concerning the number of days over the last twelve months respondents attended training courses paid for by the employer.

Responses: Either a yes or no response to receipt of training is recorded.

France 1

Source: Unpublished data provided by INSEE.

Type of survey: Regular yearly labour force survey.

Reference period: Survey is conducted in March and the questions on education and training refer to the time of the survey. Data in Chapter 5 refer to the March 1989 survey.

Coverage: All persons 15 years of age and over. For Chapter 5, however, only those counted as wage and salary workers at the time of the survey are examined.

Training questions: Respondents are asked whether they are taking education courses or are following another form of training, and if so what kind of training is being taken. Respondents are then asked in what context they are engaged in training. Answers include working as an apprentice under contract, alternating school-workplace training, following a training period or training course, and attending initial educational studies while working. It is not possible to ascertain the extent to which the training is or is not employer-sponsored, government-sponsored, individual-sponsored or some combination.
Specifying the types of training sources in the way that one usually finds in the literature is difficult. For purposes of this chapter, unless otherwise indicated, training refers to:

*Formal company and on-the-job training cannot be distinguished and, therefore, are shown together in Chapter 5.* Those who indicated taking a training course/training period as a trainee or engaged in post-formal schooling training are assumed to have received either or both types of training;

*Apprenticeship* refers to apprentices under contract;

*Alternating school-work training* refers to school-workplace training with the exact type of training unspecified;

*University or vocational school-based training* refers to attending school and working.

**Responses:** Only one response is coded for each person.

### France 2

**Source:** Statistique de la formation professionnelle continue financée par les entreprises, Centre d’Etudes et de Recherches sur les Qualifications, La Documentation Française, Paris, December, various years. Unless otherwise indicated, the data for Chapter 5 refer to calendar years 1987 or 1988.

**Type of survey:** Not a survey. Data are based on the declarations of training expenditures related to the 1971 law on the financing of certain kinds of training activities (Déclaration No. 2483).

**Reference period:** The year prior to each declaration of training expenditures.

**Coverage:** In principle, all enterprises in the private, semi-public and co-operative sectors with at least ten wage or salary workers are included. As of 1988, with certain exceptions, enterprises are obligated to spend at least 1.2 per cent of their gross wage and salary bill on training, of which 0.8 per cent is to go to their formal training plan (including those reached under collective agreements), 0.1 per cent to training leave, and 0.3 per cent to alternate school-work training for youth (but not including those in the stages d’initiation à la vie professionnelle, SIVP). Spending can also go toward collective organisations such as training insurance funds (Fonds d’Assurance Formation) and employers training associations (Associations Patronales de Formation). If the legal obligation is not met, enterprises are assessed a levy which is paid to the government.

**Training questions:** Only training which takes place outside of direct production and which conforms to a formal training plan where teaching resources and methods are specified and monitoring arrangements have been made can be counted. On-the-job training is excluded. Both for counting the number of employees who had at least one training period and for the spending declaration, apprentices under contract and youth in the stages d’initiation à la vie professionnelle (SIVP) are excluded. Published data on the proportion of employees who had some formal training is based on summing-up over all firms the number of employees who had at least one training period during the course of the year divided by the number of permanent wage or salary workers (excluding apprentices and temporary workers) at the end of the year. Because of turnover, the count of the number of persons who underwent some training will include an unknown number who are no longer with the enterprise where the training was received. In addition, there may be workers who received training in more than one enterprise.

They will be counted twice. Training incidence as used in Chapter 5 is, therefore, a mixture of reported training events and persons who had at least one training event divided by end of year employment at the enterprise. Published data on training sometimes include only formal training which occurred within the context of the enterprises’ formal training plan, sometimes includes the training plan and training leave, and sometimes includes both of the above plus training incurred in the context of the training insurance funds. These are specified in the notes to the tables in the chapter.

**Expenditures** include the expenses of training personnel, the wages and salaries of trainees, equipment, spending which goes toward training insurance funds, spending on training leave, contributions paid to industry groups or chambers for undertaking formal training activities, spending in applying collective agreements related to the formal training plan of the enterprise, spending toward financing alternating school-work place professional training, and others. Training expenditures cover all spending which conforms to the law and are expressed as a ratio to gross wages and salaries.


### Germany

**Source:** Unpublished data provided by the Federal Statistical Office.

**Type of survey:** Labour force survey.

**Reference period:** Survey conducted in April, and the education or training questions refer to any time during the last four weeks. Data for this chapter refer to the April 1989 survey.

**Coverage:** All persons between the age of 15 and 49. Chapter 5 considers only those counted as wage or salary workers during the reference week of the survey.

**Training questions:** Respondents are asked if they received any education or training during the last four weeks, the type of education or training, and the purpose of that education or training. Training includes being an apprentice in the dual system, engaged in some (unspecified) kind of training only at the current workplace, received some form of training both at the workplace and at a vocational school (but not in the dual system), received training in any other place, and followed courses in a vocational school or university at the same time as working. With the exception of dual system apprentices (which is both state and employer supported) and training in the current workplace only, the extent to which the other forms are employer-supported or related, publicly financed or financed by the individual is not possible to determine.

Classifying training by source is difficult. For purposes of this chapter, the classification is as follows:

*Formal company and on-the-job training cannot be distinguished and, therefore, are shown together in Chapter 5.* Those who indicated workplace training only are assumed to have received either or both types of training;

*Apprenticeship* refers to those who indicated their training occurred in the context of the dual system (Lehrausbildung);

*Alternating school-work training* refers to those who indicated their training occurred both at a vocational school/university and the workplace, but not in the dual system;
University or vocational school-based training refers to those who indicated their training occurred at university/vocational school while they were working; 

Other sources refers to unspecified place of training (possibly including no response to the question).

Responses: Only one training item is coded.

Ireland

Source: Unpublished data provided by the Central Statistics Office.

Type of survey: Regular yearly labour force survey.

Reference period: Survey is generally conducted in May and the questions on education and training refer to the last four weeks. Data in Chapter 5 refer to the May 1989 survey.

Coverage: All persons 15 years of age and over. For Chapter 5, however, only those counted as wage and salary workers at the time of the survey are examined. Table 5.1a includes all wage and salary workers. The other tables include only wage and salary workers aged 15-49.

Training questions: Respondents are asked whether they have received any education or training during the last four weeks including on-the-job training. If yes, respondents are shown a card with a list of types of education and training, and are asked to choose the one which best describes their activity. Education and training related to the job includes workplace only, school/college only, apprenticeship, non-apprenticeship training which takes place partly at the workplace and partly at a school/college, and other (unspecified) job-related training. Respondents are also asked the purpose of the training.

For purposes of this chapter, unless otherwise indicated, training refers to:

Formal company and on-the-job training cannot be distinguished and, therefore, are shown together in Chapter 5. Those who indicated workplace training only are assumed to have received either or both types of training;

Apprenticeship refers to training in that framework;

Alternating school-work training refers to non-apprenticeship training which takes place partly in a school/college and partly at work;

University or vocational school-based training refers to job-related training which occurred only at school/college;

Other refers to other (unspecified) types of job-related training.

Responses: Only one training item is coded.

Japan 1

Source: Survey of Vocational Training in Private Enterprises (approximate translation), Human Resources Development Bureau, Ministry of Labour, Tokyo, various years. Unless otherwise indicated, data used in Chapter 5 refer to the 1989 survey.

Type of survey: Enterprise survey, although in 1989 a sample of individuals from responding enterprises were also asked about their training experiences since joining the enterprise.

Reference period: This can vary depending on the questions. Questions directed specifically to enterprises often refer to the calendar year prior to the survey. On the other hand, the reference period for the sample of individuals in the 1989 survey was their time with the current enterprise.

Coverage: A sample of 4,000 private sector establishments with 30 or more regular employees are sent questionnaires, which vary from year to year depending on the theme to be addressed. The response rate for the 1989 survey was about 59 per cent. The sample of individuals was 12,000 and the response rate was about 56 per cent.

Training questions: Varies from year to year depending on the theme. Questions concerning on-the-job training are often not addressed; rather most of the focus is on various kinds of off-the-job training, whether internal or external to the enterprise. In the 1989 survey, enterprises were asked if they had a formal (off-the-job) training plan, whether they give training to their workers and if so to which workers. Enterprises were also asked what proportion of workers by occupational groups received off-the-job training at any time during 1988. Individuals in the sample were asked to indicate receipt of off-the-job training during their tenure at the enterprise. Those who had received some training while at the enterprise were also asked if they had received training within their first year with the enterprise, within the most recent two years, just before or after a promotion, and at any other time. For a number of training categories, such as correspondence courses, attending private seminars or attending vocational training institutions, the extent of employer support is not clear.

Unless otherwise indicated, only off-the-job training is considered in Chapter 5. When the sample of individuals in the 1989 survey is examined, two sets of statistics are normally used. First are statistics indicating the receipt of some training at any time during their tenure with the enterprise. Second are statistics indicating the receipt of training within the most recent two years. When the data come from the responses of enterprises, the information refers to off-the-job training during the calendar year prior to the survey, unless indicated otherwise. The incidence of training as measured by enterprise responses to the 1989 survey is the per cent of regular employees on the payroll on 1 January 1989 said to have received training over the reference period.

Responses: Usually, if the question concerns different types of training, multiple responses are coded.

Japan 2

Source: General Survey on Wages and Working Hours System, Ministry of Labour, Tokyo. This survey, which represents an amalgamation of a number of previous surveys, is now conducted every three years. Some data are published in the Year Book of Labour Statistics, Policy Planning and Research Department, Minister's Secretariat, Ministry of Labour, Tokyo. The data used in this chapter refer to the 1989 survey.

Reference period: For the 1989 survey, data refer to the end of December 1988 unless the items specifically refer to yearly data.

Coverage: A sample of approximately 6,000 private enterprises with 30 or more regular employees at their head offices. Sample excludes domestic services, education, and foreign government and international agencies located in Japan.
Training questions: Part of this survey is devoted to collecting information on the components of average monthly labour costs. In particular, data are gathered on training costs defined as costs for facilities (excluding any schools established to raise the general level of knowledge or culture of workers in the enterprise), fees for training given by third parties, instructors allowances, and honoraria. Training costs exclude the wages and salaries of employees undergoing training, and would also appear to exclude any wages and salaries paid to internal trainers. Data are also assembled on recruitment costs defined as costs of advertisements and examinations, personnel costs for those only involved in recruitment, and any allowances given to recruiting officers. Other labour cost items collected are total cash wages, mandatory welfare costs (e.g. employer’s part of health insurance), retirement pay expenses, non-mandatory welfare costs and other labour costs.

Data used in this chapter refer to training and/or recruitment costs as a ratio of average monthly labour costs.

Netherlands

Source: Data provided by the Central Bureau of Statistics.

Type of survey: Enterprises with 5 or more employees. The survey excluded all government, education and health care institutions.

Reference period: Calendar year 1986 (survey conducted during 1987).

Training questions: Enterprises were asked to provide information on external and formal internal training activities financed in whole or in part by the enterprise which were related to the workers’ job, function or career. Data were gathered on the number of participants by sex, duration of the training activity, the training objective and the type of training among others. On-the-job training, apprenticeships and school were to be excluded. Training incidence is the number of persons that firms said had undertaken training during 1986 divided by employment at the time of the survey.

Enterprises were also asked to provide information on the costs of training, with only some indication of what was to be included.

Norway


Type of survey: Combination enterprise and employee survey.

Reference period: The year 1989, or the last twelve months from the time of being interviewed, i.e. some data refer to 1988.

Coverage: The enterprise sample of 1 050 firms was drawn from the registration system for the second quarter of 1989. The sample covers the private and public sectors, and enterprises with at least two employees. The individual sample of 6 100 employees was drawn from the sampled enterprises. Employees who had left the enterprise before June 1989 were not interviewed; employees who had left the enterprise after June 1989 were interviewed about the job they had before leaving. The employee response rate was approximately 75 per cent.

Training questions: Employees were asked whether they had taken any kind of formal training organised as a course that was partly or completely paid for by the firm. Apprenticeship training, on-the-job training and shop steward training courses were excluded. Information on time spent in formal training was also collected.

Responses: It is possible to take more than one training course, and total hours of training reflect all courses taken.

Spain

Source: Unpublished data provided by the Instituto Nacional de Estadística, Madrid.

Type of survey: Quarterly labour force survey.

Reference period: The quarterly survey refers to a three-month period, with the sample spread over that period. The data used in Chapter 5 refer to the second quarter of 1990, and the education/training questions refer to anytime during the last four weeks at the time the respondent is surveyed.

Coverage: All persons aged 16 and over. Chapter 5 includes only those counted as wage or salary workers at the time of the survey. Table 5.1a includes all wage and salary workers. The other tables include only wage and salary workers aged 16-49.

Training questions: Respondents are asked if they had followed any schooling or training course over the last four weeks. Possible responses include having received some formal schooling (first or second level education, vocational/technical education, university or other formal education), preparing for or taking an exam primarily it would seem for entering public administration, and having received non-formal education related to economic activity. Respondents who give any of the above answers (except for first or second level formal schooling) are asked where the education or training took place. At the place of work only, at a training centre only, at both a training centre and at work, and other places are possible responses. Like the data for a number of other countries, it is very difficult to relate the information to enterprise training. The extent to which the training is employer supported, the degree of public support or the extent to which it represents individual initiative not necessarily connected with the present place of employment cannot be determined with any degree of confidence.

In Chapter 5, overall training incidence refers to the sum of those who said they had received formal vocational/technical education (it is unknown how many, if any, are actually working as apprentices), or received university education, or received non-formal education related to economic activity divided by total employment. They are classified into the following sources of training:

Formal company or on-the-job training, which cannot be distinguished in these data, refers to respondents saying they received non-formal education related to economic activity. It is unknown which type of training was actually received;

University or vocational school refers to having received formal vocational/technical education or university education.

Responses: Only one response is coded for each item.
Sweden


Type of survey: Survey of a sample of individuals.


Coverage: Sample of just under 30,000 persons aged 16 to 64 who had worked at some point during the reference period.

Training questions: Respondents were asked if they had taken any training paid for in part or in whole by their employer. If yes, they were asked to describe the training or course (if there was more than one information was obtained about the longest event). If the initial response to the first question above was no, respondents were asked whether they had taken any course/training for using new techniques and if so whether the employer had paid for any part. Among other things, training events were classed according to where they occurred. This classification includes at own company, at another company, educational associations, municipal-based education institutions for adults, labour market programmes (including special training centres), trade union, university, local government, central government civil service, and other associations of interest.

It is quite difficult to take this scheme and mesh it with the classification of training sources used in Chapter 5. It is not clear, for example, if "own company" includes both informal and formal company training. This chapter, therefore, does not present the statistics by source for Sweden.

The survey also gathered information on the type of course taken (the longest course if more than one had been taken). These include working life, data processing, technology, languages, social science, medicine, business economics, retail and office, and others.

Responses: Most of the information gathered refers only to single responses. For the duration of training, however, the total number of hours for all courses was obtained. The published statistics on the type of courses taken refer to the longest one only.

Great Britain 1


Type of survey: Labour force survey.

Reference period: Survey is usually conducted over the March to May period (more recently the survey has been done on a quarterly basis). The data used in Chapter 5 refer to Spring 1989, and the reference period for the education and training questions refers to the last four weeks.

Coverage: All men living in private households between the age of 16 and 64. All women living in private households between the age of 16 and 59. Chapter 5 shows information for those counted as employees during the reference week, excluding young people on the Youth Training Scheme.

Training questions: Respondents who say that they had undertaken some education or training connected to their job or to a job in which they might be able to do in the future are asked if that training was on-the-job only, off-the-job only or a combination. If one of the latter two responses are given, respondents are asked where the off-the-job training occurred. Responses include on premises belonging to the current employer or another employer, in a private training centre, government or local authority workshop, skill centre, open university, college of further education, employment rehabilitation centre, community project, information technology centre or other educational institution. In the source cited above, all of these locations are considered as job-related off-the-job training. The classification used in Chapter 5 is:

On-the-job training refers to having received only such training, and having received a combination of both on-and off-the-job training;

Formal company and other training refer to having received training at any of the locations above which was not on-the-job training.

The labour force survey also asks questions on the length of the training, who paid for it, and whether or not it was meant for the current job or for a specific occupation.

Responses: Can be counted as having received both on-and off-the-job training, but only the main location of off-the-job training is recorded.

Great Britain 2


Type of survey: Establishment survey (for details of the sampling, weighting and interviewing techniques see the publication cited above).

Reference period: Establishments were asked to provide training activities information, including costs, within the last 12 months from the time of filling out the questionnaire (or the most recent 12 month period for which data were available). All fieldwork for the survey was carried out between June and October of 1987.

Coverage: The sample consisted of 1618 establishments in the private sector and a further 136 organisations in the private and public sectors interviewed at Head Office level. Establishments with fewer than 10 employees, and the agricultural, forestry and fishery sector were excluded. Establishments were requested to exclude from their responses on training, part-time workers working less than 10 hours per week, casual workers, anyone working at the establishment but paid by another firm, and anyone working at the firm but in another location (except in a few large organisations where interviews were conducted at the Main Headquarters).

Training questions: Information was gathered from senior managers, line managers and supervisors on formal and more informal off-the-job training given (if the training was on the employee's own time, it was still to be counted if there was some employer financial support), and on-the-job training. Examples of formal off-the-job training are training given by suppliers, courses at Skillcentres or other associations or company training centres. Examples of more informal off-the-job training are in-house staff meetings with a significant training content, induction training, open or distance learning such as correspondence courses and the Open University, and visits to customers/suppliers as a work learning exercise. On-the-job training was, in principle, to include
only training at the direct worksite where a manager or supervisor spends a significant amount of time teaching new skills and when little useful output was produced. Establishments were asked to indicate how many employees had received off- and on-the-job training in the last 12 months. This was further disaggregated by whether or not the worker was an apprentice or a trainee on a traineeship of at least 6 months (including the Youth Training Scheme), or was a new hire within the last 12 months. It appears that the count of the number of workers who received training over the reference period includes both those currently with the establishment and those no longer at the establishment. Thus, the incidence of training is this count of numbers who received training divided by the number of employees at the time of the survey.

For purposes of this chapter, training sources are classified as follows:

Formal company training refers to the receipt of in-house off-worksites training and/or external training;

On-the-job training is as defined above.

Information was also asked about training expenditures and average annual wage costs. In the publication, the latter were converted to labour costs with the ratio applied dependent on the industry and size of the establishment. Included in training expenditures were trainer's costs (for both those internal and external to the establishment), trainee's labour costs, costs of facilities, equipment and materials, management labour costs related to training activities, administrative labour costs, and others.

For purposes of this chapter, training expenditures are expressed either as a ratio of annual average industry wage rates or as expenditures per employee. Information on labour costs necessary for the kinds of calculations in Chapter 5 was not available in the publication.

United States


Type of survey: Special supplement to the monthly labour force survey (Current Population Survey).

Reference period: Survey was conducted in January 1983, and the reference period for the data used in Chapter 5 is the time since the present (January 1983) job was obtained.

Coverage: Persons aged 16 and over counted as employed during the reference week of the survey, and those not counted as employed provided they had worked at some time in the past. For Chapter 5, only those employed as wage and salary workers (excluding the incorporated self-employed) during the reference week are considered.

Training questions: Two main training questions were asked. First, whether specific skills or training were needed to obtain the job in question. Second, whether any training had been undertaken to improve skills since obtaining the present job. Chapter 5 focuses on the latter. The types of training recorded are school, formal company programme, informal on-the-job training, and other training (unspecified). It is unclear what respondents might have included in, or excluded from, the categories of formal programmes or informal on-the-job training, and lists of possible forms of these kinds of training were not shown to respondents. If schooling was given as one response, several follow-up questions were asked including whether the employer paid or whether it was part of a government programme. Persons citing formal company training were also asked if this training had been sponsored by a government programme, and whether the training programme was provided by the present or a previous employer. Concerning financing, the wording of the question seems to imply that a response of yes means that the entire cost was paid by the employer (according to the results of the survey, less than half of all persons who undertook school-based skill improvement training had it paid for by the employer).

This chapter examines only skill improvement training taken while at the current employer. The classification of training by source is:

Formal company training refers to those who indicated taking a formal company programme (whether internal or external to the enterprise cannot be determined);

Informal on-the-job training refers to those who indicated that response as the source of skill improvement training;

University or vocational school-based training refer to those who gave school as the source;

Other refers to the response “other.”

Responses: All methods of skill improvement training were recorded. The ratio of the average number of sources cited to the number who took some training was 1.18, with professional and managerial workers reporting multiple sources much more than labourers. Because multiple responses were recorded, reference to the total incidence of training in Chapter 5 may include some persons whose skill improvement training was obtained at a school, who received no other training, and the schooling was not employer-sponsored or paid for.

EEC labour cost survey


Type of survey: Establishment or enterprise survey, depending on the sector.

Reference period: Monthly average for the year of 1984. The survey was conducted by Community Member governments during 1985 and 1986.

Coverage: Samples of establishments with 10 or more employees in industry, and enterprises with 10 or more employees in wholesale and retail trade distribution, credit institutions, and insurance (excluding compulsory social insurance). Coverage is obviously more extensive in industry compared with services, and coverage appears to vary significantly across countries.

Training costs: The survey attempted to gather information on the components of total labour costs. These were direct pay, bonuses, pay for days not worked, benefits in kind, social security contributions and family allowances paid by the employer (divided into statutory, and customary, contractual or voluntary), other social expenditure, taxes and social subsidies, and vocational training costs.
Vocational training costs are defined to include payments to apprentices. It is unclear what other costs are included and it is not known if countries followed the same practices. Also, it is rather likely that the definitions of apprentices vary significantly across countries. As shown in Chapter 5, with the exception of France, there is a very high correlation of reported vocational training costs as a ratio to total monthly labour costs and the proportion of measured apprentices in total employment. This suggests that vocational training expenditures in these data are largely apprentice wages. The data for France suggest the possibility that enterprises/establishments reported expenditures on training (not including apprentices under contract) largely as required in the 1971 French law on further training (see the discussion on France in this annex).

In addition to components of labour costs and the number of apprentices, data are published on the proportion of women in total employment, manual and non-manual employees, average monthly earnings, hours worked for manual workers, and others.
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