

# **EMPLOY State-of-the-art Report**

## **Continuing Training**

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Continuing education and training are considered to play a central role for the improvement of people's employability, for reducing skill gaps and developing quality jobs. The European Commission frequently stresses life-long learning and its crucial role in the knowledge-based society (European Commission 2000, 2003). Life-long learning is understood to be an essential policy for social cohesion.

The fact that continuing training has in recent years received so much attention by policy-makers has to be understood in the context of current changes in the technology of production and service delivery, on the one hand, and increased labour market flexibility on the other. Opportunities for life-long learning are particularly important for lower-skilled workers as a fall in the demand for low-skilled labour and a general shift to more knowledge-intensive jobs has left them in a precarious labour market situation (Chennells and Van Reenen 2002; McIntosh 2002). Access to continuing training opportunities are also crucial for older workers whose skills obtained through initial training are likely to have become outdated (European Commission 2003).

While there has been a lot of research on initial vocational education and training prior to (or concurrent with) labour market entry (e.g. Allmendinger 1989; Hannan et al. 1997; Shavit and Müller 1998; Shavit and Müller 2000; Korpi et al. 2003, cf. Ryan 2001 for an exhaustive review of the cross-national literature on the transition from school-to-work), research on continuing training is much more limited. However, research in this field has been growing in recent years. This body of research has examined the determinants of continuing training and training impact. Work on training effects has mainly focused on wage returns to continuing training as well as the impact on firm productivity. There has also been a parallel strand of research which focuses on the effects of labour market education and training for the unemployed. In this area a large body of sophisticated empirical research has

been generated (e.g. O'Connell and McGinnity 1997; Lechner 2000; Wogens et al. 2000, Andren and Gustafsson 2004), which has already been extensively reviewed (see, e.g., Heckman et al. 1999; OECD 2003)<sup>1</sup>. Therefore, in this part of the State of the Art Report we will exclusively focus on continuing in-career education and training for employed workers.

This section of the report will begin with a very brief overview of the incidence and funding of continuing training. It will then review the empirical literature concerned with the distribution of training opportunities. This is followed by an overview of the literature concerned with measuring the impact of continuing training. Finally, it will discuss recent contributions which are concerned with the role of institutions for the provision of continuing training.

### **Incidence of continuing training**

The increased awareness of the importance of life-long learning seems to coincide with growing activity in continuing education and training over the course of the 1990s. Using two Eurostat *Continuing Vocational Training Surveys* O'Connell and Jungblut (2003) show a substantial growth in the proportion of companies providing training for their employees in 1999 compared to 1993 for the 13 European countries under study. Notwithstanding the increased activity of continuing training, there exists ample evidence suggesting rather pronounced differences between countries regarding incidence rates of continuing training. Ok and Tergeist (2003) use five different data sources to examine training incidences: the Third European Survey on Working Conditions (2000), the European Labour Force Survey (2000), the European Community Household Panel (ECHP) (1998), the Continuous Vocational Training Survey (1999), and the International Adult Literacy Survey (1994-1998). What their comparison between these surveys shows is that different surveys may provide very different estimates of the incidence of training. This points to the need of being careful when examining cross-country variation in continuing training due to very heterogeneous definitions of continuing training. For the European Labour Force Survey, the reference period is four weeks prior to the survey, whilst the other surveys have a 12 months reference period to measure continuing training participation. Despite substantial variation, the broad pattern suggests the following: Denmark, Sweden, and Finland have the highest levels of participation (at least three surveys give figures of 50% plus), followed by the UK (where

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<sup>1</sup> Moreover, the evaluation literature on activation has been reviewed in another state-of-the-art report on unemployment and activation which the interested reader may refer to.

four of the surveys give figures higher than 40 %) and the Netherlands (where three of the surveys suggest figures of 40% plus but where the ECHP suggests a figure of only 10%). Germany, Austria and Belgium can be characterised as low-medium training providers (three of the surveys suggesting a training participation of circa 30 % or more), Ireland would also fall into this category (two of the surveys show 30 % plus). Spain, Italy and Portugal are by far the countries with the lowest training participation (on average around 20 per cent, in Portugal even lower). The figures for France appear to be the most volatile ranging from 10 per cent in the ECHP to 46 per cent in the Continuing Vocational Training Survey.

Another crucial question is who funds and organises continuing training, and whether we find cross-national differences regarding the funding of training? Using the ECHP (1997), Bassanini et al. (2005) examine the percentage of employer-funded continuing vocational training in twelve European countries. Their figures suggest that on average 72% of all vocational training courses are paid for or provided by employers. The highest proportion of employer-funded training is found in the Denmark, Finland, France, and the UK (90% + of all continuing vocational training), followed by Austria, Belgium, Greece, Ireland, Italy and Portugal (80% +), the lowest proportion is observed in Spain (70%) and the Netherlands (64%).

### **Determinants of training**

Country studies on the determinants of training would suggest that access to continuing training is highly stratified: those with higher skills or educational qualifications are more likely to receive training than their lower-skilled counterparts (see Kuckulenz and Zwick 2003 as well as Pischke 2001 for Germany; O'Connell, 2002 for Ireland; Taylor and Unwin 2001 for the UK; Gelderblom et al. 2002 for the Netherlands) and older workers receive less continuing training than their younger counterparts (Gelderblom and de Koning 2002 for the Netherlands; Fournier 2003 for France; Taylor and Unwin 2001 for the UK). These distribution patterns would suggest that those with the worst labour market prospects in the absence of continuing training are least likely to receive it. Continuing training is thus more likely to exacerbate rather than mitigate existing labour market inequalities. This could lead to a vicious circle increasing the risk of unemployment and social exclusion for the low-skilled (Keep et al. 2002). These inequalities in access to continuing training are frequently explained by human capital theory (Becker 1993 [1964]). Given that the employer is the most common financial sponsor of continuing training, it seems logical to assume that an employer's

decision to invest in training for his employees is primarily made on the basis of expectations about benefits in the form of raised post-training productivity. Drawing on the assumptions of human capital theory one would predict that an employer believes the training cost of a lower-skilled worker to be higher than for higher skilled workers as low educational credentials may signal lower ability and may therefore suggest that the worker is a slow learner requiring more training hours than his higher-skilled counterparts, which in turn would imply higher training costs. Likewise human capital theory may help us explain why older workers are less likely to receive continuing training than their younger colleagues. Skill investments in younger workers can be recouped for a longer period of time (Taylor and Unwin 2001). Furthermore, it is often conjectured that older workers' skills have already become somewhat outmoded which would increase their training cost.

More recently, as comparative cross-national surveys have become available, country studies on the determinants of training have been complemented by comparative European research. In an OECD Social Employment and Migration Working Paper, Ok and Tergeist (2003) present a cross-national comparison of training determinants of 19 countries based on the International Adult Literacy Survey. The following EU countries were included: Finland, Denmark, Sweden, Great Britain, the Netherlands, Italy, Ireland, Belgium, and Portugal. Their figures suggest – in line with the findings of the research cited above – that participation in continuing training varies significantly by individual characteristics: stratification patterns are based on level of educational attainment, occupation and age. The results show without an exception for all countries under study that better-educated workers in high-skilled occupations (i.e. managers, professionals, and technicians) enjoy greater training opportunities than less-educated manual workers. With the exception of Belgium, the figures show for all countries that older workers are less likely to participate in training than their younger counterparts. Whilst in most countries it is the age group of 25-34 who enjoys greatest training opportunities<sup>2</sup>, in some countries workers aged 35-44 have equally high training incidences (UK) or are the group with the highest incidence of training (this is the case in Denmark, Sweden and Italy).

Arulampalam et al. (2004a) use the ECHP (1994-1999) to examine determinants of continuing training Austria, Belgium, Britain, Denmark, Finland, France, Ireland, Italy, the Netherlands, and Spain. Their analyses confirm that in virtually all EU countries highly educated individuals are more likely to participate in continuing training than those with

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<sup>2</sup> Only individuals aged 25 years and over were included in the sample.

lower educational qualifications, even when their position in the wage distribution is controlled for (ibid.). Belgium is the only country where education does not have a positive effect. Age is also an important determinant for training receipt. However, this is only the case for men: in nine out of the ten countries age affects the odds of participating in continuing training negatively. For women, by contrast, there exists little correlation between the probability of participating in formal continuing training and age. Besides patterns of vertical polarisation in access to training, Arulampalam et al. (2004a) also examine whether patterns of horizontal polarisation exist. Their estimates suggest that women are no less likely than men to receive training, which is line with findings of previous research (e.g. O'Connell 1999). In eight out of the ten EU countries under study, part-timers and full-timers have the same odds of participating in training – a result which is not in line with human capital theory (Becker 1993 [1964]) which would suggest that part-timers receive less training as in part-time work there are fewer hours in which returns to training can be captured. Only in Britain and Finland part-timers were disadvantaged. For men, their analyses suggest a significant disadvantage of fixed-term workers for five countries: Austria, Britain, Denmark, Finland, and Spain. This would support human capital predictions according to which fixed-term workers are less likely to receive training than permanent workers due to the shorter period in which returns to training can be recouped. For women, on the other hand, there are no significant negative effects of fixed-term employment in most of the countries with the exception of Denmark and Finland. In sum, their results would suggest that vertical inequalities in access to training are far more pronounced and universal than horizontal inequalities.

### **The impact of continuing training**

In recent years, numerous studies examining the impact of continuing training have emerged. In this section of the State of the Art Report we will focus on research concerned with the effects of training on individual outcomes rather than firm-productivity. It is noteworthy, however, that research projects which combine information on employees and firms to examine “who gains when workers train?” tend to find that the increase in individual wages is considerably smaller than the increase in value added per worker. Kuckulenz (2006) finds for Germany that the impact of continuing training on firm productivity is three times higher than the one on individual wages. Her results also suggest that high-skilled workers tend to recoup

a larger share of the training rent than low-skilled workers. Dearden et al. (2000) find for the UK that the increase in value added per worker is twice the increase in individual wages.

Research assessing the effects of continuing training for individuals is always confronted with the problem of selection bias. Individuals endowed with more productive characteristics might be more likely to receive continuing training, whilst at the same time being more likely to experience higher wages, or higher wage growth even in the absence of training. Depending on the data and econometric techniques applied, empirical research comes to very different conclusions. It has often been shown that when techniques that attempt to directly control for selection and endogeneity bias were used, wage effects of continuing training tend to be insignificant<sup>3</sup>. As noted earlier, research on training impact for employees has predominantly focused on individual wages. Studies focusing on the impact of continuing in-career training on employment security, the chances of re-employment after unemployment or occupational upward mobility<sup>4</sup> are still scarce.

Evertsson (2004) uses pooled cross-section data from the Swedish Survey of Living Conditions in the mid-1990s and examines wage effects of continuing training and gender-inequalities therein. The estimates of her OLS regression models suggest positive effects of continuing in-career training in Sweden. Even though training pays off for men and women, men's wage benefits from training appear higher. Goux and Maurin (2000) analyse returns to employer-provided training in France using data from the French survey on Education and Qualifications (Enquete sur la Formation et la Qualification Professionnelle). They estimated training effects using standard OLS regressions as well as the two-step "selection correction" method (Heckman 1979). Whilst the OLS estimates suggest that French workers earn about seven per cent more after a training spell, the effects of continuing training are insignificant and negative once selection bias is controlled for. Using data from the British Household Panel Survey (BHPS), Booth and Bryan (2005) estimate wage returns to employer-financed training. Their fixed-effects estimates suggest that employer-financed training is associated with significantly higher wages at the current workplace as well as at future firms. In contrast to OLS estimates, fixed-effects models can control for time-invariant ability bias, but a

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<sup>3</sup> None of these studies, however, are completely free from selection bias (Ok and Tergeist 2003: 20). Two methods are commonly used to tackle the issue of selection bias: Heckman's 2-stage estimation (Heckman 1979) and (difference-in-differences) propensity score matching (Rosenbaum and Rubin 1983; Rosenbaum 2002). The problem with the former technique is that it is difficult to find credible identifying variables, in particular in the context of continuing training such variables are difficult to find (Gerfin 2004). The latter method has strong limits in effectively dealing with repeated training continuing incidents (ibid.) and is also not suitable to examine the impact of the stock of training on labour market performance.

number of potential selectivity factors cannot be removed within the fixed-effects framework. Almeida-Santos and Mumford (2006) also use BHPS data to examine wage returns to training incidence and duration using fixed-effects and instrumental variables. They find that individual wage returns to training differ greatly depending on the nature of the training (general or specific), and the skill levels of the recipient (white or blue collar). Training courses containing general components showed higher returns compared to all training courses. Almeida-Santos and Mumford (2006) find very limited wage returns from training for blue collar workers aged between 30 and 40 years, and no significant effects for workers older or younger than that. By contrast, their findings suggest a range of positive returns for high skill workers. The authors then employ decomposition analysis to examine whether unequal remuneration for training participation across different skills groups contributes positively to wage inequality across white and blue-collar employees in Britain. Their results would suggest that this is indeed the case, which would imply that training may indeed exacerbate existing wage inequalities. Pischke (2001) uses the German Socio Economic Panel to examine returns to continuing work-place training in Germany. Rather than examining the impact of continuing training on wage levels, he estimates fixed-effects wage growth regressions. The results indicate that training effects are not significant. By contrast, Kuckulenz and Zwick (2003) using the “Qualification and Career Survey” (BIBB/IAB) find that work-place training in Germany is associated with more than 15 per cent higher wages even after controlling for the endogeneity of training. However, this is only true for “external” training (i.e. participation in courses and seminars) and not for “internal” training (i.e. on-the-job training). Gelderblom et al. (2002) examine the impact of company training on employment security in the Netherlands using longitudinal data sets on the Dutch labour market collected by the Institute for Labour Studies (OSA). They use a two-stage model probit-tobit model (as described in Maddala 1983) including latent and continuous variables to measure the impact of training on the work-to-unemployment transition. Whilst the coefficients would suggest an inverse relationship between training and the risk of unemployment, the estimates are not statistically significant. However, separate analyses of firm-level data show that the more intensive a company’s training policy, the smaller the number of dismissals becomes (Gelderblom et al. 2002). The authors thus conclude that the role of company training and employment security is still open to further research.

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<sup>4</sup> Notable exceptions are Buchmann et al. (1999) and Li et al. (2000) who examine the impact of continuing training on upward mobility in Switzerland.

These country studies on training impact have been complemented by comparative research. Bassanini et al. (2005) examine the effect of continuing training stock on log hourly wages across 12 EU countries using the ECHP. In all countries under study their OLS estimates suggest positive returns to continuing training ranging from 3.7% in the Netherlands to 21.6% in Greece. Their fixed effects models controlling for time-invariant unobservable characteristics, by contrast, produce significant results only for half of the countries under study: Denmark, Belgium, the UK, Italy, Greece, Portugal and Finland.

Bassanini (2006) examines the impact of continuing training on wages and subjective employment security using the ECHP. He uses fixed-effects models and corrects for match-specific heterogeneity as well as time-variant observable individual and firm characteristics. The author's main interest is in returns to continuing training for different labour market groups. He pools all the countries available in the ECHP (except Sweden and Luxembourg) together as estimating separate equations by country and labour market group would have implied very small samples in many cases. The results suggest that the impact of continuing vocational training taken with previous employers is significant only for high educated and/or relatively young workers. Bassanini (2006) argues, however, that these estimates of wages returns are biased because the sample is censored given that all persons that are expelled from employment are excluded. These estimates therefore "do not take into account the impact of training on employment prospects and on containing the loss of income associated with unemployment spells" (ibid.: p. 6). When examining the impact of training taken with previous employer on perceptions of job security he finds significant positive effects of training for workers across all labour market categories (except those with the highest level of education). His findings of subjective employment security seem to be paralleled by research employing objective measures of job security. Ok and Tergeist (2003) draw on the ECHP data and estimate probit models to compare labour market prospects of workers who did not receive continuing training in any given year and those who did, controlling for individual characteristics. The pooled analysis of ten European countries suggests that the odds of a "trained" worker to become unemployed three years later, is 3.5 percentage points less than the probability of workers with comparable personal (observed) characteristics who did not receive training. The findings further suggest that previously trained workers who become unemployed have better re-employment odds than their untrained counterparts.

## **Do institutions matter?**

Until very recently comparative research on continuing training has mainly focused on similarities across countries in terms of determinants of continuing training and training impact rather than on potential differences across countries and explanations thereof. In the recent training literature we find a growing interest in the role that institutions may play in explaining cross-country differences in the incidence and composition of training, the distribution of training opportunities and the effects of continuing training.

The Varieties of Capitalism literature (Soskice 1999; Estevez-Abe et al. 2001) has emphasised how differences in institutional contexts of advanced capitalist societies may help explain the development of distinct skill regimes. This literature distinguishes liberal market economies where coordination predominantly takes place through competitive market arrangements, and coordinated market economies relying mainly on non-market arrangements. It is argued that coordinated wage-setting and cooperative industrial relations as found in coordinated economies would minimise the risk of poaching, which in turn encourages employers to provide their workers with portable vocational skills (Soskice 1999). By contrast, in competitive industrial relations systems where there are little mechanisms to prevent poaching – as found in liberal market economies – employers are discouraged to invest in transferable vocational skills of their workers (*ibid.*). It has to be noted, however, that this discussion in the Varieties of Capitalism literature evolves almost exclusively around initial vocational training at labour market entry.

Nevertheless, it seems plausible that the differences in industrial relations systems explaining the development of distinct systems of initial vocational training might also have important repercussions for understanding cross-national differences in continuing training arrangements. This is the argument brought forward by Ok and Tergeist (2003). They emphasise the role of the social partners regarding equity issues in access to continuing training as well as the quality of training. Ok and Tergeist argue that employers want continuing education and training to primarily serve the interests of the individual organisation. They would thus want to retain a “prerogative on the content of training and selection of participants, on the basis of their own efficiency considerations” (*ibid.*: 32). From the perspective of the unions, on the other hand, it is important to ensure that continuing training will impart workers with skills which are of value to the worker also outside of the firm providing the training: portable skills. Unions would also focus more on equity issues ensuring access to training also for the un- and low-skilled.

Drawing on Caprille and Llorens (1998), Ok and Tergeist (2003) provide an overview of continuing training and labour relations revealing the intensity of collective bargaining on continuing training, the extent of participation on continuing training in works council-type bodies as well as whether joint governance of continuing training funds by social partners exists. Joint governance of continuing training funds is found in Belgium, Denmark, Finland, France, Germany, the Netherlands, Italy and Spain, whilst there exists no joint governance in Austria and the United Kingdom. The intensity of collective bargaining on continuing training issues is low in the UK and Portugal, of medium-level in Austria, Finland, Germany, Italy, the Netherlands, Spain and Portugal, whilst it is categorised as high in Belgium, Denmark, and France. The extent of involvement of works council body-types in training is low in Italy, Portugal, and the UK, of medium-level in Belgium and Spain, and of high level in Austria, Denmark, Finland, France, Germany, and the Netherlands. Ok and Tergeist (2003) provide interesting theories regarding the implications of social partner involvement for training quality and equity issues in access to training. They do not, however, empirically test how far these institutional differences result in cross-national differences in training outcomes.

Brunello (2004), by contrast, uses the ECHP to empirically examine the importance of labour market institutions for training provision. It has to be noted, however, that the author does not restrict his analyses to continuing training, but all training (this would, e.g. also include initial training at career entry). His findings show that training tends to be higher in countries with higher union density, stronger employment protection, and lower minimum wages (relative to average wage). Furthermore, his results would imply that the incidence of training is higher in countries where the school system is more comprehensive in nature (e.g. the UK) than in countries with a highly stratified school system. Bassanini and Brunello (2003), also using the ECHP, show that the incidence of general continuing training (proxied by off-site training) is higher in clusters (defined by country, sector, occupation, educational attainment) where the wage structure is compressed, i.e. where the increase in productivity after training is greater than the increase in wages. They have found no evidence, however, that firm-specific training (proxied by workplace training) is significantly correlated with the training wage premium. Almeida-Santos and Mumford (2005) are also concerned with the implications of wage compression for employee training. Their analyses are based on British data from the Workplace Employee Relations Survey. The results show that higher levels of wage compression are positively related to training incidence as well as training duration. Ericson's (2004) evidence coming from the Swedish Labour Force Survey, by contrast, would suggest a weak negative association between wage compression and continuing training for

male employees in the private sector, implying that workers' incentives to invest in training are more important than those of the employer. Arulampalam et al. (2004b) examine the impact of minimum wages on training incidence in the UK using the BHPS. They estimate how the national minimum wage, which was introduced in 1999, affects the work-related training of low-wage workers. The results of their difference-in-differences analyses would suggest that the training probabilities of low-wage workers affected by the minimum wage increased by 8 to 11 percentage points.

## **Conclusions**

This section of the report has sought to review the recent literature on continuing education and training in Europe. Continuing training has gained paramount attention and its significance for avoiding further polarisation of the workforce and social exclusion is widely recognised amongst policy-makers. This increased interest in life-long learning concurred with a universal pattern of growing continuing training activity across Europe throughout the 1990s. The literature on the determinants of continuing training participation, however, has shown that in virtually all EU countries those individuals with the worst labour market prospects in the absence of continuing training are the least likely to get training. There is thus a risk that continuing training exacerbates rather than mitigates existing inequalities in the labour market raising the question how much scope there is for policy to remedy these inequities.

Whilst there is a large consensus on the importance of continuing vocational training, empirical research on training impact is still inconclusive. Research has come to very different conclusions. The main challenge in measuring training returns is how to effectively control for selection and endogeneity bias. The general picture is that the empirical literature which attempts to control for selection bias and the endogeneity of training often finds no significant returns to training. This should not lead us to conclude, however, that training does not lead to the durable returns. As noted by Bassanini (2006), analyses on wage returns from training are based on a censored sample, as the sample is missing individuals that are expelled from employment. These estimates therefore cannot measure the effect of training on individuals' employment prospects and on containing the loss of income due to unemployment (*ibid.*). One crucial gap in the literature is thus that hardly any research examined the relationship between continuing training and employment security. The exclusive focus on wage returns of training may also be problematic because in countries with

higher levels of wage compression, financial returns to training tend to be low, so that wages might not be a good proxy for the effectiveness of training in terms of skill acquisition. Future research examining the impact of in-career continuing training on employment security, on re-employment after an unemployment spell, as well as on occupational upward mobility might arguably provide a more reliable measure of the impact of continuing training on career prospects and skill acquisition.

The role of institutions in the provision of continuing training has become a focal interest in the recent training literature. This strand of research might offer valuable insights for mutual policy learning within the EU: do we find that some institutional settings are more effective than others in ensuring an equitable distribution of continuing training opportunities? Do institutions and policies affect the quality and portability of skills obtained through training? Thus far there exists little consensus as to how institutions affect training provision, allocation and efficacy and more empirical research in this area is warranted.

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