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Improving Workers' Skills: Analytical Evidence and  
the Role of the Social Partners

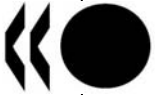
Wooseok Ok and Peter Tergeist

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OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS

Improving Workers' Skills: Analytical Evidence and the Role of the Social Partners

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**OECD SOCIAL, EMPLOYMENT AND MIGRATION  
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## SUMMARY

1. There is a wide consensus that workforce skills are an important determinant for economic growth. Alongside initial education, continuous education and training (hereafter referred to as CET) plays a key role in meeting these skill needs. This report examines possible positive impacts of CET on workers' performance, and discusses some policy issues with a special focus on the role of the social partners.

### *Access to CET is associated with workers' characteristics and literacy level*

2. Over and above international differences in training participation – with the Nordic countries showing the highest participation rates – access to CET appears to be consistently unequal across socio-economic groups. In *all* the countries reviewed, the low-educated and older workers are under-represented in firm-training programmes. The incidence of CET is also positively associated with workers' literacy levels. Importantly, the erosion of literacy with age seems to be slower in countries with high training participation than in low-participation countries.

### *CET has a positive impact on workers' performance*

3. CET is positively associated with various performance criteria:

- Participation in CET raises a worker's probability of being employed, and improves re-employment chances when a worker has been laid off. By contrast, there is only weak evidence that CET hampers mobility of workers across different firms.
- Trained workers benefit from higher wages and faster wage growth than non-trained workers.
- The positive impact of CET on wage growth seems to be relatively constant regardless of educational attainment or type of CET.
- The wage-enhancing impact of CET seems to be strong enough to protect workers from possible wage loss arising from job change.

It is, however, difficult to establish definitive causality from these correlations due to the endemic problem of selection bias.

### *Labour-management arrangements can be an important element of policy*

4. Despite these benefits from CET, there are reasons to assume that supply and demand for training are still insufficient for some groups of workers because of market failures. Market failures can, in particular, have a disproportionate impact on low-skilled and other disadvantaged workers, explaining in part their low participation in CET. For these reasons, many OECD countries see a need to increase financial incentives and develop better institutional arrangements for CET.

5. In particular, a more structured involvement of employee representatives and the social partners at various levels of discourse and negotiation concerning training appears to be one route which may help to overcome deficiencies in the provision of, and access to, training, at least in countries where traditional labour relations practices and the labour institutions framework are supportive of such co-operation. This involvement may take different forms outlined in the report:

- *Joint governance of training funds in a certain number of countries characterised by national or sectoral training levies.* Experience from these countries suggests that, notwithstanding their potential and actual shortcomings, training levies may help spread the load for funding training between employers and thus help mitigate externalities such as “poaching”. To the extent that they are jointly managed by the social partners with a view to including “at risk” or other normally underrepresented groups, they may also be of help in improving the distribution of training opportunities.
- *Collective bargaining.* In countries with levies and training funds, these have usually been given a framework through bipartite agreements at sectoral or even national level. Bargaining also plays a role in countries with little central steering of training matters, but where trade unions pursue “qualitative” bargaining strategies not exclusively centred on wages and working conditions. Often, agreements will deal with the joint determination of training needs in a company or sector, the set-up of training plans, the recognition and certification of learning and the right to training leave. Importantly, agreements on CET are often linked with other bargaining topics, such as working hours, changes in work organisation or human resource management.
- *Participation by works councils or other bodies for employee involvement.* In many countries, such bodies have been given strong legal rights to influence company training plans and strategies.

6. While the report provides information and examples to judge good practices, it does not identify an “optimal” system of institutional or financial arrangements to foster CET. Existing data do not allow associations between the extent or types of social partner involvement on the one hand, and the incidence and distribution of CET, on the other. It may be useful to investigate such associations in future work.

## RÉSUMÉ

1. Il est très généralement admis que les compétences de la main-d'œuvre sont un facteur important de croissance économique. A côté de la formation initiale, *la formation continue* a un rôle essentiel à jouer pour répondre à ces besoins de compétences. Ce rapport étudie l'impact positif qu'elle peut avoir sur les performances des travailleurs et analyse quelques unes des questions qui se posent aux politiques publiques, en mettant spécialement l'accent sur le rôle des partenaires sociaux.

*L'accès à la formation continue est lié aux caractéristiques des travailleurs et à leurs niveaux de littératie*

2. Au-delà des différences de niveau de participation à la formation continue entre pays – niveau qui est particulièrement élevé dans les pays nordiques – l'accès à cette formation est toujours inégal suivant les caractéristiques socio-économiques de la population. Dans *tous* les pays étudiés, les travailleurs moins qualifiés et plus âgés sont sous-représentés dans la formation en entreprise. L'impact de la formation continue est également lié au niveau de littératie des travailleurs. Il est important de noter que la baisse de ce niveau avec l'âge paraît plus lente dans les pays où le taux de participation à la formation est plus élevé.

*La formation continue a un impact positif sur les performances des travailleurs*

3. Il existe une relation positive entre la formation continue et différents critères de performances :
- La participation à la formation continue augmente les chances de rester dans l'emploi et d'en retrouver un en cas de licenciement. A l'inverse, il y a peu d'indices pour suggérer qu'elle pourrait limiter la mobilité entre entreprises.
  - Les travailleurs formés bénéficient d'une rémunération supérieure et celle-ci augmente plus rapidement que pour ceux qui n'ont pas été formés.
  - L'impact positif de la formation continue sur la progression des salaires paraît relativement général, quels que soient le niveau d'éducation ou le type de formation continue.
  - L'impact positif de la formation continue sur les rémunérations paraît suffisamment fort pour protéger les travailleurs d'une perte de salaire possible à la suite d'un changement d'emploi.

Il est toutefois difficile d'établir les liens de causalité définitifs à partir de ces corrélations en raison de la présence endémique de biais de sélection.

*La coopération des partenaires sociaux constitue un élément important de la politique publique*

4. En dépit de ces avantages de la formation continue, il y a des raisons de penser que l'offre et la demande de formation continue sont encore insuffisantes pour certains groupes de travailleurs, en raison des défaillances du marché. Celles-ci peuvent, en particulier, avoir un impact disproportionné sur les

travailleurs moins qualifiés et sur d'autres travailleurs défavorisés, ce qui explique pour une part leur faible niveau de participation à la formation continue. Pour ces différentes raisons, beaucoup de pays de l'OCDE jugent nécessaire d'offrir de plus fortes incitations financières et d'améliorer leurs dispositifs institutionnels concernant la formation continue.

5. En particulier, une participation plus organisée des représentants des salariés et des partenaires sociaux à différents niveaux de la négociation en ce qui concerne la formation semble être une voie qui pourrait aider à remédier aux insuffisances en matière d'offre de formation et d'accès à celle-ci, au moins dans les pays où les traditions et les institutions en matière de relations sociales favorisent cette coopération. Cette participation peut revêtir différentes formes, analysées dans ce rapport :

- *La gestion paritaire des fonds consacrés à la formation dans un certain nombre de pays où il existe des taxes de formation au niveau national ou sectoriel.* L'expérience de ces pays suggère que, quelles que soient les insuffisances éventuelles ou réelles de ces prélèvements, ils peuvent contribuer à répartir la charge du financement de la formation entre les employeurs et réduire ainsi les problèmes d'externalités, tel que le « *débauchage* ». Dans la mesure où ces prélèvements sont gérés par les partenaires sociaux dans l'intention d'inclure les groupes de travailleurs « à risque » et ceux souvent sous-représentés dans la formation, ils peuvent aussi contribuer à mieux répartir les chances d'accès à une formation.
- *La négociation collective.* Dans les pays où existent des obligations de financement et des fonds pour la formation, ils se situent généralement dans un dispositif faisant l'objet d'accords bipartites au niveau sectoriel ou même national. La négociation collective joue également un rôle dans les pays dans lesquels les questions de formation ne font guère l'objet d'une direction centrale, mais où les syndicats suivent une stratégie de négociation « qualitative », qui n'est pas exclusivement axée sur les salaires et les conditions de travail. Les accords traitent souvent de la détermination conjointe des besoins de formation d'une entreprise ou d'un secteur, de l'élaboration de plans de formation, de la reconnaissance et de la certification des apprentissages et du droit à un congé formation. Il faut souligner que les accords sur la formation continue sont souvent liés à d'autres domaines de négociation touchant notamment aux horaires, aux changements d'organisation du travail, ou à la gestion des ressources humaines.
- *La participation des comités d'entreprise ou d'autres organismes impliquant les salariés.* Dans beaucoup de pays, ces organismes ont le droit d'influer sur les plans et les stratégies de formation des entreprises.

6. Cette note donne des informations et des exemples de bonnes pratiques, mais ne propose pas de système « optimal » de dispositifs institutionnels ou financiers pour promouvoir la formation continue. Les données disponibles ne permettent pas de prouver une relation entre l'importance et le type de participation des partenaires sociaux d'un côté et l'incidence et la répartition de la formation continue de l'autre. Il pourrait être utile d'aborder ce type de relations dans de futurs travaux.

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## INTRODUCTION

7. One of the main findings of the OECD Growth Project is that human capital is a key engine of economic growth (OECD, 2001). However, most analyses of this relationship centre on the growth effects of *initial* education, while little attention has been devoted to the possible contribution of adult learning as an additional source of human capital (and growth). In theory, adult learning may play a positive role through the impact on workers' skills and productivity. This may be especially useful in periods of rapid technological change (Arnal *et al.*, 2001). Moreover, it is often argued that adult learning enhances employability and workers' ability to cope with job loss. In other words, investment in the human capital of workers may help mobilise labour resources, thereby supporting the growth process indirectly.

8. The purpose of this report is twofold. Part I attempts to assess the possible impact of training on workers' productivity and employability. The study takes advantage of new databases (outlined in Annex 1) and builds upon previous research presented in the 1999 edition of the OECD *Employment Outlook*. Its focus is on "continuous education and training" (hereafter referred to as CET), *i.e.* general or job-specific learning for adult workers. In other words, it covers learning activities which take place *after* initial education and are related to employment.

9. Part II of the paper addresses some policy implications of the analysis, with particular emphasis on the role of collective bargaining and joint determination of continuous training matters between employers and workers and their representatives. It discusses how labour-management arrangements can be of help in overcoming problems of under-investment in CET and existing inequalities in access to it, and outlines the variety of approaches taken in OECD Member countries.

*PART I.***ANALYTICAL EVIDENCE ON THE IMPACT OF CET**

10. Part I is structured as follows. It first presents stylised facts about CET in OECD countries and its relation with workers' literacy. It then examines the extent to which training is associated with a range of performance indicators, such as employability, labour mobility and wages.

**A. Some stylised facts on CET**

11. Owing to methodological problems, it is difficult to measure CET and compare available data across countries (Box 1). Although all the difficulties are not yet resolved, "harmonised" surveys have been made available recently, and it is now possible to make limited international comparisons. As shown in Table 1, on average, between 28% and 41% of adult workers (depending on the survey) are engaged annually in some form of training in OECD countries. The majority of participants in CET go on training for job-related purposes.

Table 1. Participation rate of adult workers in CET

survey	IALS <sup>a</sup> (1994-1998)	ELFS <sup>a</sup> (2000)	ECHP <sup>a</sup> (1998)	ESWC <sup>b</sup> (2000)	CVTS <sup>b</sup> (1999)	National sources <sup>c</sup>
reference period	1 year	4 weeks	1 year	1 year	1 year	1 year
Australia	41.4	..	..	..	..	43.0
Austria	..	..	28.1	29.5	31.0	..
Belgium <sup>d</sup>	26.0	8.3	28.3	26.7	41.0	..
Canada	40.6	..	..	..	..	22.0
Czech Republic	32.7	..	..	..	42.0	..
Denmark	60.1	20.7	60.8	48.3	53.0	..
Finland	64.8	21.9	50.8	53.7	50.0	37.0
France <sup>e</sup>	..	2.5	10.6	23.3	46.0	29.1
Germany	..	4.7	30.8	30.1	32.0	30.0
Greece	..	0.7	7.1	11.3	15.0	..
Hungary	25.5	3.4	..	..	12.0	..
Iceland	..	22.8	..	..	..	..
Ireland	26.2	..	20.0	30.4	41.0	..
Italy	28.4	4.8	11.9	20.0	10.0	..
Korea	..	..	..	..	..	13.5
Luxembourg	..	5.2	17.7	27.7	36.0	..
Netherlands	42.9	17.3	10.6	44.5	41.0	..
New Zealand	51.4	..	..	..	..	..
Norway	53.5	14.5	..	..	..	..
Poland	19.0	..	..	..	16.0	..
Portugal	15.7	3.0	7.2	12.1	17.0	..
Spain	..	4.7	22.5	17.8	25.0	..
Sweden	59.2	17.5	64.1	46.0	61.0	45.0
Switzerland	45.3	27.7	..	..	..	32.0
United Kingdom	53.7	22.7	42.2	47.6	49.0	..
United States	48.1	..	..	..	..	35.0
<b>Unweighted mean</b>	<b>40.8</b>	<b>11.9</b>	<b>27.5</b>	<b>31.3</b>	<b>34.3</b>	..
<b>Coefficient of variance</b>	<b>0.37</b>	<b>0.76</b>	<b>0.69</b>	<b>0.44</b>	<b>0.45</b>	..

.. Not available.

a) The data refer to economically active persons aged 25-64.

b) The data refer to employed persons aged 25-64.

c) The survey population varies depending on the survey. The following surveys are used: Survey on Education and Training (1996/97) for Australia, Adult Education and Training Survey (1996) for Canada, Adult Education Survey (1995) for Finland, Enquête Formation Continue 2000 for France, Korean Social Statistics Survey for Korea, Staff Training Survey (1999) for Sweden, Labour Force Survey (1998/99) for Switzerland and National Household Education Survey (1999) for the United States.

d) The IALS data for Belgium only cover Flanders.

e) The ELFS data for France measure only current training activity and are not fully comparable to those reported for the other countries.

*Sample:* Economically active persons aged 25-64 (except when country sources are used).

*Source:* European Union Labour Force Survey; International Adult Literacy Survey; European Community Household Panel; Third European Survey on Working Conditions; Continuing Vocational Training Survey; OECD, Education at a Glance 2001; and various national surveys.

*Significant cross-country differences persist in the incidence of CET*

12. There is substantial cross-country variation in the participation rate in CET. The Nordic countries are systematically high performers while Southern European countries tend to be at the bottom of the rankings.

**Box.1. Definition and measurement of CET of adult workers**

It is notoriously difficult to measure the incidence of CET. Some difficulties are related to how the concept is defined, whereas others are basically measurement problems. The result is that different surveys may give different estimates of the incidence of CET. Some of the main reasons for the observed differences in CET incidence across surveys are: (i) different reference periods (e.g. 4 weeks versus 1 year); (ii) heterogeneity of curricula; (iii) definition of “adult workers”; (iv) distinction between “general” and “vocational” training; and (v) distinction between “initial” and “continuous” training.

Table 1 gives estimates of the incidence of CET based on five surveys: the European Labour Force Survey (ELFS); the European Community Household Panel (ECHP); the European Working Conditions Survey (EWCS); the International Adult Literacy Survey (IALS); and the Continuous Vocational Training Survey (CVTS). The incidence of training varies considerably between these surveys. Typically, respondents are asked whether they participated in CET courses during a given “reference period” prior to the survey. The reference period is 4 weeks prior to the survey for the ELFS, and 12 months for the other surveys. As the ELFS uses a reference period of 4 weeks only, the participation rate based on this survey is relatively low. The ECHP and the IALS give somewhat different results, possibly due to the formulation of survey questions. The IALS uses a very broad definition of education and training, including “any training and education courses, private lessons, correspondence courses, workshops, on-the-job training, arts, crafts, recreation courses or any other training or education”. On the contrary, the ECHP focuses on educational activities taking the form of courses. The EWCS and the CVTS only include employer-sponsored training (which may explain the lower estimates of CET compared with IALS). See Annex 1 for more details on the data sources.<sup>1</sup>

Despite these differences, the ranking of countries is similar across surveys.

*Low-educated and older workers receive relatively little training*

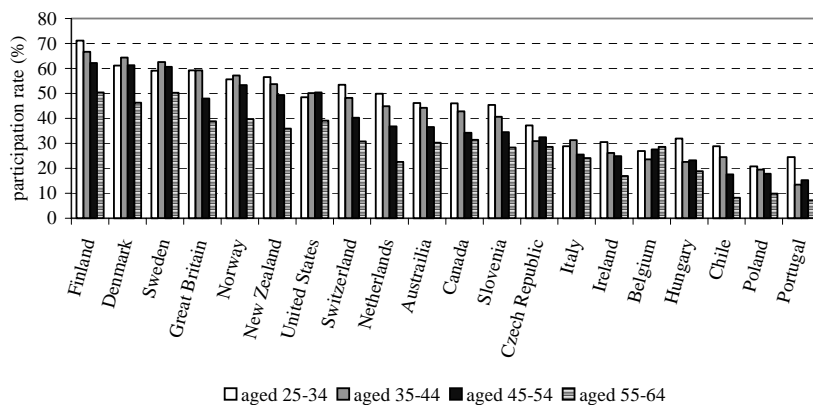
13. The incidence of training varies considerably depending on individual characteristics such as age, level of educational attainment, type of work contract, and size of the firm where the worker is employed – see Chart 1.<sup>2</sup> For example, a 30 year-old worker with a university degree who is working as an engineer in a large company has a much higher probability of enrolling in courses than his 55 year-old counterpart who is working as a machine operator in a small firm. In general, in most of the countries included in the IALS survey, except Belgium (Flanders), older workers are less likely to participate in CET than their younger counterparts (Chart 1, Panel A). When the level of education and occupation are taken into consideration, the access gap is systematic: better-educated workers in high-skilled occupations (such as managers, professionals and technicians) enjoy greater training opportunities than less-educated manual workers (Chart 1, Panels B and C).

- 
1. Annex Table A2 reports average hours annually spent in CET by workers. Obviously, they are closely correlated with the participation rate when the average hours are calculated for both participants and non-participants. However, when only participants are taken into consideration, the average hours spent in CET have no clear link with the participation rate. Although unemployed people have lower participation rates, they take courses of a longer duration. Indeed, training programmes for the unemployed are in general more intensive than is the case for employed workers.
  2. Chart 1 is based on the IALS. Even though the results are not reported here, the same patterns are found for the other surveys shown in Table 1.

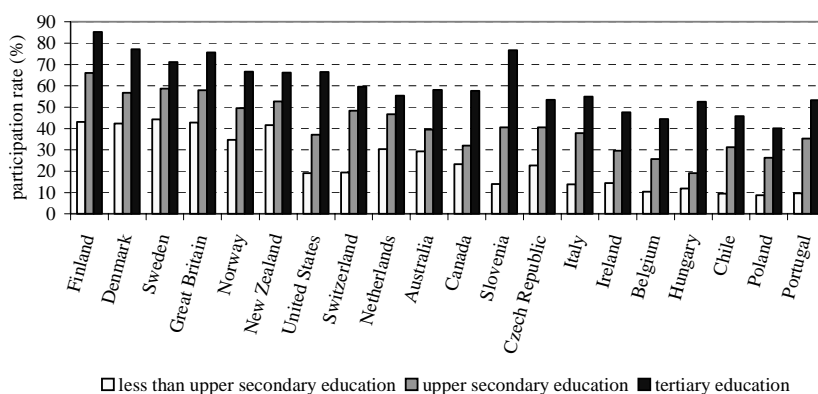
### Chart 1. Inequalities in access to CET

(IALS 1994-98)

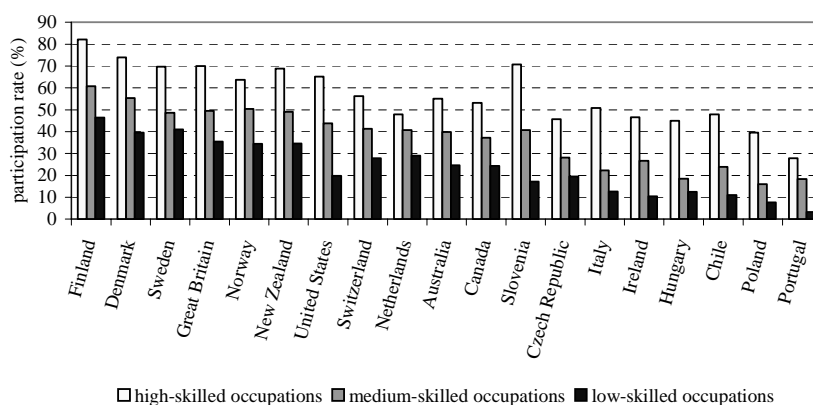
Panel A. Participation in CET by age



Panel B. Participation in CET by education



Panel C. Participation in CET by occupation



Note: Countries are ranked from left to right in a decreasing order of the aggregate participation rate in CET.  
 Source: Secretariat calculations based on the International Adult Literacy Survey.

14. There are several possible explanations for these different participation rates. One reason is that rates of return on CET investments may differ across groups. For instance, employers may be reluctant to

invest in the human capital of older workers because of the short time period remaining to amortise the costs of such training. Similarly, older workers themselves might be reluctant to enrol in training, if the return in terms of future job opportunities is perceived as low.

*Participation in CET has risen slightly, but inequalities persist*

15. National surveys suggest that the incidence of CET is on the rise in the majority of OECD countries.<sup>3</sup> In France, according to Goux and Zamora (2001), the training participation rate increased from 18.7% during the period January 1992 – April 1993 to over 29% during the period January 1999 – February 2000. In Finland, the participation rate of the adult population aged 18 to 64 rose from 32% in 1980 to 48% in 1995 and 54% in 2000.<sup>4</sup> According to the UK Labour Force Survey, the participation rate of employees in job-related education during the 4 weeks prior to the survey rose from 10.5% in 1985 to 13.2% in 1995 and 16.5% in 2000. In Denmark, the full-time equivalent number of students who participated in public sector adult education rose from 88 000 in 1993 to over 130 000 in 1998, an annual increase of about 8% (Danish Ministry of Education, 2000). In the United States, according to results from the National Household Education Survey, 48% of adults participated in some form of adult learning in 1999, compared with 44% in 1995 and 38% in 1991 (National Center for Education Statistics, 2001).<sup>5</sup> In Canada, though the participation rate is not rising, adult learning courses last longer hours (Statistics Canada and Human Resources Development Canada, 2001).<sup>6</sup> According to the *Surveys of Education and Training Experience*, in Australia, the participation rate in 1997 was almost 48%, compared with 39 and 36%, respectively, in 1989 and 1993 (Long, 2001).<sup>7</sup>

16. However, despite the increasing participation in training of adult workers over the past decade, its distribution among different categories of workers has not changed much.

*CET is associated with a higher level of literacy...*

17. On the basis of the IALS survey, a positive correlation is found between participation in CET and adult workers' literacy: on average, participants in CET are more literate than non-participants (Chart 2).

---

3. International surveys (such as the ELFS) include data for several years, but, due to changes in the definitions, comparisons through time cannot be made. This is why time trends can only be examined using national surveys.

4. Statistics Finland ([www.stat.fi](http://www.stat.fi)), *Adult Education Survey 2000*.

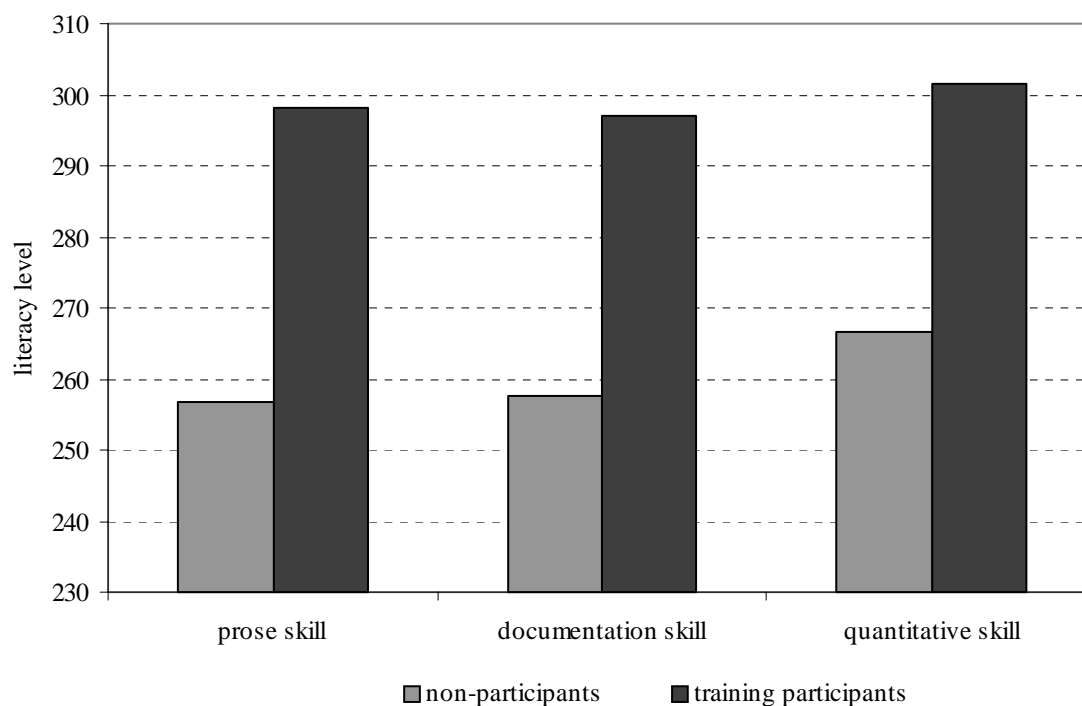
5. The survey refers to individuals over age 18 who were not enrolled in elementary or secondary schooling.

6. The mean annual number of hours of adult education per capita was 58 hours in 1997, compared with 43 in 1991.

7. In the case of Australia, the participation rate in CET refers to the share of persons among all wage earners who participated in any *structured* training or education courses.

Chart 2. **CET is associated with a higher level of literacy**

Average level of literacy among participants and non-participants in training



Sample: Economically active persons of ages 25-64.

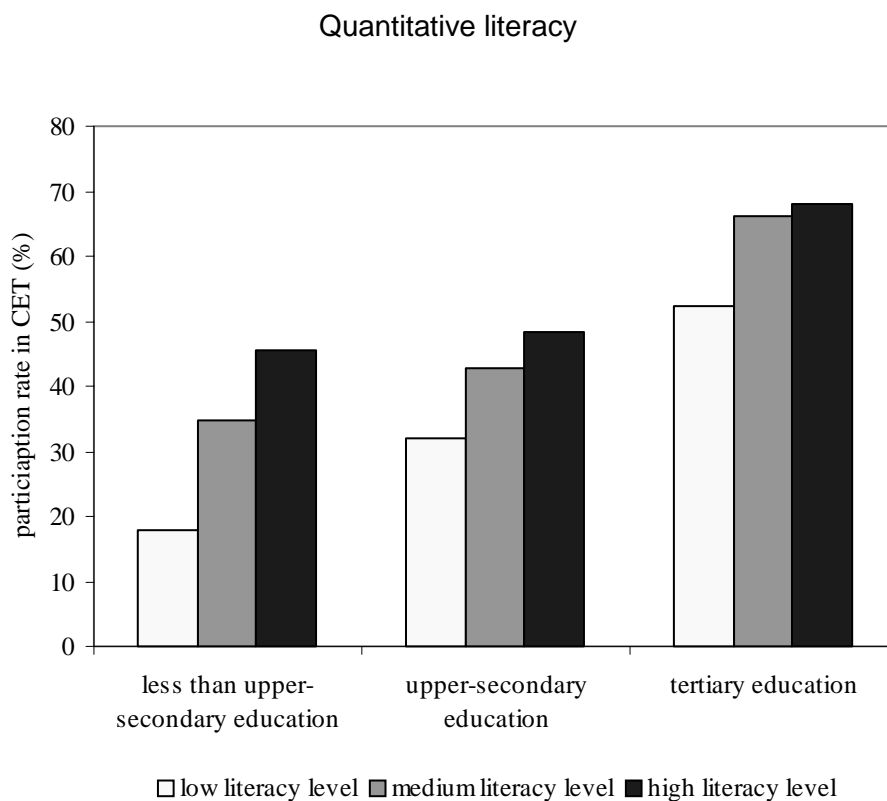
Source: Secretariat calculations based on the International Adult Literacy Survey.

18. Correlation does not mean causation, however. Indeed, the observed correlation may reflect a third factor that is, in turn, correlated with both variables under consideration. As noted above, workers with high levels of formal education are more likely to receive further vocational training than low-educated workers. In this case, the correlation shown in Chart 2 could just reflect the role of formal education. More generally, training is basically an investment concept, while literacy represents the *stock* of knowledge which has been acquired by a worker. As a result, a reverse causality (*i.e.* running from literacy to training participation) is quite plausible. This means that workers who have already acquired a high level of literacy are more likely to participate in CET.

19. However, it is interesting to note that, even *within* educational groups, there is still an association between participation in CET and literacy (Chart 3).<sup>8</sup> Interestingly, the association between literacy and CET is especially strong for low-educated workers. This finding may imply that low-educated workers have to demonstrate a much higher literacy capability relative to their highly-educated counterparts in order to get access to training.

8. This result refers to quantitative literacy. However, the same pattern is observed for the two other measures of literacy.

Chart 3. Participation in CET by literacy level and educational attainment



Note: Literacy scores 0-275 are classified as "low literacy level"; 276-325 as "medium literacy level"; and 326-500 as "high literacy level".

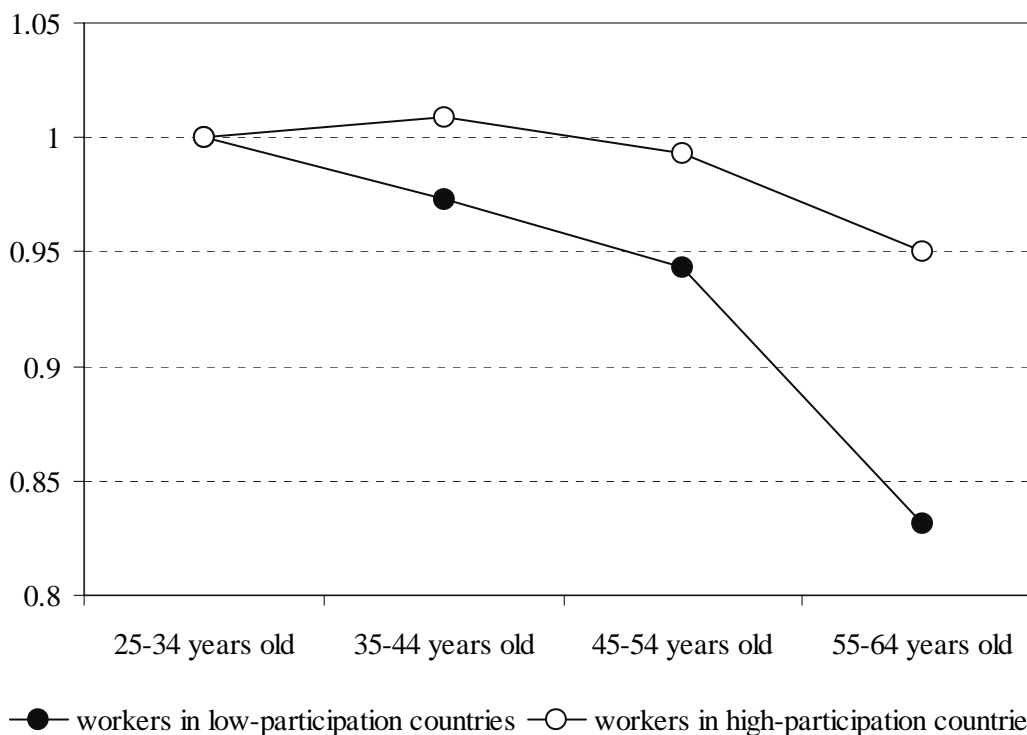
Sample: Economically active persons of ages 25-64.

Source: Secretariat calculations from the International Adult Literacy Survey.

*...and also with a slower erosion of literacy with age*

20. There is also an interesting (negative) association between training and literacy obsolescence. The average level of adult literacy declines sharply with age in countries where the participation rate in adult education is weak, whereas literacy falls only marginally with age in the countries where the training participation rate is high (Chart 4). This means that CET may help reduce the erosion of skills with age.<sup>9</sup> However, in order to examine whether CET helps improve labour market performance, it is necessary to go beyond these simple correlations. The next section, therefore, analyses the links between participation in CET, employment and earnings.

9. It should be noted that, although some associations are established here, it is not possible to conclude that training improves literacy. Such a causality would depend on added assumptions (which cannot be verified in practice). For instance, this type of causality can be established only by assuming a sufficiently long period, where workers in high-participation countries have had a higher opportunity to be trained than those in low-participation countries. This is because the literacy levels of older workers are determined not only by the training that occurred in the current year, but also by all the training undergone during their working lives. This implies at least that the ranking of participation rates across countries have to be assumed constant over time.

Chart 4. **CET is associated with a slower erosion of skills with age<sup>a</sup>**Average level of literacy<sup>b</sup> by age group, literacy scores of ages 25-34 = 1

a) Countries are sorted into two groups according to the participation rate in CET for economically active persons of ages 25-64. Each group contains 10 countries. The high-participation countries are Australia, Denmark, Finland, the Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom and the United States. The low-participation countries are Belgium (Flanders), Canada, Chile, Czech Republic, Hungary, Ireland, Italy, Poland, Portugal and Slovenia.

b) Average over the three literacy scales in the IALS and over the countries belonging to each group.

Source: Secretariat calculations based on the International Adult Literacy Survey.

## B. CET and labour market performance

21. Although there is no consensus in the literature on the impact of schooling on productivity growth, recent work suggests the existence of a robust relationship (Bassanini and Scarpetta, 2000; Cohen and Soto, 2001; OECD, 2001). There are good reasons why lifelong learning should complement formal education, especially when skills erode with age. This section starts with a review of recent studies which do indeed find a positive link between CET and workers' economic performance. It then provides empirical evidence that CET improves workers' performance in terms of employment and earnings. However, the results should be interpreted with caution, given the presence of endogeneity problems related to "unobserved" worker characteristics (which this study tries to address); the presence of such problems may cause difficulties in drawing any definitive causality links (see Box 2).

**Box 2. Selection bias in the estimation of the impact of training on wages**

The traditional ordinary least squares (OLS) estimates lead to an overestimation of the real impact of training on wages. This problem is often treated under the term of “selection bias” in the econometric literature. The bias arises principally from the fact that some individual characteristics are correlated with both training choice and earnings. In this case, the observed wage differential between trained and non-trained workers may be due to the fact that the workers in each of the groups may have different individual characteristics (e.g. age, level of education), rather than to the impact of training. An appropriate estimate would have to be based on the difference between a trained worker’s actual wage and a counterfactual wage that the same worker would have earned if *she/he* had not participated in training. However, it is impossible to observe this counterfactual wage rate empirically.

The problem becomes particularly difficult to resolve when these characteristics are *not* empirically observable, e.g. in the case of motivation or innate ability. For example, suppose that there are two workers with different degrees of motivation. The highly motivated worker is more likely to make an effort to develop competencies on the job and improve performance, compared with his/her weakly motivated counterpart. A steeper earnings growth would be a natural consequence of these efforts. The problem is that this highly-motivated worker is also more likely to enrol in training. In this case, as the motivation of workers cannot be empirically measured, it is difficult to separate out the wage gains due to training from those arising from the worker’s individual characteristics and efforts. This report tries to address this problem by help of Heckman’s 2-stage estimates, although these latter estimates have their own limits.

**1. Review of recent studies**

22. Most of the existing studies focus on the impact of CET on earnings (Table 2). Some studies also try to examine the impact on employers’ evaluations of workers’ performance (as a proxy for workers’ productivity). When firm-level data are used, the returns to training are measured by firm productivity and profitability. One of the few analyses of the aggregate effects of CET can be found in Dearden *et al.* (2000) (for UK manufacturing industries).

**Table 2. Selected studies on the impact of continuous education and training on wages and productivity**

Authors and countries under study	Main results
Loundes (1999) <i>Australia</i>	– According to employers, training is positively associated with productivity levels and growth.
Fougère <i>et al.</i> (2001) <i>France</i>	– CET has a positive but insignificant correlation with inter-firm mobility. – CET is positively and significantly correlated with wage levels only when trainees change job.
Goux and Maurin (2000) <i>France</i>	– Firm-provided training is negatively but insignificantly correlated with post-training inter-firm mobility. – The positive correlation between firm-provided training and wage levels is significant when the “selection bias” is not controlled, but turns insignificant when controlling for such selection bias.
Hocquet (1998) <i>France and UK</i>	– Employer-provided training raises the wage of participants.
Acemoglu and Pischke (1996) <i>Germany</i>	– Other things equal, apprentices who stay at the firm where they receive training earn more than apprentices who leave the firm.
Pischke (2000) <i>Germany</i>	– Training undertaken outside working hours raises participants' wages more than is the case of training during work hours.
Barrett and O'Connell (1999) <i>Ireland</i>	– Productivity growth in firms providing training to their workers is higher than in other firms. – General training is more effective in raising firm-productivity than firm-specific training.
De Kok (2000) <i>Netherlands</i>	– The volume of hours of firm training is positively correlated with firm value-added. – The value-added impact of training depends on the time spent by firms to prepare, conduct and evaluate training programmes.
Groot (1999) <i>Netherlands</i>	– According to employers, the duration of training is positively associated with labour productivity growth.
Alba-Ramirez (1994) <i>Spain</i>	– The share of senior employees who receive formal training is positively associated with sales per employee, value-added per employee and average wages. The share of junior employees who receive formal training is weakly correlated with these variables.
Blundell, Dearden and Meghir (1999) <i>United Kingdom</i>	– Employer-provided training is positively and significantly associated with wage levels, whereas training not provided by employers has an insignificant wage effect. – Training provided by the current employer has a positive impact on the wage level, whereas training provided by the previous employer has no impact on current wages. – Often, wage increases arising from training occur via promotions.

Authors and countries under study	Main results
Booth <i>et al.</i> (1999) <i>United Kingdom</i>	-- Trained workers enjoy higher wage levels and faster wage increases than non-participants. The return to training is particularly high for unionised workers.
Cosh, Hughes and Weeks (2000) <i>United Kingdom</i>	-- Firms providing training create more jobs than other firms. --The positive employment effect is especially large in the case of firms which provide training opportunities on a continuous basis. -- Training is associated with the adoption of new work practices.
Dearden, Reed and Van Reenen (2000) <i>United Kingdom</i>	-- Productivity levels in training-intensive sectors are higher than in other sectors. --Off-the-job training appears to have a greater impact on productivity than on-the-job training. Neither the type of provider of training nor the duration of programmes have a significant impact on productivity. -- Both the participating workers and the firms gain from training (as shown by the fact that training raises wages of participants, but to a lesser extent than is the case for sectoral productivity).
Green, Ashton and Felstead (2001) <i>United Kingdom</i>	-- The volume of training hours is positively associated with workers' skills. --On-the-job training is more efficient than off-the-job training in raising teamworking skills. The opposite holds true in the case of other skills.
Barron <i>et al.</i> (1999) <i>United States</i>	-- Newly employed workers who are involved in on-the-job training tend to receive lower starting wages than workers who require less training. -- On-the-job training has a positive impact on wage growth of newly hired workers as well as the improvement of their performance evaluated by employers. -- The impact of on-the-job training on productivity growth is much stronger than its impact on wage growth.
Black and Lynch (1996) <i>United States</i>	-- The number of trained workers is weakly correlated with sales per worker. --But formal training conducted outside working hours shows a positive and significant correlation with sales per worker.
Krueger and Rouse (1998) <i>United States</i>	--Firm-level study on one manufacturing firm and one service firm. --Training participation is positively correlated with wage levels (after controlling workers' individual fixed effect) in manufacturing firm, but not in service firm. --Trainees are as likely to exit the company as non-trainees. --Training has a positive association with the incidence of job bids, upgrades, performance awards, and job attendance.
Loewenstein and Spletzer (1994) <i>United States</i>	-- Participation in (both formal and informal) training is positively and significantly associated with wage growth for the workers who did not change job. -- However, the correlation between training participation and wage growth is not statistically significant for workers who changed jobs.
OECD (1999) <i>7 OECD countries</i>	-- Workers who have undergone further training, have a higher level of hourly wages than other workers in Australia, Canada, Germany, Italy and Great Britain, whereas the wage differential is insignificant in the case of France and the Netherlands.

23. Not surprisingly, many studies find a positive impact of CET on the various economic outcomes that are taken into consideration in the analysis. A further issue concerns the types of CET that may have the strongest impact. For example, according to Barrett and O'Connell (1999), the education courses that deliver general knowledge have a stronger impact on firm productivity than firm-specific training. Similarly, the training programme of a company is particularly efficient when the programme is available on a continuous basis (Cosh *et al.*, 2000). Some studies also show that off-the-job training has a stronger impact in enhancing workers' wages, productivity and skills than is the case with on-the-job training (Dearden *et al.*, 2000; Green *et al.*, 2001; Pischke, 2000). There may be two reasons for this latter finding: i) formal on-the-job training partially substitutes for informal on-the-job training that is not recorded in the statistics but has an independent impact on productivity and wages; and ii) workers bear part of the cost of off-the-job training by giving up leisure time.

24. Another interesting issue concerns the wage pattern of those who quit their job after training. Several studies have shown that the workers who stay at the firm where they receive training tend to earn higher wages than those who quit the firm (Acemoglu and Pischke, 1996; Blundell *et al.* 1999; Hocquet, 2000, Loewenstein and Spletzer, 1994). This result is often used as evidence for either the firm-specific nature of training or the fact that asymmetric information, adverse selection and other labour market frictions give the firm a monopsony power to select, train and retain their best workers.

25. However, although there seems to be an increasing consensus on the existence of a positive impact of CET on workers' earnings and employability, it is not possible to draw any firm conclusions yet. First of all, there are few comprehensive international comparisons. Second, some of the studies point to some negative effects of CET on job mobility; this could co-exist with favourable impacts on individual performance, so that the net effect of CET could be ambiguous. Finally, none of these studies are completely free from the famous "selection problem" (see Box 2).<sup>10</sup>

## 2. *CET and employability, mobility and earnings*

26. This section tries to address some of the aforementioned "selection problems" with the help of the ECHP survey.<sup>11</sup> It is shown that CET may help workers a) stay in employment and improve their re-employment chances in case of job loss; and b) enhance their job mobility within the firm. By contrast, there is no clear evidence that training has much effect on the mobility of workers between firms. Finally, participants in CET tend to enjoy a higher rate of wage growth than the case of non-trained workers.

*CET is associated with a higher ability to stay in employment...*

27. As Chart 5 shows, in all the countries included in the survey, the job-loss rate of "strongly trained" workers is lower than is the case for their "weakly trained" counterparts. This empirical regularity, however, should be interpreted with caution: the risk of job-loss may be associated with key individual characteristics (such as age, gender and level of education) which may influence also the probability of being trained. In order to estimate whether the probability of job loss is truly influenced by training, it is therefore essential to control for these individual characteristics. This is done in Annex Table A.3. The main result is shown in Table 3. It emerges that, controlling for individual characteristics, among workers who receive training in any given year, the probability of being unemployed 3 years later is about 4%. This is 3.5 percentage points less than the probability of workers with comparable individual characteristics who did not receive training.<sup>12</sup>

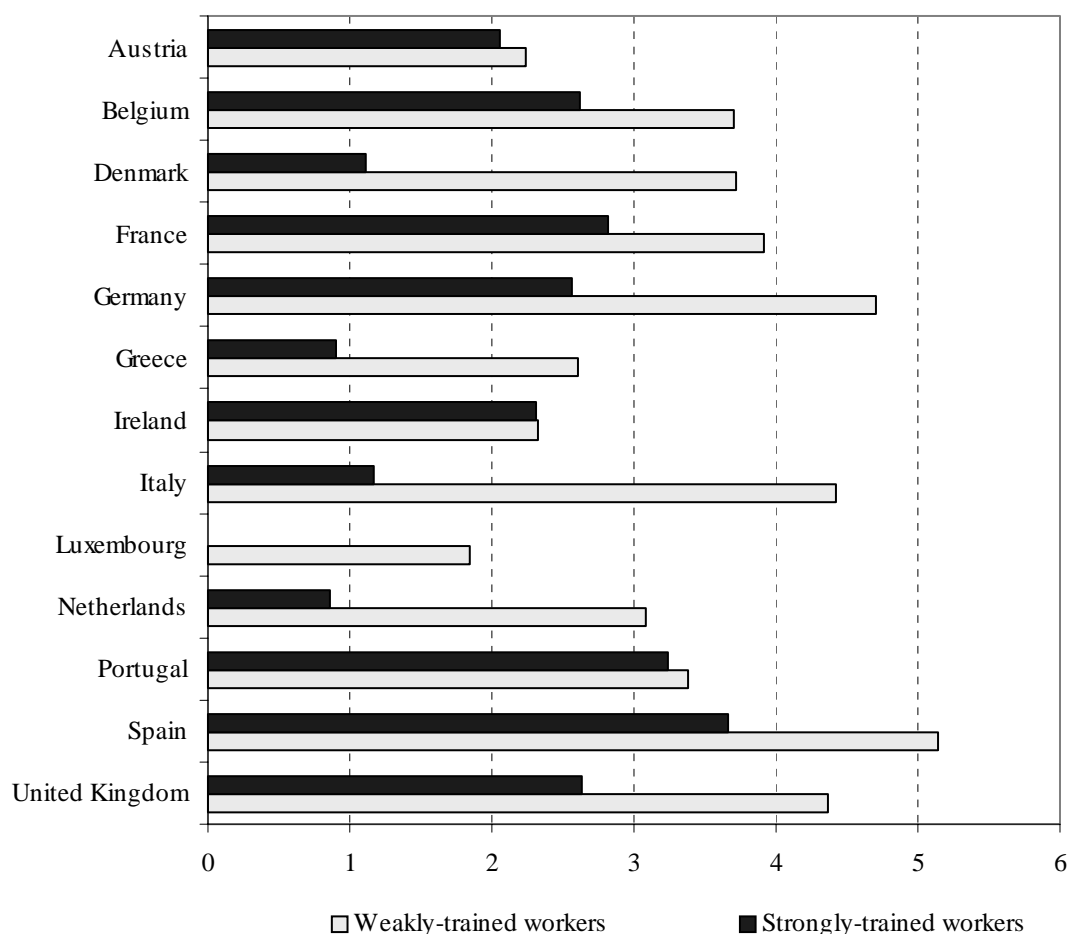
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10. Some studies try to tackle this problem by using 2-stage regression analyses with a selection equation. The problem with the method is that it is very difficult to find instrumental variables that are correlated with the incidence of training without at the same time being correlated with wages. Moreover, regression results are very sensitive to the specification of the selection equation. Other studies look at post-training wages. But this can also be problematic: if the "unobserved heterogeneity" affects not only the level of wages but also its growth rate, comparing post-training wages with pre-training wages does not solve the problem.

11. The ECHP is a longitudinal survey which follows individual performance over time.

12. See Annex Table A3 for the estimations underlying Table 3. Over and above CET, several worker/job characteristics are strongly correlated with the probability of job loss. In particular, workers who have already experienced unemployment before taking up the job reported for the base year, seem to be more vulnerable to job loss. To see whether CET has a stronger impact for these workers in enhancing employability than is the case of other workers, an interaction term between unemployment experience and training participation was also added to the equation. The coefficient, however, was insignificant. Owing to space constraints, the estimation result with this interaction term is not reported here.

Chart 5. Job-loss rate<sup>a</sup> according to participation in CET,<sup>b</sup> %  
ECHP, 1994-98<sup>c</sup>



- a) The job-loss rate is calculated as the ratio of workers who are unemployed in the final survey year to those who were employed in the initial year.
- b) Workers who were economically active over the entire period under consideration are classified according to their years of participation in CET. "Strongly-trained workers" are those who participated in CET at least 2 years during the survey period, whereas "weakly-trained workers" are defined as those who participated less than 2 years.
- c) 1994-96 for Germany, Luxembourg and United Kingdom; 1995-98 for Austria and the Netherlands.
- Source: Secretariat calculations based on European Community Household Panel.

Table 3. CET improves workers' employability

	Among workers who did not receive CET during the year prior to t	Among workers who received CET during the year prior to t
Probability of being unemployed in year $t+3$ *	7.4	3.9
Lay-off rate in year $t+3$	4.0	3.4
Re-employment rate in year $t+3$ *	30.6	45.7

\* The difference between participants and non-participants is statistically significant at the 1% level in the regression.

Note: These probabilities are based on probit estimates that take into account other factors that may influence changes of employment status of workers (see Annex 2 for details on the calculation). The figures represent an average for the following countries: Austria, Belgium, Denmark, France, Greece, Ireland, Italy, the Netherlands, Portugal, and Spain. t (base year) is 1995 for Austria and the Netherlands and 1994 for the other countries.

Sample: The probability of being unemployed is calculated among workers aged 25-64 who were always economically active over the period and were employed in year t. For the calculation of the lay-off rate, workers who had quit their initial job with an immediate alternative job available are excluded from the sample used for the probability of being unemployed. Only those workers who left their initial job without any alternative job are included in the estimation of the re-employment rate.

Source: Secretariat estimates based on the European Community Household Panel.

*and better re-employment chances in case of lay-off*

28. The higher capability of trained workers in maintaining employment might be decomposed into two factors. On the one hand, participants in CET may be less likely to be laid off from their initial job. On the other hand, once laid off, they may be more likely to be re-employed after a relatively short unemployment period. For the purpose of distinguishing these two factors, workers who were employed in the beginning year can be classified in four categories: (i) those who have never quit their initial job; (ii) those who changed voluntarily their job; (iii) those who were laid off but re-employed afterwards; and (iv) those who were laid off and are still unemployed at the final year. It can be assumed that the first two categories of workers enjoy better employability than the other two categories of workers.

29. Available data do not allow one to distinguish exactly a “voluntary quit” [case (ii)] from an involuntary lay-off [cases (iii) and (iv)]. However, it is at least possible to sort out the most striking cases of involuntary quits – the case when a worker changed jobs with some intervening unemployment spell or when a worker became unemployed. Similarly, one may assume that most of the workers who changed jobs without any intervening unemployment spell quit voluntarily.

30. Based on this assumption, it is possible to estimate the probability of being laid off for employed workers and the probability of re-employment for those who were once laid off (Table 3). These estimated probabilities take into account individual characteristics. It emerges that participants in CET have a lower probability of being laid off than non-participants. However, from a statistical point of view, this difference is not significant (see also Annex Table A3). In addition, among laid-off workers, the participants in CET tend to have higher chances for re-employment, and the difference is statistically significant. This finding clearly indicates that the positive correlation between CET and workers' employability comes mainly from the re-employment effect of laid-off workers, and not from the fact that employers train workers they want to keep.

*There is only weak evidence of a negative relationship between CET and inter-firm mobility*

31. Contrary to the widespread idea that firm training is negatively correlated with inter-firm mobility, there is no evidence that trained workers are more likely to stay in the firm than their non-trained counterparts (see Annex Table A4).<sup>13</sup> In other words, skills which are acquired through CET may not be as firm-specific as is often assumed in the literature. This result has important policy implications. In particular, this evidence may lend support to concerns regarding the “poaching” problem, according to which firms may underinvest in training for fear of losing their trained workers to other firms.

*CET is also associated with a higher degree of intra-firm job mobility*

32. Intra-firm (or “internal”) mobility captures the ability of a firm to respond to market changes without relying on the external labour market. For instance, the firm may shift jobs internally, or re-organise work. There is some evidence that CET supports internal labour mobility: according to results from the ESWC, in all EU countries with the exception of Sweden, participants in CET are over-represented in job rotation schemes (a specific dimension of internal labour mobility).<sup>14</sup>

*CET translates into higher earnings...*

33. Existing studies establish a relatively robust correlation at the micro-level between training on the one hand and higher wages and productivity on the other (see Table 2). Increases in wages can be assumed to be associated with productivity gains. However, causality links cannot be drawn from these studies. Besides reverse-causality issues, wage differentials may be related not only to “observable” variables (*e.g.* educational attainment) but also to some “unobservable” individual characteristics (*e.g.* cognitive skills or motivation) which, in turn, are correlated with training. Albeit imperfect, one possible way to tackle this problem is to look at changes in wages of workers who have participated in training courses vis-à-vis changes in wages of non-participants. Indeed, wage growth after training is a much better indicator of the private benefits from training than wage levels.<sup>15</sup> The following results emerge from the analysis:

- CET is associated with a higher wage level: according to the ECHP survey, trained workers earn much higher wages than their non-trained counterparts (Chart 6).<sup>16</sup>

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13. The coefficient of the variable “training participation” is negative but insignificant when all kinds of separation from the initial job are taken into consideration. When only the separation with immediate alternative job is taken into consideration, the coefficient becomes positive but is still insignificant.

14. Other studies find that firms implementing job rotation are more likely to train their workers (Arnal *et al.* 2001).

15. If the “unobserved” characteristics are exclusively related to the *level* of wages but not to their growth rate, and if these characteristics are *constant* over time, the use of growth rates would solve the endogeneity problem. See for example, Booth *et al.* (1999). Otherwise, the use of growth rates does not solve the problem.

16. The negative wage premium for trained workers in the Netherlands, shown in Chart 6, is quite unrealistic. An analysis based on the national survey (Socio-Economic Panel, 1994) shows that, in this country, the wage differential is positive, even though it is very small relative to the other countries (OECD, 1999).

- Trained workers enjoy higher wage increases than their non-trained counterparts (Chart 7). Controlling for individual worker characteristics, it appears that workers who participated at least once in CET appear to have a wage increase 2.6 percentage points higher than wage increases of workers who have never participated in CET (Chart 8).<sup>17</sup>
- No significant difference in terms of the impact of CET participation is observed between different educational groups. Accordingly, the impact of training on wages of low-educated workers is at least as high as it is in the case with high-educated workers.<sup>18</sup>

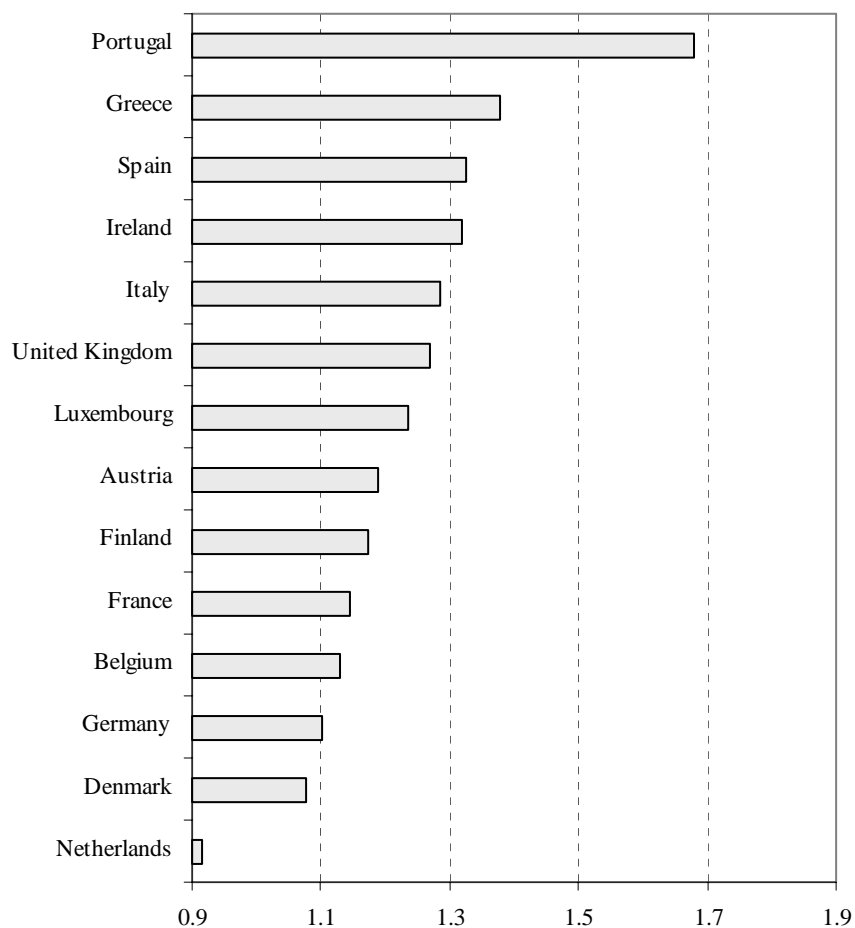
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17. Figures 8 and 9 are based on the estimation results reported in Annex Table A5 and Annex Table A6. For the estimation of wage growth, Heckman's two-stage estimation method is used in order to control for self-selection bias. The result of the probit estimation reported in Annex Table A7 is used as the selection equation for the 2-stage estimation.

18. Similarly, according to the result reported in Annex Table A6, there seems to be no significant difference between vocational training and general training in terms of the impact on wage growth. Even though in two of the three cases wage growth for those workers who have received vocational training at least once is higher than that for those who participated only in general education courses, the difference is not statistically significant. Sample selection problems and/or a larger share of training cost supported by workers when the training is not job-related, might possibly explain this result which, however, would deserve further investigation.

Chart 6. **Wage differential<sup>a</sup> between trained and non-trained workers,<sup>b</sup>**(year = 1998<sup>c</sup>)

Gross hourly wage of non-trained workers = 1



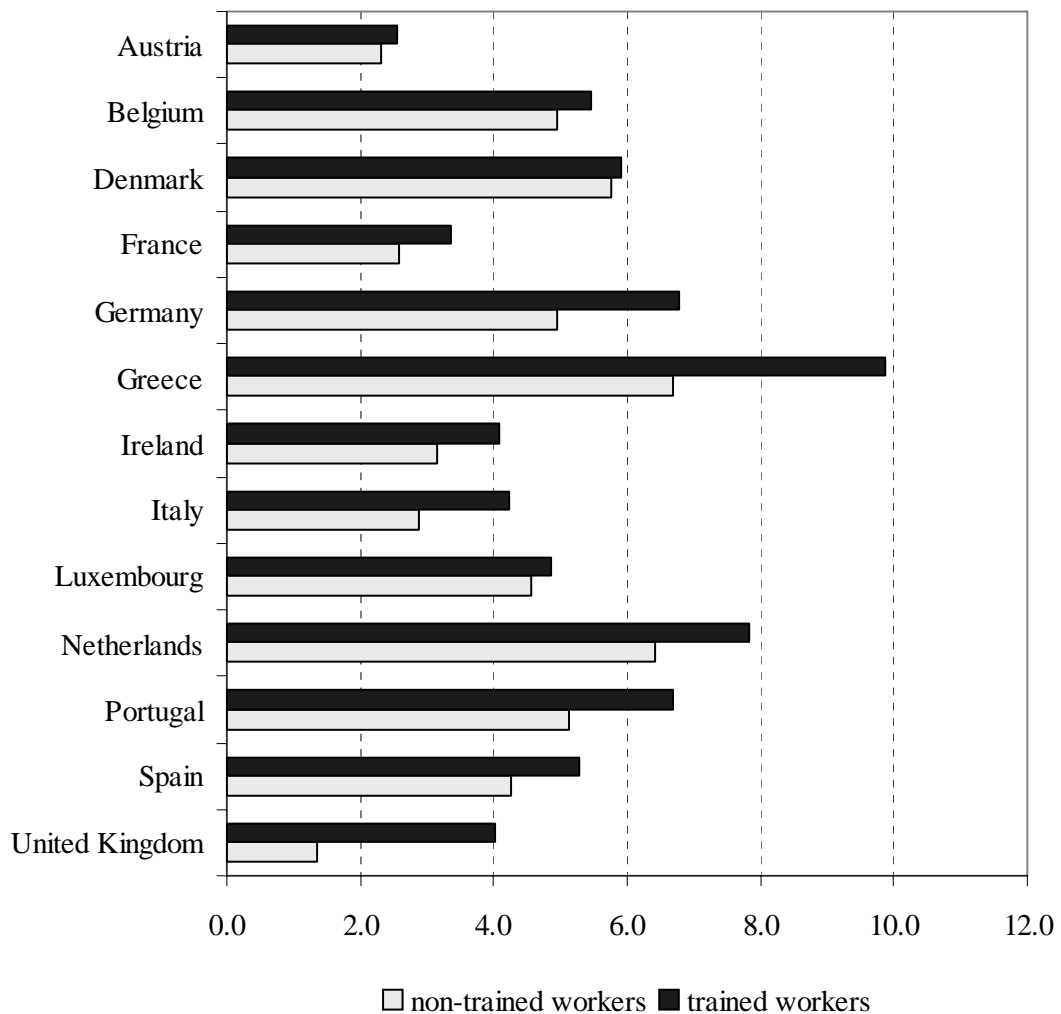
a) The indicator of the wage differential is calculated as the hourly wage of trained workers over that of non-trained workers.

b) Workers aged 25-64 who were always employed over the period under consideration.

c) 1996 for Germany, Luxembourg and United Kingdom; and 1997 for Finland.

Source: Secretariat calculations based on the European Community Household Panel.

Chart 7. Real wage growth among trained and non-trained workers,<sup>a</sup> 1994-98<sup>b</sup>



a) The nominal wage is deflated by the PPP index provided by the ECHP survey. The same results are obtained when the CPI (from Eurostat) is used as a deflator.

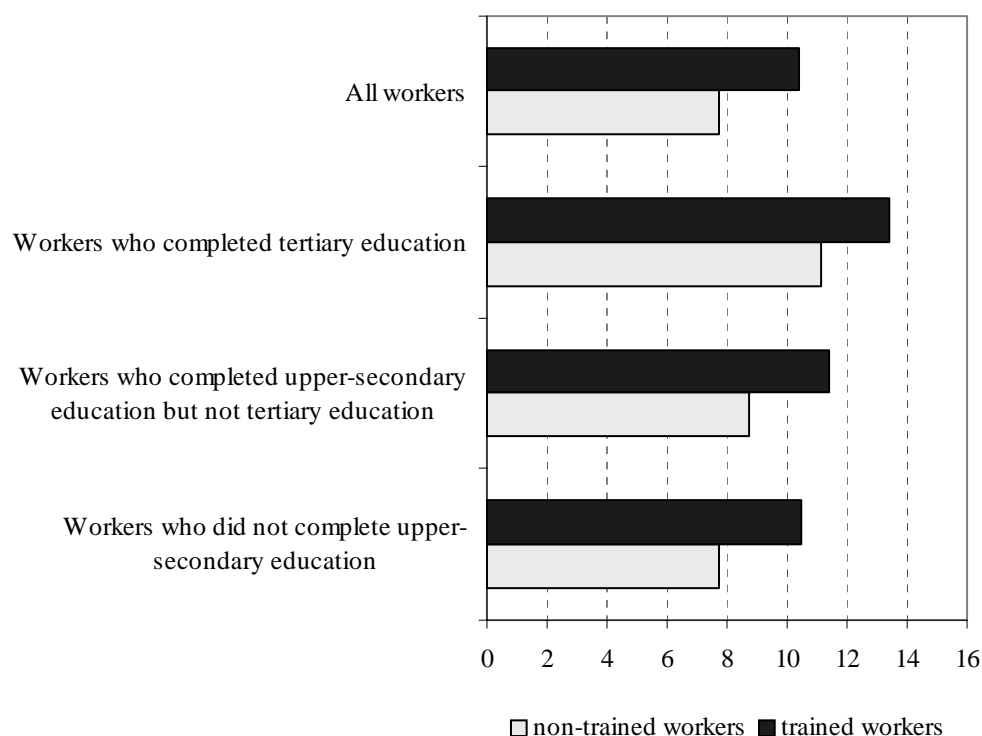
b) 1994-96 for Germany, Luxembourg and the United Kingdom; 1995-98 for Austria and the Netherlands.

Sample: Workers aged 25-64 who were always employed during the period under consideration.

Source: Secretariat estimates based on European Community Household Panel.

Chart 8. Wage gains from CET by educational groups<sup>a</sup>, 1994-98<sup>b</sup>

Annual growth rate of real gross hourly wages (%)



a) The growth rate of real gross hourly wages is estimated based on probit estimates that take into account other factors that influence wage growth (see Annex 2 for details on the calculation). The figures represent an average for the following countries: Austria, Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Portugal, Spain and the United Kingdom. t (base year) is 1995 for Austria and 1994 for the other countries.

b) 1994-96 for Germany, Luxembourg and the United Kingdom; 1995-98 for Austria.

Sources: Secretariat estimates based on the European Community Household Panel.

... and may reduce wage-losses arising from eventual job changes

34. Workers who change jobs often incur a wage loss. This is probably due to the fact that part of their experience becomes less useful with the new employer.<sup>19</sup> Chart 9 indicates, however, that participants who change jobs without any unemployment spell do not suffer any wage loss: their earnings grow as much as participants in CET who stayed in the firm. Taking the case of non-trained workers without job change as a reference, the wage increase for trained workers is significantly higher when they stay with their initial employer or change jobs without any intervening unemployment spell. More interesting is the case of the trained workers who quit their initial job after some unemployment spell. These have a slightly lower wage growth than the workers belonging to the reference case, but this difference is not statistically

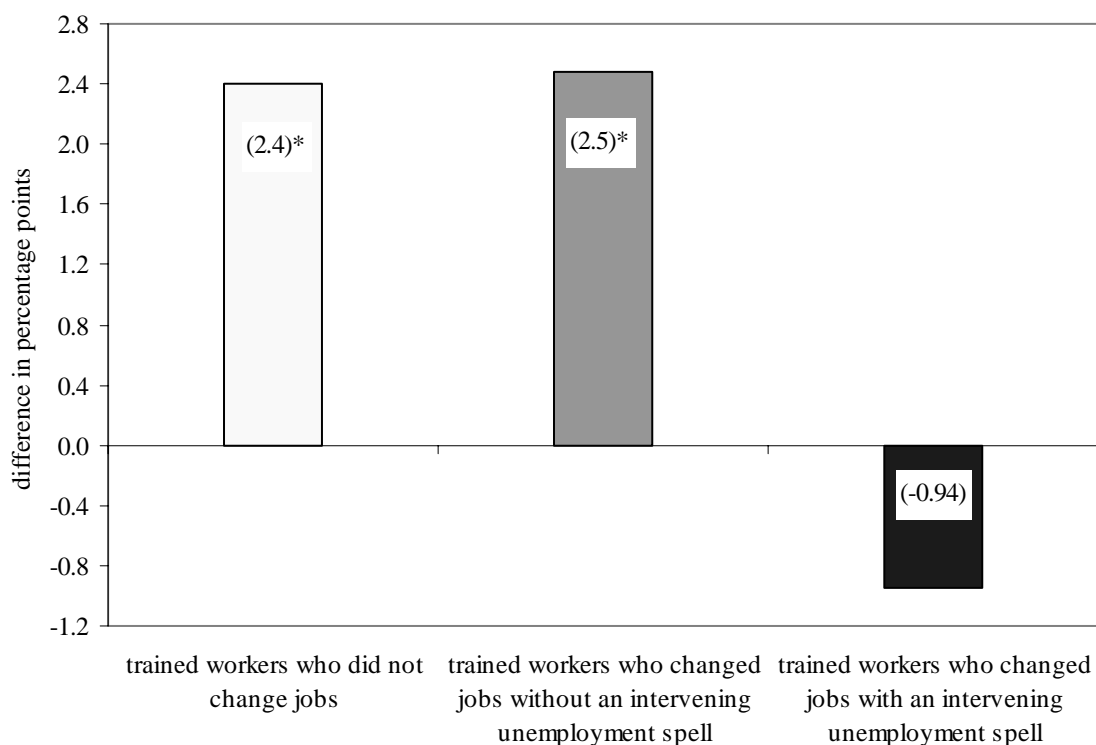
19. See the coefficient for the variable "job change" in Annex Table A5.

significant.<sup>20</sup> This finding suggests that CET may reduce wage loss arising from job changes, so that trained workers may protect themselves against an increasingly flexible labour market environment.

35. While the private benefits of training are evident, the *social* returns to training may be higher than their private returns, due to a certain number of market failures related to training market. In addition, the market alone cannot assure an equal opportunity for all categories of workers. The issue of how policies can address these problems is discussed in the rest of this paper.

**Chart 9. CET and wage penalty from job change<sup>a</sup>**

Wage growth of trained workers relative to non-trained workers with no job change



\* The difference is statistically significant at the 1% level in the regression.

a) See Chart 8, notes a) and b).

Source: Secretariat estimates based on the European Community Household Panel.

20. As noted above, the analyses presented in this section are not completely free from the estimation problems associated with workers' "unobservable" individual characteristics. Based on the estimation underlying Chart 9 (Annex Table A6, column 6), it is possible to make some assessment on this issue. This can be done by assuming that workers' unobservable heterogeneity (such as motivation or cognitive skill) is sufficiently represented in their employability. It can be shown that CET has a positive and significant association with wage growth for all three categories of workers taken into consideration – namely, (i) workers who did not change jobs, (ii) workers who changed jobs with some intervening unemployment spell; and (iii) workers who changed jobs without any unemployment spell. This result implies that the wage-enhancing effect of CET is a relatively common phenomenon, rather than a specific case for high-ability workers.

*PART II.***POLICY PERSPECTIVES AND THE ROLE OF THE SOCIAL PARTNERS**

36. Part I of the report has confirmed some key assumptions of the first phase of the OECD Growth study, in particular relating to the impact of CET on wage growth, a higher ability to stay in employment, improved chances of re-employment after job loss, and the diffusion of job rotation practices in companies.

37. Despite these benefits from CET, there are reasons to assume that supply of and demand for training is still insufficient because of market failures. Furthermore, the data presented above have confirmed the well-known phenomenon that continuous training tends to reinforce existing skill differences resulting from unequal access to, and participation in, initial education. One paradox arising from the analysis is that the lesser-educated benefit from less continuous training, but if they do participate in it, they profit from wage increases to at least the same extent as their higher-skilled counterparts. Therefore, if wages are indeed a good proxy for worker productivity, the question arises as to why the lesser-skilled are underrepresented to such a degree in continuous training provision – one might assume that employers have a self-interest in providing further training also to these workers. In addition, from a broader economic perspective, lack of training for the lesser-skilled may lead to considerable cost in terms of loss of output, further skill deterioration and future unemployment. Improving the access to CET for the lesser-educated and other disadvantaged groups is therefore an important policy challenge.

38. In theory, an appropriate policy mix may help resolve some of the problems of under-investment and access, in particular by increasing the economic and institutional incentives to demand and supply training. OECD (2003*b*) provides a taxonomy of possible and actual strategies for addressing existing financial and economic barriers – *inter alia*, training levies and spending requirements on employers; tax incentives for enterprises and/or individual training participants; loan guarantees and public lending schemes; educational leave provisions; and individual learning accounts and training vouchers. Part II of the present paper focuses, in particular, on the role that labour-management arrangements can play. Indeed, many governments consider that a more structured involvement of employee representatives and the social partners at various levels of discourse may be of help to overcome some of these problems. Thus, improving efficiency and equity of continuous training figures, sometimes prominently, in the “social pacts” or tripartite agreements concluded in a number of OECD countries with a view to increasing productivity and competitiveness. To give another example, the Japanese government requires that firms which apply for training subsidies from central or regional government enclose their labour union’s or joint consultative committee’s assessment of the company training plan .

39. The text below illustrates the role of the social partners, of collective bargaining and of worker participation at firm level in CET. It first discusses how labour-management arrangements can, in principle, help overcome some of the barriers to investment in CET, including the various funding mechanisms involved. It then outlines different approaches taken in individual Member countries for the involvement of the social partners in decision-making. It should be stressed, however, that the available information does not allow a rigorous evaluation of the impacts of different countries’ labour relations models upon performance, or to identify an “optimal” organisational model of continuous education and training. The paper ends by pointing out some issues related to the financing of continuing education and training.

**A. Can labour-management arrangements overcome market failures related to CET?**

40. The literature distinguishes several reasons for under-investment in continuous training by firms and individuals, notably “labour market imperfections”, “capital market imperfections”, and “information asymmetries” (see Table 4 and Stevens, 1999):

- Workers are likely to be credit-constrained and have difficulty obtaining the required loans and/or insurance for training activities.
- Firms cannot be assured of recouping their training investment. In training their own workers, firms add to the pool of skills that can be poached by other firms, which may be able to offer higher wages for the very reason that they did not themselves incur training costs (Stevens 1996; Hocquet, 2000).<sup>21</sup>
- Workers might be little interested in firm-based continuous training because it may not lead to certification or to higher remuneration, and they are sceptical about the new skills being sufficiently general to ensure portability beyond the present job.
- Firms and workers tend to have asymmetric information on the characteristics of and (prospective) results from CET, as the former may be more aware of skill requirements and training quality than the latter, and employees do not have clear price signals to inform training decisions.
- When returns to training and returns to the adoption of new technology are interdependent, both employers and workers may decide not to invest because each side expects low returns (Redding, 1996).<sup>22</sup>

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21. It should be noted that the (theoretically) negative impact of “poaching externalities” is increasingly contested in the recent literature (for example Stevens, 1999).

22. Furthermore, in the absence of plans for technical/organisational change, employers may see little sense in offering further training. In such a situation, “upskilled” workers would not in fact perform “upskilled” activities, while nevertheless exerting wage pressure based on the argument of their newly acquired skills. See, for example, the analysis by Crouch *et al.* (1998) of a “low-skill equilibrium” in the U.K.

Table 4. Market failures in training

Type of market failure	Major reasons	Economic outcome	Impact on training	
			Supply	Demand
Capital market imperfection	Lack of collateral	no lender, or, if any, interest rate higher than future benefit from training		negative
	possible moral hazard behaviour	lack of insurance regarding uncertainties of return to training		negative
Labour market imperfection	asymmetry of information between employers on workers' skills or abilities	Monopsony power of employers over trainees; the wages of the trained worker are lower than the marginal product.	positive	negative
	poaching externalities	Under-investment in general training and, possibly, over-investment in specific training	negative	
Training market imperfection	asymmetry of information between training firms and workers about nature and quality of training	no clear price signals		negative
Co-ordination problem	Complementarity between new technology and human capital ; Complementarity between job vacancies and training	Low-skill, low-technology trap; Low-skill, bad-job trap		negative

Source: OECD Secretariat, based on Stevens (1999); Snower (1996); and Descy and Tessaring (2001).

41. Market failures may have a disproportionate impact on disadvantaged workers. For example, low-income workers would be particularly affected by credit constraints. Furthermore, companies choose investments from which they expect high returns, and they may tend to assume that they profit more from training the high-skilled, particularly when overhead costs for organising the training are taken into account. The higher training incidence of the highly educated workers could also be due to the fact that their skills profile is better known by employers.<sup>23</sup>

42. For these reasons, in most OECD Member countries, the need to combat under-investment and increase participation in CET through better institutional arrangements and stronger financial incentives is very much on the political agenda. Governments have developed an array of policies to facilitate participation and increase efficiency and equity of continuous training, ranging from tax-deductibility of training expenses to improved skill validation and certification – although, it is true, there is often less government regulation of continuous training than of initial training (*e.g.* apprenticeship). Such policies

23. Empirical evidence on the existence of market failures and their amplitude is harder to come by than theoretical arguments based on labour economics. Some empirical studies provide, however, indirect evidence. While, under a perfect market, workers would have to bear the costs of general training, there is evidence that most of the costs of general training are in fact borne by the employer. This implies that employers may have some monopsony power over their employees which would reflect labour market imperfection (Booth and Bryan, 2002; Loewenstein and Spletzer, 1998; Stevens, 1999). Furthermore, evidence from the IALS shows that the incidence of training is higher in those countries where employers finance the training of their employees more frequently. This evidence may suggest that employees are often credit-constrained and choose to enrol in training only when they are financially supported by their employers.

tend to be based on views to the effect that reliance on the private market, *i.e.* training demands by employees and firms, is not sufficient to safeguard broader national interests concerning skill development and competitiveness, or to support socially desirable training initiatives (Descy and Tessaring, 2001).

43. A more structured involvement of employee representatives and the social partners at various levels of negotiation and dialogue on training may be one policy element which can be helpful in reaching the required goals. This is so for several possible reasons:

- As public resources have to be funded mainly through taxes on profits or wages, both employers and employees may resist adoption of such policies. The social partners' participation in public policy may help alleviate this resistance.
- Employers and employees are more likely than government to have in-depth information on current skill needs and can thus provide a more flexible management of training systems, in particular regarding the development of curricula, certification or skill evaluation.
- At company and establishment level, "employee involvement" and works council-type bodies may help increase the efficiency of further training by reducing asymmetric information on costs and benefits and by providing an additional "early warning" mechanism through joint discussions of future training requirements and training plans, from the varying perspectives of management and labour.
- The use of payback clauses in collective agreements and individual contracts, whereby a worker leaving the firm within a specified period after the training spell has to agree to (partially) reimburse the training costs, could help alleviate credit constraints faced by employees as well as possible negative impacts from "poaching externalities". Such clauses are a widespread contractual feature in many OECD countries, among which Germany and the Netherlands (see Bellman and Düll, 2001 and Oosterbeek, 2001).<sup>24</sup>
- Furthermore, in several OECD countries the social partners run national or sectoral training funds into which firms pay a certain percentage of their payroll and from which they have their own training efforts reimbursed; this tends to prevent or reduce inter-firm differentials in training costs by "collectivising" them, thus making poaching less attractive.

44. More generally, it has been noted that vocational training is an area where the interests of companies and workers converge, namely by ensuring both the competitiveness of companies and the employability of workers. For example, training has been termed an example of "integrative bargaining", where both sides reach agreement based on common interest or the perception of mutual gains, as opposed to "distributive bargaining", where they seek to maximise their own advantage (Walton and McKersie, 1965). From this perspective, CET is a tool to increase the competencies of workers in response to new technologies, meet the challenges of multi-skilling and functional flexibility, and thereby simultaneously increase company productivity and yield gains to workers.

45. However, the broad agreement of all concerned about the need for more continuous training should not conceal existing differences in the strategic options of labour and management. In a stylised description, employers want CET to primarily serve the interests of the individual firm; they would like to retain a prerogative on the content of training and selection of participants, on the basis of their own efficiency considerations. They also would prefer to see employees co-finance training costs, for example

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24. This feature does not necessarily prevent an employee's change of firm, but will allay some employer fears about not recouping their investment.

by contributing training time outside working hours, arguing that there are considerable private returns (e.g. higher wages).

46. By contrast, from the perspective of trade unions, training ought to be inside paid working hours and contain elements which are of value beyond the interests of the individual firm; they stress the portability of skills and will also tend to focus more on equity issues, in particular the participation of the unskilled. To take one example, results from a study by the American Society for Training and Development (ASTD) of major joint labour-management training programmes in the United States suggest that these joint initiatives do result in a different mix of training activities and lead to a deeper level of training activity. For example, while only 2% of training investment goes to basic literacy skills training for the firms in ASTD's benchmarking data base, approximately 15% of training investment in the joint programmes are spent on the development of basic literacy skills (van Buren and Erskine, 2002). The analysis in Section B below gives further evidence of the impact of joint governance.

## **B. Organising CET via labour-management arrangements and worker participation schemes**

47. This section presents some experiences with CET policies from a labour-management relations angle, using three types of information sources: a) information obtained during country visits and interviews in several European OECD countries (Finland, France, Germany and Spain); b) commissioned expert papers (Australia, Japan and the United States), which focus on issues of collective bargaining and firm-level worker participation on the organisation of continuous training; and c) replies by most OECD Member countries to a questionnaire on the role of policies by governments and social partners in CET.

48. CET systems in five countries have been selected for special presentation in Annex 3 (France, Germany, Spain, Japan, United States). These country experiences underline the extreme diversity of continuous training systems, with regard to the nature of government intervention, and the role and implication of the social partners.

### *Training funds and levies*

49. As shown in Table 5, governments and the social partners in a certain number of OECD countries have set up a framework of training levies and bipartite or multipartite governance of training funds, which could be one avenue to both raise the level of training beyond what is voluntarily provided by enterprises, and reconcile opposing interests between companies and employees.

Table 5. Continuous Education and Training (CET) and Labour Relations Features

	training levies and earmarked social security contributions		joint governance of CET funds by social partners	intensity of collective bargaining on CET	extent of participation on CET in works council-type bodies
	national level	sectoral level			
Australia	no (abolished in 1996)	no	no	x	x
Austria	no	no	no	xx	xxx
Belgium	yes	yes	yes	xxx	xx
Czech Republic	no	no	no	..	x
Denmark	no	yes	yes	xxx	xxx
Finland	yes (for training leave)	no	yes	xx	xxx
France	yes	yes	yes	xxx	xxx
Germany	no	yes (few sectors only)	yes (few sectors)	xx	xxx
Hungary	yes	no		..	xx
Italy	yes	yes	yes	xx	x
Japan	no	no	no	x	xx
Korea	yes	no	no	x	xx
Mexico	no	no		..	..
Netherlands	no	yes	yes	xx	xxx
Norway	no	no		xx	xx
Poland	no	no		..	..
Portugal	no	no		x (but CET issues in tripartite agreement)	x
Spain	yes	no	yes	xx	xx
Turkey	no	no	no	..	..
United Kingdom	no	no	no	X	x
United States	no	yes (few sectors only)	yes (few sectors)	x	x

Notes: Information on training funds and levies based on responses to OECD questionnaire. Classification by extent of collective bargaining and works council participation based on Caprile and Llorens (1998), responses to the OECD questionnaire and additional Secretariat judgement.

.. = not available

x = little activity

xx = medium-level activity

xxx = widespread activity

50. Nine countries are shown in the Table as having instituted national or widespread sectoral training levies, or social security contributions that are earmarked for continuous training.<sup>25</sup> It is, above all, Belgium, France, Italy and Spain that have opted for compulsory financing through training levies. However, such levies can be of different types. France created a compulsory investment scheme in the early 1970s, with a tax rate first of 0.8%, currently of 1.5% of the total wage bill. This is mainly a “train or pay” tax, where a firm needs to invest in training up to the required level, if it does not want to pay the

25. Most countries that have social security contributions for active and passive labour market programmes channel these to the Public Employment Service, but do not earmark them for special purposes; the PES then decides, for example, what share to spend on training on the unemployed and/or certain employed worker categories. By contrast, a social security contribution, part of which is specially earmarked for a fund to finance firm training, is not essentially different from a levy system.

difference between its actual expenditure and the legal minimum. This implies that the bulk of the levy is payable only in the absence of the firm's own training effort.<sup>26</sup>

51. By contrast, in the Spanish "levy/grant" scheme, every company pays a training levy (corresponding to 0.7% of payroll), after which it can try to recuperate part of its payment through applications for grants, to fund its training efforts. Importantly, under such levy/grant systems, grants do not closely reflect company payments and therefore allow redistribution of funds towards jointly defined priorities. One feature of such systems can be that applications by companies need to include the approval or an accompanying assessment by workers representatives/trade union bodies. This is the case in Spain (as shown in Annex 3), as well as with the Swedish Employment Security Fund TSL (see Gasskov, 1998; 2001).

- The Quebec government has also instituted a training levy of the French "train or pay" variety (1% of payroll) (OECD, 2002; Bernier *et al.*, 1996). A special type of compulsory levy exists in Finland, where companies contribute to a fund to finance individual study leave.
- Australia also followed the French model but, under pressure from the business community, first suspended and then abolished its levy in 1996.<sup>27</sup> In the United Kingdom, a levy/grant scheme operated between 1964 and 1982, administered by Industrial Training Boards in 28 separate industries. Korea had followed the French model up to 1995, when its levy was replaced by an earmarked social security contribution into a fund which then may finance company training measures upon request. In Italy, a law passed in 2000 opened up the possibility for employer associations and trade unions to set up sectoral and intersectoral training funds, which are expected to replace, over the medium term, the current national levy (0.3% of payroll) payable to the National Institute for Social Insurance.
- In Belgium, a nation-wide collective agreement requires employers to pay 0.25% of payroll into a training fund, a sum that can be varied by sectoral agreements, with a specified minimum to be spent on "at risk groups", *i.e.* older and less qualified workers, women and employees in small and medium-sized enterprises.
- In Denmark and the Netherlands, there is also a focus on levies at the sectoral level set by collective agreement, which are supplemented by government grants (with a 0.7% average contribution rate in the Netherlands, but considerable variation depending on the particular branch). Half of the Dutch workforce, and about one-third of the Danish workforce, are covered by these setoral levies and funds (Gasskov, 2001) Finally, among the 20 countries represented in Table 5, Germany has a few sectoral levies based on collective agreements, and the United States a few sectoral and company-wide compulsory contributions in some sectors with high trade union density.

52. With the exception of Korea, where the public employment service administers the fund, there is in all cases a bipartite or sometimes tripartite joint governance of the training funds, usually regulated by collective agreements between employer and trade union federations at inter-professional and branch level. For example, the information presented for Spain (Box 3 and Annex 3) shows the important influence of

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26. However, firms with less than 10 employees need to pay in all cases a levy of 0.15% of their wage bill.

27. The Quebec government has also instituted a training levy of the French "train or pay" variety (1% of payroll) (OECD, 2002; Bernier *et al.*, 1996).

the “parity commissions” within the training fund administration (previously *FORCEM*, now the newly established *Tripartite Training Foundation*).<sup>28</sup>

**Box 3. Operation of the Spanish Levy/grant System**

Sectoral peer agencies (Parity Commissions – CP) set the framework for managing training grants. The Parity Commission in the *metal sector*, for example, received 1 000 plans with requests for funding in 2001, of which 500 were group plans. For example, auto-repairshops hand in group plans as they do not have the minimum number of employees required for a company plan. The plans mainly aim to improve company or sectoral productivity, but the CP has also defined personal promotion and competence development as an important goal. When a trade union is dissatisfied with the types of training or the targeted personnel, it may give an unfavourable opinion, in which case the CP will usually try to mediate.

Conflicts of interest are noticeable in the metal industry commission. Employer representatives often believe that trade unions want to use CET for social policy, and make too many demands on company training plans, e.g. concerning the number and selection of participants, while the companies’ main goals are competitiveness and productivity. They also resent that trade unions sometimes give a negative opinion when a plan foresees no wage increase after training. Trade unions, on the other hand, are often pursuing the aim of widening the access to training of the more marginal and lesser-skilled groups in the workforce. They also favour more training inside, rather than outside working hours, the latter being often the case in SMEs.

One supplier in the auto industry from Navarra developed a training plan that was opposed by the trade unions/works committee because of what they considered to be a too narrow target group. A compromise was found through mediation by the CP, which succeeded in expanding the training to production workers, not included in the original application. The company wanted to achieve consensus through mediation since i) this means a better chance of the company training plan being accepted/subsidised; and ii) an understanding with the unions was considered advantageous in terms of the motivation of the workforce.

*Source:* Information supplied by National Tripartite Training Foundation, Madrid.

53. Table 5 shows, as well, that the major examples of training levies and social partner governance of training funds are from continental Europe (Australia and the UK abandoned national training levies, but there is a scheme in the Canadian province of Quebec). This, however, does not necessarily mean that there is one European model of financing and organising continuous training, just as there is not one European model of involvement of the social partners. In many European countries, the creation of a training levy system is, in fact, not on the political agenda. Nevertheless, one could argue that the joint governance of training funds by the social partners reflects the more consensual and highly regulated continental European labour relations, which have been contrasted in the literature with adversarial, or market-driven models existing in the United Kingdom, United States, Canada and Australia, where employer prerogatives are comparatively more developed (see, for example, OECD 1991 and Bamber and Lansbury 1998).

54. Levies, in particular levy/grant systems, seem to have the advantage of spreading the load for funding training between employers and thus mitigating the externalities problem, of pursuing wider skill formation strategies and priorities and of establishing an angle for combating inequities of access to training (Greenhalgh, 2001; OECD, 2003a).<sup>29</sup> However, it should be noted that levies and compulsory

28. Bipartite administration by employer and trade union representatives – without government presence in the decision-making bodies – is by no means a panacea and can lead to abuse. For example, the Spanish Training Foundation was restructured under a tripartite perspective, after there had been allegations of abuse of the previous *FORCEM* system and evidence of rent-sharing by the social partners (see *El Pais*, 16 October 2002).

29. Gasskov (2001, pp. 76f) provides an interesting discussion of the reasons for the failure of compulsory levies in Australia, Korea and the United Kingdom. Greenhalgh (2001) discusses some pro’s and con’s of the French and other training levies. Following Stevens (2001), she discusses, *inter alia*, the advantages of a levy related to profits rather than to payroll.

investment schemes have been criticised because they may encourage inefficient and inappropriate training and it is difficult to agree on any “rational” contribution level and company size threshold. Also, large enterprises with a well-established human-resources function tend to benefit disproportionately from such schemes and many SMEs fail to benefit from them, thus losing their contributions.

55. Reflecting the limited evaluation available of these schemes, it is still uncertain to what extent they have been successful in increasing continuous training activity. An assessment of the levy in Australia suggests that it had increased spending on training, but had not been effective in stimulating such activity in SMEs (OECD, 2001). The experience with the French levy so far also shows the persistence of inequality of access, despite repeated increases in the contribution level<sup>30</sup>.

### *Training leave schemes*

56. In some cases, a special area of joint governance by the social partners concerns training leave, although in most countries where a right to training leave exists, it is regulated by national legislation, sometimes supplemented by special collective agreements at sectoral level.

57. In France, two types of training leave are paid from a jointly administered fund supplied by a small part (0.2%) of the employer training levy. The individual training leave (*Congé individuel de formation*) gives employees the right to pursue training of their choice within working hours. The maximum length of the leave is 1 year or 1 200 hours, during which time the trainee’s wage is subsidised at between 80 and 90%. Funds are collected and administered by specially accredited bodies (OPACIFs) who make the decisions on training leave applications. The employer may not refuse the leave if the number of employees who are taking training leave does not exceed 0.5% of total staff. In addition, French employees with at least 5 years of employment history can benefit from skills assessment leave, for the purpose of having their personal and professional skills and competencies reviewed, creating the basis for the elaboration of a personal development project. Applications are again decided by the OPACIFs. The results of the review are confidential and are not communicated to the employer.

58. In Spain, as well, financing of training leave occurs in the framework of the employer levy, although not separated out under a special levy category as in France, and applications are decided by the National Tripartite Training Foundation. In Finland, on top of special government allowances, a special Education and Redundancy Payment Fund paid for by employer contributions and jointly administered with trade unions, allows study leave with continuous wage payment. The level of wage payment during the training period can be decisive for take-up, and where the level is not at 100%, collective bargaining can play a role in this area by topping up government- or employer-provided wages. This is the case, for example, with Finland’s job rotation or “alternation leave “ system where employees go on leave in exchange for the hiring of an unemployed person.

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30. Several years ago, a Government White Book urged to improve the efficiency of the French levy system by pointing out as its deficiencies, *inter alia*, an overly complex structure beneficial mainly for large enterprises and a participation rate still considered insufficient (Secrétariat d’Etat, 1999). Similarly, a report by the *Conseil d’Analyse Economique* (CAE, 2000) showed the wide remaining differentials in training activity by company size and the all but disappearance of training for workers aged 50 and above. In addition, a report by CEDEFOP (2000) on the French system warned of the dilemma that the proliferation of bodies involved in CET presupposes the availability of a sufficient number of knowledgeable representatives to fulfil consultative and management roles.

*Increasing dialogue and collective bargaining on continuous training*

59. While much of the industrial relations literature is focused on the trend towards decentralisation of bargaining, more flexible use of labour and power shifts from trade unions to employers (Kochan *et al.*, 1985; Katz, 1993), the organisation of CET in many countries reflects a different tendency, *i.e.* that of increasing dialogue. For example, after the Employment Guidelines adopted at the 1997 Luxembourg summit urged the social partners to "... conclude agreements with a view to increasing their possibilities for training" and to include training efforts in their pursuit of the modernisation of work organisation, the social partners at European level (ETUC/UNICE/UEAPME) concluded an agreement where they confirm that the development of competencies and qualifications is a shared interest by both enterprises and employees, and that the two partners should co-operate in anticipating skill needs and elaborating skill plans (ETUC *et al.*, 2002). Box 4 shows one example considered to be a "best practice" case and attached to that agreement together with eleven other cases of collaborative projects.

**Box 4: Joint organisation of continuous training in the Italian chemicals industry**

The project was carried out from November 2000 to July 2001, involving 1 044 workers in 25 companies from the chemicals and pharmaceutical industry, with a total of almost 28 500 hours of training given. The costs of the project were shared between the government (80%), companies (14%) and the workers concerned (6%).

Promoted by the sectoral social partners, the project was presented by the bilateral body for training Confindustria/Cgil-Cisl-Uil and implemented by an ad hoc consortium between the companies concerned.

The project had four phases:

- Preparation of the project, including analysis of the training needs of companies including matching them with the general objectives defined in the national sectoral agreement concluded in 1998;
- Realisation of the project. Six training modules were developed on economic problems, market characteristics and corporate strategy, communication, group working, management of human resources and of IT applications;
- Certification of competencies. Several tests were organised by the trainers in order to evaluate the competencies acquired. These were formalised in a certificate;
- Project evaluation, comprising an analysis of questionnaires confirming a good level of satisfaction on the part of participants, together with a final report drafted by the project's technical committee.

*Source: ETUC/UNICE, Framework of Action for the Lifelong Development of Competencies and Qualifications, Selection of Best-Practice Cases, March 2002.*

60. Whether influenced or not by this high-level agreement, there is indeed a considerable amount of bargaining on CET matters occurring in all OECD countries. It is perhaps at its most intensive in those countries characterised by joint governance of continuous training funds as these are usually given a framework through bipartite agreements, with operational targets often (re)negotiated at sectoral or inter-professional level. Continuous training – ways and means to improve and expand on it – also plays a role in the "social pacts" concluded in a number of European countries (such as Ireland, Portugal and, most recently, Italy) with a view to increasing productivity and competitiveness (see, for example, EIRO, 2002). The information on Belgium in Box 5, for example, shows the interplay between collective agreements at national and at sectoral levels concerning the use of training funds collected from employers, with a view towards increasing their use for disadvantaged groups. Similar types of complementary agreements at these two levels have been concluded in France and Spain.

61. Portugal has no compulsory training contribution, but appears to suffer from under-investment in continuous training, especially for low-skilled workers (see the results from the CVTS2 survey in table 6

and Eurostat, 2002). In the framework of social dialogue within the Portuguese Economic and Social Council, a national tripartite collective agreement was concluded in February 2001, which aims at increasing training investment by setting up numerical enrolment targets: thus, it requires that every Portuguese worker, including those employed by SMEs, should have access to 20 hours of training per year as from 2003, increasing to 35 hours by 2006 (CONSELHO, 2001; OECD, 2001). It remains to be seen how the implementation of such numerical goals and timetables can be effectively supervised.

62. In Germany, collective bargaining at sectoral and at company level has played a role in particular since the late 1980s, as trade unions sought a more “qualitative” type of bargaining. These agreements deal with issues such as the joint determination of training needs and works councils’ participation rights in the set-up of training plans. The metal sector is often pushing ahead in this domain; *cf.* the recently concluded agreement in Baden-Wurtemberg outlined in Box 5. According to survey results, training activities in over 20% of firms that undertake training are subject to some kind of written collective bargaining or works agreement (Dobischat and Seifert, 2001; Bahn Müller, 2002).

63. In France, vocational training, including initial training, was the second-most important bargaining issue in 2001 at branch level (after wages and salaries), figuring in over 100 out of 900 branch agreements. These took up, *inter alia*, the use of working hour reduction for training purposes, access of the lower-skilled and precarious workers, and the determination of sectoral levies for SMEs (Ministère des Affaires Sociales, 2002). In Spain, data on collective agreement show that a certain number of agreements, signed mainly at company level, contain clauses specifying information or participation rights in the set-up of training plans – 21% of all agreements in 2000, affecting 23% of dependent employees (Ministerio de Trabajo, 2001).

64. The available figures seem to be lower for the United States, where in a recent survey consultation on CET in joint labour-management committees was restricted to 4% of union contracts and 8% of those with 1 000 or more employees. The Japanese case (Annex 3, Case study 5) suggests that little employer/union bargaining is taking place over CET issues, as also seems to be the case in the United Kingdom, despite a “bargaining for skills campaign” led in the 1990s by the Trade Union Congress. Evidence from Australia seems to show that, in the course of the diminishing importance of awards since the mid-1990s, skill formation has declined somewhat as a subject of sectoral and plant-level negotiation. For example, in 2001/2002, only between 5 and 10% of new enterprise agreements (whether union or non-union agreements) contained specific requirements about company training programmes (ACIRRT, 2002).

65. In summary, collective bargaining is occurring to various extents and at varying levels in OECD countries. In countries with levies and training funds, these have usually been given a framework through bipartite agreements at sectoral or even national level. But bargaining also plays a role in countries with little central steering of continuous training matters, in particular where trade unions pursue “qualitative” bargaining strategies not exclusively centred on wages and working conditions. Often, agreements will deal with the joint determination of training needs in a company or sector, the set-up of training plans, and the right to training leave. Importantly, agreements on continuous training tend not to stand alone, but are linked with other areas of regulation, such as flexible time management, changes in work organisation or human resource management (*e.g.* equal opportunity) (Heidemann, 2001). Bargaining on training issues may be less in countries with a strong culture of employer prerogatives. However, as the Japanese example shows, participation in training decisions by works councils or joint enterprise committees can be, in law or in practice, a functional equivalent of collective bargaining (see below).

**Box 5: Interplay between national and sectoral agreements on CET in Belgium**

In the "interprofessional agreement 2001-2002" signed in December 2000, the Belgian social partners confirm their efforts to increase continuous training expenditure up to 1.9% of the wage bill, which would conform to the average expenditure of its three main neighbouring countries (France, Germany and the Netherlands) . The actors at national level recommended to the social partners at branch level to focus, in their own agreements, in particular on:

- the situation of older workers, women and the less qualified;
- the development of interesting innovations, such as training credits;
- certification issues, e-learning, etc.
- the organisational problems of SMEs, so that their workers get sufficient training access.

The social partners at branch level were asked to prolong existing or conclude new agreements providing at least 0.10% of payroll for employment and training measures of "at risk groups".

Subsequently, to take one example, a branch agreement in the textile industry, signed in May 2001, determined that 0.4% of payroll will be set aside for employment promotion and training of "at risk groups" among the employed, as well as long-term unemployed from textile industry professions. To develop training initiatives, cooperation with outside providers is envisaged; this cooperation will be handled under bipartite management (*gestion paritaire*).

**Box 6. Collective Agreement on Skill Formation in the Metal Industry of Baden-Württemberg, Germany**

In June 2001, IG Metall and the regional employers' association reached an agreement on skill formation in the metal and electrical industries of Baden-Wurtemberg (one of the German *Länder*).

Employees are now entitled to have regular (at least annual) talks with their employers about their qualification needs. These talks focus on

- how to develop professional and social skills (preservation of qualification);
- how to adapt to changing professional demands (adaptation of qualification);
- how to qualify for different or more skilful tasks in order to occupy new positions.

It is possible to carry out these talks both alone or in a group with other colleagues. If training is considered necessary, employer and employee conclude an individual skills agreement; costs are carried by the employer. Needs of the unskilled, older workers and of those working under restrictive conditions (such as at the assembly line) will receive special consideration.

If no agreement can be reached, a joint commission (three representatives of the works council and three employer representatives) will try to reach a consensus in companies with more than 300 employees. In smaller companies with up to 300 employees, the works council will negotiate directly with management. If these attempts to come to an agreement fail as well, a representative of the newly created bipartite "agency for the improvement of in-company continuous qualification" will decide the matter. The agency has been given the mandate to assess qualification requirements in the metal industry; develop continuous qualification schemes; improve information on training establishments; and to advise companies and works councils.

### Works Councils

66. A key feature of labour relations in many OECD Member countries is the existence of indirect or representational employee participation at company or workplace level through elected “works councils”, “works committees” or similar bodies.<sup>31</sup>

67. In their “economic analysis of works councils”, Freeman and Lazear (1995) argue that the provision of reliable and timely information to employee representative bodies increases efficiency by building trust and facilitating worker co-operation, for example during times of crisis. Proceeding beyond simple information disclosure, consultation allows worker input into solutions to production problems, which might lead to joint labour-management discovery of solutions that neither would have conceived separately. In other words, “new ideas are spawned and joint surplus generated”. Similarly, as part of the OECD Growth study, Arnal *et al.* (2001) have argued that well-functioning labour-management institutions at company and establishment level can help build a high-skill, high-trust enterprise climate, facilitate the adoption of new work practices (such as team work and flatter hierarchies) and enhance the effectiveness of work reorganisation. Furthermore, they cite empirical studies showing that firms with innovative work practices also have a higher training incidence.

68. Many of those countries with statutory works councils have followed this line of argument and laid down the introduction of new technologies and the provision of continuous training as areas where works councils have participation rights. Among the countries in Table 5, these seem particularly strong in Austria, Denmark (where they are based on sectoral collective agreements), Finland, France, Germany and the Netherlands.

69. For example, according to the Finnish Co-determination Act (*Co-operation within Undertakings*, 1978), companies have to submit annual training plans to the joint enterprise committee and negotiate “reasons, effects and possible alternatives” with employee representatives. The plan has to give details by staff category and is required to take the particular needs of ageing workers into account. In addition, a national collective agreement provides for co-determination in the selection of workers for training that “promotes co-operation in the company”.

70. Works councils and other types of employee representatives have similar participation rights on company training plans in Austria, France, Germany, the Netherlands and Norway, although there are many nuances about where the sphere of “consultation” ends and that of “co-determination” (with veto rights and conciliation in case of disagreement) begins. Important features can be:

- The right of works councils to take initiatives, develop training plans of their own and propose them to management, possibly with the help of experts (outside expertise can be part of works councils’ budgets).

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31. Practically all EU countries, apart from Ireland, Sweden and the UK, have statutory provisions for works councils with information and consultation rights on a variety of matters, although they differ as to the minimum company size where such a council needs to be set up (5 and more employees in Germany, 30 and more in Finland and 50 and more in France, for example). The UK and Ireland will probably need to introduce some kind of works council structures on the basis of a recent EC Directive. Sweden is a particular case, as trade unions are well represented in workplaces and have refused any attempts to set up elected works council as a supplementary representative body. Among non-European OECD countries, institutionalised works councils exist only in Korea, where they need to be set up in firms with 30 or more employees. In Australia, New Zealand, Japan and North America there exists no legal basis for works councils, although joint consultative bodies outside of the trade union structure are widespread in Japan (Rogers and Streeck, 1995; EIRO, 2002).

- A requirement to discuss training needs with other workforce representatives, if there is no structured employee representation at company or establishment level.
- In certain countries (such as Japan and Spain), the need for a written assessment by employee representatives of a company training plan submitted for subsidies to the national training fund or Labour Ministry.
- The participation of works councils in "social plans" and other responses to collective dismissals or company restructuring. These responses often contain a re-training element. In fact, re-training as a reactive strategy to company crises is a long-established element of worker participation schemes.

71. The CVTS2 survey has again demonstrated the relevance of joint agreements on continuing training (either with works councils or with trade union representatives) for the EU and EU-accession countries. In all of these, participation in employer-sponsored training was significantly greater in firms with a joint training agreement than in firms without it (OECD, 2003b).<sup>32</sup>

72. In the United Kingdom, there is a new type of trade union representative, whose main function is to advise staff about their training and developmental needs. In the United States, attempts to give employee representation a legal footing outside of collective bargaining structures have failed. As in the UK and Sweden, therefore, in the unionised sector management discusses with trade union delegates or shop stewards, not with elected works councils. On the other hand, there exists a large variety of "employee involvement" bodies outside the unionised sector (Rogers, 1995). Box 7 gives some indication of joint governance in CET in the United States (more information can be found in Annex 3).

**Box 7. Joint governance in continuous training in the United States**

In the unionised sector, there are over 25 major joint training programmes that have been negotiated with large employers or employer groups, covering over 1 million U.S. workers. These are found in the aerospace, automotive, health care, printing, steel, and telecommunications industries, as well as in a wide range of state and federal public sector programmes.

An upsurge in this area occurred in the early 1980s in the automotive industry, in a period of recession when "conversion" training was on the agenda. The programmes are funded based on formulas where a certain number of cents per hour worked are contributed to a training fund. For example, the UAW-Ford National Joint Training Fund is supported at a rate of 35 cents per hour worked, with an additional premium of 7 cents for overtime hours and a separate allocation of 10 cents for local training funds in individual facilities. Training courses may cover apprenticeships, basic literacy skills, team building and managerial skills, or health and safety; there are also provisions for tuition reimbursement. It is noteworthy that all checks used to pay for these training activities have two signature lines – one for the union and one for management, which is a tangible representation of the joint governance structures associated with these funds.

A key question associated with these programmes concerns why they have been established on a *joint* basis. In a 1991 study of such programmes, it was found that both parties had the potential to derive key benefits from working together in this domain. The unions brought front-line knowledge and legitimacy to the programmes, while the employers brought key information on future business requirements and a stable source of funding. Many human resource professionals in firms with joint training programmes also found that the joint governance structure better insulated training funds from cyclical budget cuts – a common challenge when training is administered by the employer alone. In negotiating with training providers, it was also found that joint union-management representatives provided an unbeatable combination – maximising the value for the company's training investment.

*Source:* Joel Cutcher-Gershenfeld, unpublished consultancy paper for the OECD, 2002.

32. However, in this survey firms with a joint agreement represented the minority in all cases.

### C. Financing issues

73. Ideally, comparison between countries should explore how well existing bargaining frameworks and “social partnership” arrangements are suited to deciding and carrying out continuous training programmes for employed workers and to mediating potential conflict between employers and employees about training access and content. However, while there are indeed very divergent systems of industrial relations in place in OECD countries, it would be surprising if the relative uncertainty of results about the impact of industrial relations indicators on economic performance (see, for example, Flanagan, 1999; OECD, 1997) would not also be true for the area of continuous training

74. While section B has outlined some diverging policy approaches taken in OECD countries, existing data do not allow associations between the extent or types of social partner involvement in training decisions, on the one hand, and the incidence and distribution of CET, on the other. Thus, no conclusions or judgement as to the superiority of a particular national training system over another, such as “market-driven systems” vs. “consensus-based” or “social dialogue-type” systems (see Lansbury and Pickersgill, 1999) are proposed at this stage. However, the CVTS2 result referred to above, concerning training incidence in companies with a joint training agreement, provides one indicator of the importance of labour-management arrangements.

67. As to the level of employer investment in CET, Table 6 shows that the United Kingdom, with a system usually described as “market-driven”, has come out on top among European countries in both CVTS employer surveys (referring to 1993 and 1999). According to the 1999 survey, UK employers invested 3.6% of their wage bill in continuous vocational training courses, followed by Denmark, a country with a strong orientation towards joint governance. Beyond these two EU-level surveys, harmonised surveys on investment in CET do not as yet exist at OECD level.<sup>33</sup>

68. Furthermore, Chart 1 of this paper, based on the International Adult Literacy Survey, has provided data showing existing inequities of access to training by country. These imply, *inter alia*, that the ratio between workers with tertiary education and those with less than upper secondary education who benefit from CET ranges from over 5 to 1 to about 2 to 1 in the OECD countries surveyed. Among the most “egalitarian” performers with ratios of 2 to 1 or under were the Nordic countries, but also the UK, Australia and New Zealand, while countries like Belgium and Italy (where training funds and levies are widespread) were among the least egalitarian.

69. The information from the CVTS presented in Table 6 confirms the rise in CET incidence suggested by national surveys (see Part I). While company training investment in EU countries ranged from 0.7% to 2.7% of the wage bill in 1993, the range was from 0.8 to 3.6% in 1999; average expenditure increased from 1.4% to 2% of the wage bill. Total in-service training costs included direct costs (infrastructure, teaching personnel, etc.) and continued wage payment for training participants, with the latter accounting for about half of total costs on average (although there were large differences by country).

70. There is no doubt that the CVTS figures underestimate overall investment in CET within European economies. First, the employer survey only asked about costs of training *courses*, and did not consider other forms of continuous in-service training, such as instruction at conferences and workshops, on-the-job training using regular work tools, or quality circles and other more informal learning environments; in fact, in over half of the surveyed countries, the percentage of enterprises providing such “other” forms of CET was higher than the percentage of firms providing courses.

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33. According to the American Society for Training and Development, just under 2.0% was spent on work-related (initial and continuous) training in the United States in 2000 (Van Buren and Erskine, 2002).

Table 6. **Costs of continuous training courses as a percentage of total labour costs of all enterprises**

## European countries

	CVTS 1 - 1993	CVTS 2 - 1999
Austria		1.3
Belgium	1.4	1.6
Czech republic		1.9
Germany	1.2	1.5
Denmark	1.3	3.0
Spain	1.0	1.5
Finland		2.4
France	2.0	2.4
Greece	1.2	0.9
Hungary		1.2
Ireland	1.4	2.4
Italy	0.8	0.8
Luxembourg	1.3	1.9
Netherlands	1.8	2.8
Norway		2.3
Poland		0.8
Portugal	0.7	1.2
Sweden		2.8
United Kingdom	2.7	3.6
EU 12	1.4	2.0
EU 15		2.0
Total of above OECD countries		1.9

Source: Continuing Vocational Training Survey (CVTS1 and 2)

71. Second, in most countries there is some public support for skills upgrading of employed workers, in particular when training programmes of the public employment service target not only the unemployed, but poorly qualified or “at risk” categories among employed workers as well. More broadly, investment in labour market training, mainly undertaken by public employment services and directed at the unemployed, in some OECD countries approaches 0.5% or even 1% of GDP.<sup>34</sup> Third, employees can co-finance training in various ways, *inter alia* through:

- sharing course fees with employers;
- agreeing to temporary reductions in wages during training periods;
- attending continuous training courses outside working hours;
- paying back (parts of) training costs after job change.

72. While there is little evidence that workers in fact co-finance training through wage cuts, research from several countries shows that workers enrol in continuous training *within and without* working hours. To take the example of Germany, research by the employer-based Institute for the German Economy showed that about 20% of the in-service training volume is organised outside working hours. In addition, a survey of works councils reported that in 55% of all firms in private industry employees use leisure time for CET activities (Weiss, 1998; Schäfer, 2001).

73. Furthermore, in many countries pay-back clauses are common practice. For example, 15% of German firms report that they use pay-back clauses for cases of job change after continuous training (Bellmann and Düll, 2001). In Luxembourg, since 1999 pay-back amounts are even regulated by law. In

34. For example, Austrian data show that PES annual training expenditure corresponds to about half of employer expenditure determined under CVTS2 (Schlögl and Schneeberger, 2003).

some countries, the use of accumulated working hour credits (through overtime, for example) for training purposes is also under discussion. To define co-financing in the context of who benefits from continuous training is a challenge not only for governments, but even more so for the social partners.<sup>35</sup>

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35. While some trade unions are ready to engage in negotiation about the use of working-time accounts for further training, others may resist attempts to have workers co-finance continuous training. For example, the currently valid Basic Agreement between the Finnish employer association and private sector trade unions includes a clause by which "all costs (*e.g.* tuition and loss of income" should be carried by the employer, if else has not been agreed upon in the collective agreement".

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## ANNEX 1

## DATA SOURCES

*(a) European Union Labour Force Survey 1995 and 2000 (EUROSTAT)*

The *European Union Labour Force Survey* (ELFS) provides information about workers' participation in training and education during the period of 4 weeks prior to the survey. However, the methodology has changed significantly as from the 1998 survey, which makes comparisons between pre- and post-1998 data difficult. Also, the information about France is not strictly comparable with that of the other countries, because the French survey refers to *current* education courses (instead of courses 4 weeks prior to the survey). The 1995 survey encodes those workers who did not receive any education or training as 0 and those who participated as 1 to 8, depending on the characteristics of the courses. The present study considers workers encoded 1 to 8 as participants in CET. On the contrary, the 2000 survey encodes workers as 1 in cases when they participate in CET and 0 in cases of non-participation. For both years, and in particular for the 1995 survey, the non-response rate is relatively high. The present study considers workers with "no answer" as non-participants. Since 1998, the survey also asks about the purpose of the training received. A distinction is made between initial vocational training, continuous vocational training, training under a specific employment measure and training for general interest.

*(b) International Adult Literacy Survey (OECD and Statistics Canada)*

The *International Adult Literacy Survey* (IALS) was co-ordinated by the OECD and Statistics Canada. It is an individual survey using a common questionnaire. The sample size is relatively small. The survey asks whether the workers have received any training or education during the 12 months prior to the survey and it includes details about the three most recent courses (purpose, financing, training institution, duration etc.). Some of the analyses of this paper are based on the latter information. The survey also reports the result of literacy tests. The tests are undertaken for three literacy scales (prose, documentation and quantitative skills). The survey includes 21 countries (Australia, Belgium (Flanders), Canada, Ireland, Netherlands, New Zealand, Poland, Sweden, Switzerland (German-speaking), the United Kingdom and the United States for the first cycle, and Chile, the Czech Republic, Denmark, Finland, Hungary, Norway, Portugal and Slovenia for the second cycle).

*(c) European Community Household Survey (EUROSTAT)*

The *European Community Household Survey* (ECHP) is designed for longitudinal analysis of the economic and social position of individuals in the European Union countries. This survey provides rich information regarding work status, income, education etc. The present study uses the data released in December 2001, which contain 5 waves from 1994-98. The survey includes the 15 European Union member countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom. For some countries, data are available for less than 5 waves (1995-98 for Austria, 1994-96 for Germany, Luxembourg and the United

Kingdom, 1996-97 for Finland, and 1997-98 for Sweden). In the Netherlands, data on CET are available only for 1995-98. In the area of CET, the survey asks whether the worker has participated in any education and training during the year prior to the survey.

*(d) The Third European Survey on Working Conditions (European Foundation for the Improvement of Living and Working Conditions, Dublin)*

The *Third European Survey on Working Conditions*, supervised by the European Foundation for the Improvement of Living and Working Conditions, contains information on work organisation and working conditions. The weighting is carried out on the basis of the ELFS so that the population distribution of this survey is identical to that of the ELFS. Regarding CET, this survey contains information about employer-sponsored training (self-financed if the worker is self-employed) taken over the 12 months prior to the survey.

*(e) The Continuous Vocational Training Survey (EUROSTAT)*

The first *Continuous Vocational Training Survey* was carried out by the EUROSTAT in 1994 (CVTS1 for 12 Member States of the European Union) and the second one was conducted in 2000/2001 (CVTS2 for all EU Member states, Norway and 9 candidate countries). This is an enterprise survey covering establishments with at least 10 employees. It provides information on employer-sponsored training for employed persons, excluding apprentices and trainees, which is taken during the year prior to the survey.

## ANNEX 2

**EMPLOYMENT AND WAGE PROBABILITIES OF TRAINED VERSUS NON-TRAINED  
WORKERS: ESTIMATION METHODOLOGY**

The data used in Table 3 and Charts 8-9 are calculated based on the estimation results that are presented in Annex Tables A3-A6. Below are the equations corresponding to each calculation.

Variable	Corresponding equation
Probability of getting unemployed (Table 3)	Annex Table A3, column 1
Lay-off probability (Table 3)	Annex Table A3, column 2
Re-employment probability (Table 3)	Annex Table A3, column 3
Wage growth for all workers (Chart 8)	Annex Table A5, column 2
Wage growth by education (Chart 8)	Annex Table A6, column 4
Wage growth by pattern of job change (Chart 9)	Annex Table A6, column 6

The estimated probability (or rate) refers to an individual belonging to the reference worker group for each estimation, whose age, work experience and tenure are kept constant at their sample average.

*ANNEX 3*

**PRESENTATION OF COUNTRY CASES**

Five countries have been selected below for a brief special presentation of CET systems. Emphasis is put on joint governance of continuous training, collective bargaining and firm-level worker participation.

### CASE 1: FRANCE

In a typology of industrial relations systems, France stands out as an example of “fragmented” bargaining at multiple and often uncoordinated levels, of competition between trade unions weakened by declining membership, and of recurring attempts by government to provide a more stable framework. In the area of continuous education and training this fragmentation seems much less pronounced, as there has been quite a fruitful interplay between collective agreements at national and branch level on the one hand, and legal regulations which have subsequently given a legal form to these agreements, on the other. In addition, there are long-standing legal requirements about the participation of works councils (*comités d'entreprise*) in the set-up of company training plans.

Since the early 1970s, when the French system of continuous training evolved, it has been characterised by:

- the obligation on employers to adapt employee skills to the evolution in their profession and finance further training in the enterprise at a minimum level set through legislation, in the absence of which they need to pay a training levy.
- and the strong role of the social partners in elaborating training guidelines and in managing bipartite institutions to administer and spend the funds resulting from the employer contributions.

All enterprises with 10 or more employees need to spend at least 1.5% of their wage bill on training (they actually spend between 2 1/2 and 3 1/2% according to various estimates). This sum is divided up into 3 elements: i) 0.9% for continuous training within the firm; ii) a compulsory levy of 0.2% for training leave; iii) and a levy of 0.4% for "alternance training". A levy for apprenticeship exists separately. Small firms contribute 0.15% of the wage bill directly to a training fund (often topped up by collective agreement). The law addresses equity issues by increasing the spending requirement to 2% for temporary work agencies and asking for an additional 1% of spending on persons with fixed-term contracts.

At national and sectoral level, there are a multiplicity of both tripartite and bipartite, consultative and management bodies at work in the CET area. The main consultative commissions integrating representatives of government and the social partners are the National Council for Vocational Training, Social Advancement and Employment (FPPSE) and its regional subcommittees. Bipartite bodies that promote training policy are the National Joint Employment Boards within each branch of trade and industry (CPNE) and the National Joint Committee for Vocational Training (CPNFP). 97 joint collection agencies (OPCAs) collect contributions from employers in the framework of the national and additional sectoral training levies.

Collective bargaining occurs at inter-sectoral and branch levels. At branch level, there is a legal obligation to negotiate every five years on training priorities and resources. By contrast, there is little bargaining at firm level; however, there are substantial consultation rights of the *comité d'entreprise* (a bipartite works committee) at establishment and company level.

Employers must consult the works committee on the implementation of the firm's current training plan and the set-up of the training plan for the forthcoming period. The committee can also develop plans of its own and submit them to the employer for negotiation. In firms with 200 and more employees, the works committee establishes a special training subcommittee. The training plan is supposed to take into account guidelines from the agreements on branch or inter-sectoral level. Where works committees are absent (as in most small firms), personnel delegates need to be consulted. While works committees and delegates cannot block a training plan, these are usually set up in consensual fashion. Firms that have not consulted on their training plan, are liable to pay a fine of 50% of their required investment on continuous education and training. It should be added, though, that there normally are no works councils in firms with less than 50 employees, and that personnel delegates are unevenly spread throughout the SME sector.

In spite of the noted legal obligations, the participation rate in CET is still considered insufficient and problems of access of the lower-skilled persist (Secrétariat d'Etat, 1999).

## CASE 2: GERMANY

Although no longer uncontested, the German model of industrial relations, reflecting the “social market economy” (Ludwig Erhard) or “Rhineland capitalism” (Michel Albert), has often been analysed as a virtuous circle: in this view governance of joint-stock companies through co-determination, strong sectoral bargaining which takes wages out of competition, legal regulation of workplace co-operation (in the Works Constitution Act), together with a highly regulated system of initial training (mainly apprenticeship), has led to a focus on high-quality production, while the resulting economic prosperity in turn contributed to peaceful and collaborative labour/management relations (Jacobi *et al.*, 1998).

Unlike its “dual” system of initial training, jointly governed by employers and trade unions in the framework of chambers of commerce and trade, where course schedules are agreed and examinations held, continuous training is subject to relatively little joint or statutory regulation and has relied mainly on the initiative of individual employers. Trade unions have been unsuccessful with their demand for a federal law regulating continuous training, which would have the effect, *inter alia*, of determining a public responsibility in this field. However, there are various countervailing tendencies:

- First, there is a long-established system of regulated continuous training tracks (over 200), with certification subject to consensus-building by the social partners and governed by state and chamber regulations, in particular the master craftsmen certificates (*Meister*) in industrial and craft occupations. However, these formalised tracks concern only about 5% of CET activities.
- Second, although training, as a field of negotiation, cannot compete with salary issues and working hours, there are a limited number of collective agreements on sectoral and firm level (*Tarifverträge*), and a substantial number of works agreements at firm and establishment level (*Betriebsabkommen*, *i.e.* agreements concluded with the works council) which, *inter alia*, lay down the individual’s right to training leave, require skill formation in response to technical/organisational change or as a means against redundancy; or regulate the modalities of setting up and implementing training plans. According to recent survey results, training activities in over 20% of firms that undertake training, are subject to some kind of written collective bargaining or works agreement (Dobischat and Seifert, 2001; Bahn Müller, 2002).
- In recent years the top-level tripartite consultative group, the “Alliance for Jobs”, has repeatedly stressed the need to focus on continuous training to improve employability and competitiveness. For example, the joint statement of March 2001 has encouraged employees to engage in training through the use of long-term “working-time accounts”, built up through accumulation of overtime or through working-time reduction. Changes in work organisation should be designed so as to facilitate learning, and particular training efforts should be directed at the lower-skilled and older workers above the age of 50 (EIRO, 2001). As one of several results of that meeting, government is now providing subsidies for continuous training of older workers.
- Finally, a recent amendment to the Works Constitution Act has provided works councils with extended powers to influence firm training. In particular, it lays down that the works council can require the employer to discuss the company’s qualification and training needs and can make proposals about how to fulfil these needs (if necessary, with the help of outside experts). In addition, the works council now has full co-determination rights when skill formation is needed to cope with new technology and new forms of work organisation for which employees’ existing competencies are no longer sufficient. Should negotiations not lead to an agreement, a conciliation board will settle the conflict. Works councils have a variety of consultation and codetermination tasks and it remains to be seen how extensively they will make use of their new competencies in the training area.

### CASE 3: SPAIN

After the end of the Francoist dictatorship, the social partners in Spain were drawn into a broad societal role, playing an important part in the stabilisation of the political system. A number of tripartite agreements and "social pacts" have shaped social policies, and in many areas forms of tripartite and bipartite regulation have developed. The continuous training system is an outstanding example, with the strong involvement of the social partners in the administration of training funds, financed through a levy system.

This levy currently amounts to 0.7% of payroll, with 0.6% the employer share, and 0.1% the employee's share. The resulting funds are split equally between occupational training for the unemployed, and continuous vocational training for employed workers.

Since 1992, the CET system has been governed by bipartite and tripartite training agreements at national level. Spain is now in the "Third Agreement" phase, which lasts from 2001 to 2004. These agreements signed in late 2000 have increased the Government's role in the administration of CET and led to the set-up of the National Tripartite Training Foundation which is supposed to supersede the previous *FORCEM* administration. The Foundation's Board has 27 Members, with one-third each from government, trade unions and employers (previously *FORCEM*'s board was bipartite).

Every year, the Ministry of Labour and Social Affairs issues open calls for submission of training plans. Companies with over 100 employees can submit individual plans, while SMEs need to join forces and submit sectoral or territorial-based group plans. The administration then applies criteria based on understandings reached in the sectoral Parity Commissions (see below). A certain number of these plans are usually rejected for not meeting the criteria or for poor quality. As the number of submissions has greatly increased, many plans are only partly funded. Nevertheless, there is currently no consensus for going beyond the 0.7% levy. On the other hand, the distribution of the levy could change in favour of CET, if unemployment continues its current downward trend.

The national bipartite training agreement lays down rules for the participation of trade unions/works committees in the establishment of training plans. The Foundation requires that the Plan was previously submitted to the legal workers' representatives. Their opinion – favourable or unfavourable – has to be joined to the submission. There is no veto right, but an unfavourable opinion will inevitably play a role in the evaluation of the plan.

The 3<sup>rd</sup> phase agreements mentioned above established several peer agencies for setting the framework and monitoring CET. These are called *Comisiones Paritarias (CP)*, and have been set up at national, sectoral and territorial level. Their members come from the main trade union and employer organisations. They do not decide on the actual granting of subsidies, but they set the framework for what types of training plans will be accepted. They are also supposed to be involved in ex-post control (e.g. they ask refunds from companies that did not exactly follow the requirements laid out in the plan).

The CPs also have a mediation function: when workers representatives have given an unfavourable opinion of a training plan, the relevant commission will usually try to mediate and modify the plan so that it has a better chance to get subsidised.

In addition, a substantial number (over one-fifth) of collective agreements signed either by works committees (*comite de empresa*) or local unions contain clauses specifying information or participation rights in the set-up of company training plans (Ministerio de Trabajo, 2001).

#### CASE 4: UNITED STATES

In the United States, which is characterised by a highly decentralised model of industrial relations with low levels of unionisation, there is no comprehensive national strategy for promoting training or coordinating skill development. Where enterprises are unionised, there is a certain amount, in some sectors, even a substantial amount, of negotiation and joint governance of initial and continuous training. In non-unionised settings, while many firms have established employee involvement practices, employers tend to have a prerogative on the terms and conditions of employment, including company training plans and activities. As is well known, there is no legal requirement for companies to set up works council-type representation bodies.

Joint labour-management training programmes which cover over 1 million U.S. workers are found primarily in the aerospace, automotive, health care, printing, steel, and telecommunications industries, as well as in state and federal public sector programmes (Box 7 contains some details about the joint UAW-GM programme). There are numerous other targeted joint programmes – relating to both apprenticeship and continuous training – scattered over local union-management contracts. As would be the case in a system of enterprise bargaining, they vary considerably in their funding, structure and operations.

Looking at the whole unionised sector, however, relatively few firm-level union-management contracts contain explicit provisions establishing joint training programmes. In a recent national survey of union and management negotiators, approximately half reported that their contracts had language establishing some form of union-management committee. Yet only about 4% of the contracts reported joint committees that were focused on education and training. Of course, contract language establishing other types of joint initiatives can involve training; for example, there is an abundance of joint health and safety committees, most of which address issues of safety training. Also, such efforts are more common among larger employers. Among employers with 1 000 or more employees, over two-thirds have some form of joint committee and joint training initiatives were found in 8% of union-management contracts. This is twice the frequency overall, though still a relatively small proportion of agreements.

While joint programmes have operated on a largely decentralized basis, some of the largest programmes have recently joined together to form the National Association of Joint Labor-Management Training Programs, which seems to reflect a willingness to reduce fragmentation.

There is also employer/trade union collaboration on training in local and regional partnerships outside of the usual “labour relations” arena. Thus, there are over 25 geographic areas or regions in the U.S. where many employers and unions have joined together to form what are termed *area labour-management committees*. These committees often come together in communities that seek to improve the labour-management climate and hence economic development in the area. The specific agenda and focus of these committees will vary over time, based on the interests and priorities of its members, but various forms of training are supported in virtually all cases.

Non-union jobs account for over 86% of U.S. employment. The sheer diversity of these settings makes any simple comparison between union and non-union sectors difficult. On the one hand, the non-union sector includes global leaders in the field of training and development, such as the Motorola Corporation with its “Motorola University” that rivals private universities in its scale and scope. At the same time, the non-union sector also includes the large segment of low-wage, low-skill jobs that only feature minimal levels of on-the-job training.

Comparing union and non-union sub-samples, a number of authors have found strong union effects for training in the United States, *i.e.* unionised workers on average receive higher levels of training than non-union workers. However, the relatively small proportion of the U.S. workforce that is unionised diminishes the overall impact.

### CASE 5: JAPAN

As in the United States, bargaining at enterprise level is the cornerstone of the industrial relations system in Japan. However, negotiations are given more of a framework through internal coordination of the actors on both sides of industry (see the centrally set wage demands under the *Shunto*). Although there is no legal requirement for works committees or councils at company level, joint labour/management committees exist in about half of Japanese workplaces with 50 or more regular employees (Shirai 2000), including in many of those that are not unionised. Against the background of life-time employment and low employee turnover, workers normally receive extensive on-the-job-training, resulting in a highly skilled and adaptable workforce. To a larger extent than for example in the United States, training has focused on creating functional flexibility (Shibata, 1999). One indication of this is the high share of on-the-job training among all types of training; in surveys, the most important medium regularly reported by Japanese workers in learning skills is guidance by seniors at the workplace or experience on the job.

At national level, trade unions and employer associations sit in a number of government councils and their subcommittees. They are consulted in the Human Resources Development Council of the Ministry of Health, Labour and Welfare about the 5-year-plan for "vocational ability development". In its policy statement on the current 7th Plan, for example, RENGO (the main trade union confederation) called for the strengthening of non-company specific training, as well as to step up efforts to certify continuous training.

At industry level, the trade unions' role in continuous training is limited, as sectoral bargaining agreements in Japan are extremely rare and no such agreements exist in the field of CET. At company and establishment level, survey figures show noticeable, albeit limited, levels of participation by trade unions and employee representative bodies in planning and organising CET. No surveys are available as to the extent to which training matters are incorporated in collective agreements as such. However, according to the latest Ministry survey (MoL 1999), among companies with union presence (over one-third of the sample), 15% report consultations with unions, while a further 40% hold information and explanation meetings. These figures were stagnant or had declined compared with previous surveys.

Another Ministry of Labor survey (MoL 1999b) looked at the consultation practices in joint labour/management committees. In companies and business establishments that had such committees, over 58% referred training matters to them. In most cases, management merely explained its training plans or gives employee representatives the opportunity to react and give their opinions. However, over one-third of the committees reported that they had more substantial consultation rights, and in over 10% of the companies, the agreement of the committee was required by a clause in the collective agreement. Interestingly, the share of companies where agreement was required, was highest in SMEs.

According to these surveys, consultation on training seems to be relatively stronger in joint labour/management committees than during management negotiations with labour unions. Also, the participation of these joint committees is more developed in firms without union presence. Overall, and in contrast to some other OECD countries, there seems to be no positive effect of union presence on labour's participation in the planning of firm training.

One instrument that ensures some impact of Japanese enterprise unions, however, is the requirement for firms who apply for training subsidies from central or regional government, to join their labour union's or other representative employee body's opinion on the content of the firm's application. This *proviso* seems to ensure to some extent trade union participation in the set-up of those company training plans where subsidies are sought. However, it is not known to what extent government authorities are influenced by critical or negative trade union comments.

Annex Table A1. **Participation rate of adult workers in CET in OECD countries**

	IALS, 1994-98 <sup>a</sup> 12 months prior to the survey					
	any kind of education or training			job-related education or training		
	all	employed	unemployed	all	employed	unemployed
Australia	41.4	42.2	28.3	37.2	38.1	23.8
Belgium <sup>b</sup>	26.0	27.0	16.6	18.7	19.8	8.6
Canada	40.6	41.9	30.1	35.7	37.5	22.0
Czech Republic	32.7	33.5	14.4	26.6	27.3	11.9
Denmark	60.1	60.7	51.1	53.6	54.6	38.8
Finland	64.8	69.9	29.4	46.1	51.1	11.6
Germany	..	..	..	..	..	..
Hungary	25.5	27.8	9.5	18.1	19.8	6.1
Ireland	26.2	29.2	8.3	20.9	23.3	6.9
Italy	28.4	29.5	16.6	23.9	25.1	10.4
Korea	..	..	..	..	..	..
Netherlands	42.9	43.2	39.2	32.3	32.5	29.4
New Zealand	51.4	53.1	31.4	45.1	46.9	24.1
Norway	53.5	54.1	33.2	50.1	50.8	26.7
Poland	19.0	20.5	7.9	14.8	16.5	2.4
Portugal	15.7	16.7	9.8	..	..	..
Sweden	59.2	60.2	46.0	..	..	..
Switzerland	45.3	45.7	32.3	31.6	31.7	26.9
United Kingdom	53.7	56.0	33.1	49.0	51.8	24.0
United States	48.1	49.0	29.4	44.3	45.1	27.8
<b>Unweighted average</b>	<b>40.8</b>	<b>42.2</b>	<b>25.9</b>	<b>34.2</b>	<b>35.7</b>	<b>18.8</b>
<b>Coefficient of variance</b>	<b>0.37</b>	<b>0.36</b>	<b>0.50</b>	<b>0.37</b>	<b>0.36</b>	<b>0.56</b>

	National sources, <sup>c</sup> 12 months prior to the survey		
	job-related education or training		
	all	employed	unemployed
Australia	43.0	47.0	27.0
Canada	22.0	28.0	15.0
Finland	37.0	51.0	13.0
France	..	29.1	..
Germany	30.0	42.0	21.0
Korea	13.5	13.5	13.8
Sweden	..	45.0	..
Switzerland	32.0	37.0	30.0
United States	35.0	41.0	27.0

.. Not available.

a) The data refer to economically active persons aged 25-64.

b) The IALS data for Belgium only cover Flanders.

c) The survey population varies depending on the survey. The following surveys are used: Survey on Education and Training (1996/97) for Australia, Adult Education and Training Survey (1996) for Canada, Adult Education Survey (1995) for Finland, Enquête Formation Continue 2000 for France, Korean Social Statistics Survey for Korea, Staff Training Survey (1999) for Sweden, Labour Force Survey (1998/99) for Switzerland and National Household Education Survey (1999) for the United States.

Sources: European Union Labour Force Survey, International Adult Literacy Survey, Education at a Glance 2001 and various national surveys.

Annex Table A1. Participation rate of adult workers in CET in OECD countries (cont.)

	ECHP, 1998, during the year prior to the survey <sup>a</sup>						ESWC 2000 <sup>b</sup>
	any kind of education or training			vocational training			
	all	working at least 15 hours per week	working less than 15 hours per week	all	working at least 15 hours per week	working less than 15 hours per week	employed
Austria	28.1	28.4	23.6	21.5	22.2	13.6	29.5
Belgium	28.3	29.8	17.6	18.0	19.4	8.6	26.7
Denmark	60.8	60.5	64.4	49.9	52.0	24.9	48.3
Finland	50.8	54.5	32.0	41.8	45.8	21.7	53.7
France	10.6	10.0	15.6	7.4	7.6	6.2	23.3
Germany	30.8	32.1	23.6	22.5	24.4	11.4	30.1
Greece	7.1	7.1	7.1	5.6	5.7	4.0	11.3
Ireland	20.0	21.2	12.8	12.0	12.7	7.7	30.4
Italy	11.9	12.2	9.8	6.9	7.5	2.3	20.0
Luxembourg	17.7	17.7	17.3	13.2	13.6	5.9	27.7
Netherlands	10.6	10.5	11.7	9.1	9.3	8.3	44.5
Portugal	7.2	7.0	9.0	3.5	3.4	4.3	12.1
Spain	22.5	22.6	22.1	14.5	14.6	13.8	17.8
Sweden	64.1	67.1	46.8	57.9	63.0	28.3	46.0
United Kingdom	42.2	44.4	25.5	37.6	40.2	17.8	47.6
<b>Unweighted average</b>	<b>27.5</b>	<b>28.3</b>	<b>22.6</b>	<b>21.4</b>	<b>22.8</b>	<b>11.9</b>	<b>31.3</b>
<b>Coefficient of variance</b>	<b>0.69</b>	<b>0.70</b>	<b>0.68</b>	<b>0.81</b>	<b>0.82</b>	<b>0.67</b>	<b>0.44</b>

	CVTS, 1999 <sup>b</sup>		ELFS, 2000, 4 weeks prior to the survey <sup>a</sup>					
	continuous vocational training		any kind of education or training			continuous vocational education		
	all enterprises	enterprises with CVT courses	all	employed	unemployed	all	employed	unemployed
Austria	31.0	35.0	..	..	..	..	..	..
Belgium	41.0	54.0	8.3	8.3	7.9	6.5	6.7	4.7
Czech Republic	42.0	49.0	..	..	..	..	..	..
Denmark	53.0	55.0	20.7	20.5	25.4	13.0	13.4	3.9
Finland	50.0	54.0	21.9	22.4	16.2	17.6	19.0	2.3
France <sup>c</sup>	46.0	51.0	2.5	2.3	4.1	2.0	1.9	3.7
Germany	32.0	36.0	4.7	4.6	5.7	2.7	2.8	1.4
Greece	15.0	34.0	0.7	0.6	2.2	0.4	0.3	0.6
Hungary	12.0	26.0	3.4	3.5	2.2	2.5	2.6	1.6
Ireland	41.0	52.0	..	..	..	..	..	..
Iceland	..	..	22.8	22.8	23.7	16.9	17.2	..
Italy	10.0	20.0	4.8	4.7	5.9	0.5	0.6	0.2
Luxembourg	36.0	48.0	5.2	5.2	7.2	4.3	4.2	4.6
Netherlands	41.0	44.0	17.3	17.3	16.8	5.7	5.7	5.0
Norway	..	..	14.5	14.5	13.8	11.9	12.0	7.1
Poland	16.0	33.0	..	..	..	..	..	..
Portugal	17.0	45.0	3.0	2.9	6.1	1.3	1.3	1.7
Spain	25.0	44.0	4.7	3.9	10.3	1.2	1.2	1.3
Sweden	61.0	63.0	17.5	17.2	23.7	9.8	10.2	3.2
Switzerland	..	..	27.7	28.2	7.4	..	..	..
United Kingdom	49.0	51.0	22.7	22.8	19.6	13.6	13.8	8.0
<b>Unweighted average</b>	<b>34.3</b>	<b>44.1</b>	<b>11.9</b>	<b>11.9</b>	<b>11.7</b>	<b>6.9</b>	<b>7.0</b>	<b>3.3</b>
<b>Coefficient of variance</b>	<b>0.45</b>	<b>0.26</b>	<b>0.76</b>	<b>0.78</b>	<b>0.67</b>	<b>0.88</b>	<b>0.89</b>	<b>0.70</b>

.. Not available.

a) The data refer to economically active persons aged 25-64.

b) The data refer to employees only.

c) The ELFS data for France measure only current training activity and are not fully comparable to those reported for the other countries.

Sources: European Community Household Panel, Third European Survey on Working Conditions, Continuing Vocational Training Survey and European Union Labour Force Survey.

Annex Table A2. Volume of CET of adult workers in OECD countries

	Annual hours spent in CET					
	IALS <sup>a</sup> 1994-98					
	per person			per trainee		
	all	employed	unemployed	all	employed	unemployed
Australia	65.0	63.6	86.7	157.1	150.6	306.4
Belgium <sup>b</sup>	27.8	28.0	25.4	140.3	135.3	220.9
Canada	57.4	51.1	105.5	143.3	123.5	353.9
Czech Republic	43.7	44.3	31.8	146.2	144.3	235.1
Denmark	81.5	73.4	198.9	138.1	123.0	396.6
Finland	91.6	87.0	122.9	141.9	125.0	421.6
Germany	..	..	..	..	..	..
Hungary	33.6	34.1	30.4	152.8	143.0	319.9
Ireland	46.2	48.9	30.2	189.2	179.9	364.0
Italy	31.6	28.6	65.0	113.5	98.9	392.0
Netherlands	70.9	63.4	191.6	165.3	146.8	493.8
New Zealand	84.1	79.7	136.5	164.7	151.2	434.6
Norway	73.2	71.0	139.1	137.4	131.7	418.7
Poland	24.0	25.4	13.8	133.1	130.1	190.1
Sweden	..	..	..	..	..	..
Switzerland	47.4	44.1	135.2	113.5	104.6	433.5
United Kingdom	58.8	55.9	84.7	110.3	100.4	265.1
United States	47.0	47.8	31.1	101.4	101.1	110.3
<b>Unweighted mean</b>	<b>55.2</b>	<b>52.9</b>	<b>89.3</b>	<b>140.5</b>	<b>130.6</b>	<b>334.8</b>
<b>Coefficient of variance</b>	<b>0.38</b>	<b>0.36</b>	<b>0.68</b>	<b>0.16</b>	<b>0.17</b>	<b>0.32</b>

	National sources <sup>c</sup>					
	per person			per trainee		
	all	employed	unemployed	all	employed	unemployed
Australia	27.0	27.0	42.0	63.0	56.0	155.0
Canada	20.0	23.0	25.0	92.0	83.0	170.0
Finland	36.0	38.0	56.0	97.0	76.0	419.0
Germany	40.0	42.0	101.0	130.0	92.0	471.0
Sweden	42.0	..	..	44.0	..	..
Switzerland	21.0	24.0	27.0	65.0	64.0	89.0

.. Not available.

a) The data refer to economically active persons aged 25-64.

b) The IALS data for Belgium only cover Flanders.

c) The survey population varies depending on the survey. The following surveys are used: Survey on Education and Training (1996/97) for Australia, Adult Education and Training Survey (1996) for Canada, Adult Education Survey (1995) for Finland, Staff Training Survey (1999) for Sweden, Labour Force Survey (1998/99) for Switzerland and National Household Education Survey (1999) for the United States.

Source: International Adult Literacy Survey, Education at a Glance 2001 and various national surveys.

Annex Table A2. Volume of CET of adult workers in OECD countries (*cont.*)

	<i>Annual hours spent in CET</i>						CVTS 1999 <sup>b</sup>
	ELFS 2000 <sup>a</sup>						
	per person			per trainee			
all	employed	unemployed	all	employed	unemployed	per trainee employed	
Austria	..	..	..	..	..	..	29.0
Belgium	..	..	..	..	..	..	31.0
Czech Republic	..	..	..	..	..	..	25.0
Denmark	80.6	74.8	215.6	388.4	364.3	847.5	41.0
Finland	31.8	24.5	114.6	145.0	109.3	706.7	36.0
France <sup>c</sup>	6.8	5.7	17.6	271.0	243.5	427.1	36.0
Germany	27.4	24.4	62.2	587.6	533.7	1091.5	27.0
Greece	5.0	3.8	17.4	692.8	654.8	796.7	39.0
Hungary	14.1	14.2	12.4	414.7	409.1	564.2	38.0
Iceland	34.5	33.5	115.8	151.2	146.7	487.8	..
Ireland	..	..	..	..	..	..	40.0
Italy	4.3	3.7	10.1	89.9	80.4	171.9	41.0
Luxembourg	3.6	3.5	5.8	68.9	68.6	80.1	39.0
Netherlands	10.0	9.7	21.4	57.9	56.3	127.4	37.0
Norway	22.8	20.3	134.9	157.1	139.7	979.8	33.0
Poland	..	..	..	..	..	..	28.0
Portugal	16.0	15.2	41.7	540.2	529.4	687.6	38.0
Spain	23.5	18.1	63.3	501.2	460.8	612.6	42.0
Sweden	7.9	4.5	70.4	44.9	26.1	297.2	31.0
United Kingdom	23.4	22.7	38.0	103.3	99.7	193.2	26.0
<b>Unweighted mean</b>	<b>20.8</b>	<b>18.6</b>	<b>62.7</b>	<b>280.9</b>	<b>261.5</b>	<b>538.1</b>	<b>34.6</b>
<b>Coefficient of variance</b>	<b>0.94</b>	<b>0.98</b>	<b>0.95</b>	<b>0.78</b>	<b>0.80</b>	<b>0.59</b>	<b>0.16</b>

.. Not available.

a) The data refer to economically active persons aged 25-64.

b) The data refer to employees only.

c) The ELFS data for France measure only current training activity and are not fully comparable to those reported for the other countries.

Sources: European Union Labour Force Survey and Continuing Vocational Training Survey.

Annex Table A3. Impact of CET on workers' employability

<i>Dependent variable</i>	(1)	(2)	(3)
	employed in t+3	laid off	employed in t+3
Sample	Always economically active / employed in t	Always economically active / employed in t	Always economically active / employed in t / once laid off
training participation	0.32 *** (3.99)	-0.08 (-1.14)	0.40 *** (3.14)
training on current job	0.00 (0.07)	0.01 (0.18)	0.02 (0.18)
age	0.01 (0.41)	-0.04 (-1.21)	-0.01 (-0.23)
age squared	0.00 (-0.63)	0.00 (1.06)	0.00 (0.05)
unemployed before the first job	-0.15 ** (-2.52)	0.07 (1.31)	-0.19 * (-1.72)
short-term unemployment	-0.26 *** (-3.53)	0.39 *** (5.54)	0.11 (0.90)
long-term unemployment	-0.34 *** (-4.10)	0.38 *** (4.68)	0.01 (0.08)
frequency of unemployment	-0.01 (-1.14)	0.03 ** (2.49)	0.00 (0.06)
work experience	0.00 (-0.09)	0.01 (0.73)	0.03 (1.11)
work experience squared	0.00 (-0.16)	0.00 (-0.37)	0.00 (-1.44)
tenure	0.06 *** (2.81)	-0.31 *** (-14.99)	-0.11 *** (-3.40)
tenure squared	-0.00 * (-1.94)	0.01 *** (12.28)	0.01 ** (2.51)
part time	-0.12 (-1.58)	0.18 ** (2.21)	-0.19 (-1.40)
women	-0.14 ** (-2.37)	0.03 (0.59)	-0.07 (-0.64)
upper secondary	-0.01 (-0.14)	0.07 (1.20)	0.06 (0.57)
tertiary	0.05 (0.59)	0.00 (0.01)	0.17 (1.05)
public	0.22 (1.18)	-0.35 ** (-2.63)	-0.09 (-0.25)
<b>Number of observations</b>	<b>13 390</b>	<b>10 058</b>	<b>1 523</b>

Note: \*, \*\*, \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

The probit method is used for the estimations. Weights are applied.

t-statistics in parentheses.

Finland, Germany, Luxembourg, Sweden and the United Kingdom are excluded because the survey does not contain data for a sufficient number of years. The estimates are controlled by a constant and dummy variables representing occupation, industry, job status, firm size and country.

t (base year) is 1995 for Austria and the Netherlands and 1994 for the other countries.

For the second column, Germany, Luxembourg and the United Kingdom are excluded.

Source: Secretariat estimations based on the European Community Household Panel.

Annex Table A4. Impact of CET on workers' mobility

	(1)	(2)
Dependent variable	Separated from the initial job ( $t+3$ )	Change employer with immediate alternative job ( $t+3$ )
sample	Always economically active / employed at $t$	Always economically active / employed at $t$ / stay with initial employer or change job with immediate alternative job
training participation	-0.01 (-0.31)	0.04 (0.62)
training on current job	0.01 (0.16)	0.03 (0.50)
age	-0.02 (-0.71)	-0.03 (-0.91)
age squared	0.00 (0.17)	0.00 (0.24)
unemployed before the first job	0.01 (0.28)	-0.02 (-0.31)
short-term unemployment	0.10 * (1.77)	-0.12 * (-1.87)
long-term unemployment	0.11 (1.54)	-0.12 (-1.30)
frequency of unemployment	0.03 ** (2.46)	0.02 ** (2.54)
work experience	0.01 (0.61)	0.00 (0.43)
work experience squared	0.00 (-0.44)	0.00 (-0.37)
tenure	-0.32 *** (-23.82)	-0.35 *** (-20.02)
tenure squared	0.01 *** (18.54)	0.02 *** (15.78)
part time	0.11 * (1.81)	0.04 (0.52)
women	-0.11 ** (-2.54)	-0.21 *** (-4.08)
upper secondary	0.02 (0.41)	-0.02 (-0.41)
tertiary	0.06 (0.97)	0.05 (0.63)
public	-0.23 ** (-2.32)	-0.18 (-1.53)
<b>Number of observations</b>	<b>12,979</b>	<b>11,456</b>

Note: \*, \*\*, \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

The probit method is used for the estimations. Weights are applied.  
t-statistics in parentheses.

Finland, Germany, Luxembourg, Sweden and the United Kingdom are excluded because the survey does not contain data for a sufficient number of years.

The equations are controlled by a constant and dummy variables representing occupation, industry, firm size and country.

t (base year) is 1995 for Austria and the Netherlands and 1994 for the other countries.

Source: Secretariat estimations based on the European Community Household Panel.

Annex Table A5. Impact of CET on wage growth

<i>Dependent variable: Annual growth rate of gross wage</i>		
estimation model	<i>OLS</i>	<i>2-Stage</i>
	(1)	(2)
initial wage rate	-0.13 *** (-25.78)	-0.13 *** (-24.99)
trained once	0.01 *** (5.21)	0.03 *** (3.27)
training on current job	0.004 ** (2.12)	0.00 (1.16)
work experience	0.00 (0.91)	0.00 (1.09)
work experience squared	-0.00 (-1.12)	-0.00 (-1.07)
tenure	-0.00 (-0.90)	-0.00 (-0.96)
tenure squared	0.00 (1.63)	0.0001 * (1.66)
job change	-0.01 *** (-3.58)	-0.01 *** (-4.52)
part time	-0.02 *** (-5.03)	-0.02 *** (-3.91)
women	-0.02 *** (-8.01)	-0.02 *** (-6.91)
upper secondary	0.01 *** (3.38)	0.01 *** (3.86)
tertiary	0.03 *** (8.40)	0.03 *** (7.69)
public	-0.01 * (-1.97)	-0.01 (-1.39)
training selection		-0.01 * (-1.80)
<b>Number of observations</b>	<b>14 726</b>	<b>12 154</b>
<b>R<sup>2</sup></b>	<b>0.25</b>	<b>0.25</b>

Note: \*, \*\*, \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

The estimation results presented in this table take into account the survey weights for different categories of workers.

Heckman's 2-stage estimation method (applied to the column 2) takes into account eventual "selection bias".

Workers 25-64 years old who are employed in the first year as well as in the final year are included in the sample.

t-statistics in parentheses.

Finland and Sweden are excluded because the survey contains data for only two years.

When the 2-step estimation method is used, the Netherlands are also excluded due to lack of some data for the first step of estimation.

The estimations are controlled by a constant and dummy variables representing occupation, industry, firm size and country.

Source: Secretariat estimations based on the European Community Household Panel.

Annex Table A6. **Some extensions of wage regression**

estimation method	<i>Dependent variable: Annual growth rate of gross wage rate</i>					
	<i>OLS</i>			<i>2-stage</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
trained once	0.01*** (3.38)			0.03*** (3.01)		
upper secondary	0.01*** (2.85)	0.01*** (3.42)	0.01*** (3.49)	0.01*** (3.37)	0.01*** (3.88)	0.01*** (4.03)
tertiary	0.03*** (7.00)	0.03*** (8.40)	0.03*** (8.32)	0.03*** (6.60)	0.03*** (7.69)	0.03*** (7.68)
(upper secondary) X (trained once)	-0.00 (-0.03)			-0.00 (-0.09)		
(tertiary) X (trained once)	-0.00 (-0.64)			-0.00 (-0.80)		
general education only		0.01*** (2.60)			0.02*** (2.63)	
vocational training once		0.01*** (4.97)			0.03*** (3.26)	
no immediate job without training			-0.02*** (-5.18)			-0.03*** (-5.88)
immediate job without training			0.00 (0.63)			-0.00 (-0.10)
no job change with training			0.01*** (5.29)			0.02*** (3.00)
no immediate job with training			-0.02*** (-4.02)			-0.01 (-0.93)
immediate job with training			0.01*** (2.96)			0.02*** (2.63)
<b>Number of observations</b>	<b>14 726</b>	<b>14 726</b>	<b>14 619</b>	<b>12 154</b>	<b>12 154</b>	<b>12 055</b>

Note: \*, \*\*, \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

The estimation results presented in this table take into account the survey weights for different categories of workers.

Heckman's 2-stage estimation method (applied to the columns 4-6) takes into account eventual "selection bias".

t-statistics in parentheses.

Finland and Sweden are excluded because the survey contains data for only two years.

The Netherlands are also excluded due to lack of some data for the first step of estimation, when the 2-stage method is used.

All control variables included in the Annex Table A5 are included.

Source: Secretariat estimations based on the European Community Household Panel.

Annex Table A7. Determinants of the probability of participation in CET

*Dependent variable: participation in CET at least once during the survey period*

<i>Explaining variables</i>	<i>coefficient</i>	<i>Explaining variables</i>	<i>coefficient</i>	<i>Explaining variables</i>	<i>coefficient</i>
<b>Human capital :</b>					
<u>Initial education</u>		work hours	-0.09 ** (-2.59)	food, beverages and tobacco	0.07 (0.48)
less than upper secondary	reference	working time	0.02 (0.56)	textiles	-0.07 (-0.50)
upper secondary	0.17 *** (4.40)	working conditions	-0.03 (-0.94)	wood, paper printing	-0.04 (-0.30)
tertiary	0.35 *** (6.27)	distance from home	0.00 (-0.04)	chemicals	0.26 * (1.90)
years since formal schooling completed	-0.03 *** (-11.16)	<b>Job/firm characteristics:</b>		machinery and equipment	0.19 (1.40)
self-estimation of job related skills	-0.06 * (-1.92)	part time	-0.04 (-0.73)	other manufacturing	0.15 (1.16)
work experience	-0.18 * (-1.79)	sponsoring training	0.58 *** (16.88)	construction	-0.14 (-1.05)
work experience squared	0.00 * (1.76)	<u>Job status</u>		wholesale and retail trade	0.22 * (1.76)
<b>Personal characteristics:</b>					
age	0.07 *** (3.00)	supervisory	reference	hotel and restaurants	0.11 (0.72)
age squared	-0.00 ** (-2.49)	intermediary	-0.02 (-0.29)	transport	0.24 * (1.76)
woman	-0.01 (-0.40)	non supervisory	-0.24 *** (-4.88)	finance	0.49 *** (3.55)
<u>Unemployment experiences</u>					
unemployed before first job	0.03 (0.75)	<u>Firm size</u>		real estate	0.25 * (1.88)
short-term unemployment	-0.01 (-0.13)	none	reference	public administration	0.41 ** (2.32)
long-term unemployment	-0.01 (-0.17)	1-4 employees	-0.31* (-1.82)	education	0.57 *** (3.61)
unemployment frequency	-0.01 (-0.63)	5-19 employees	-0.19 (-1.10)	health and social work	0.45 *** (3.25)
<u>Looking after children</u>					
not looking after any children	reference	20-49 employees	-0.18 (-1.07)	other services	0.34 ** (2.52)
less than 14 hours per week	0.01 (0.15)	50-99 employees	-0.11 (-0.63)	<b>Country:</b>	
14-28 hours per week	0.12 ** (2.49)	100-499 employees	-0.14 (-0.80)	Germany	reference
more than 28 hours	0.02 (0.43)	500 and more	0.01 (0.04)	Ireland	-0.02 (-0.27)
<u>Looking after other persons</u>					
looking after no other persons	reference	<u>Occupation</u>		United Kingdom	0.19 *** (3.35)
less than 14 hours per week	0.15 (1.62)	managerial workers	reference	Belgium	0.01 (0.19)
14-28 hours per week	-0.10 (-0.75)	professionals	0.11 (1.40)	Italy	-0.26 *** (-3.97)
more than 28 hours per week	0.06 (0.35)	technicians	0.04 (0.65)	Denmark	1.25 *** (14.27)
<u>Satisfaction with current job</u>					
earnings	0.03 (0.78)	clerks	0.03 (0.40)	Luxembourg	-0.35 *** (-4.09)
job security	-0.02 (-0.50)	service workers	-0.17 ** (-2.17)	France	-0.22 *** (-3.75)
work type	0.08 ** (2.32)	skilled agricultural workers	-0.32 * (-1.87)	Greece	-0.96 *** (-11.45)
<u>Industry</u>					
		crafts	-0.40 *** (-5.50)	Spain	0.24 *** (4.07)
		machine operators	-0.38 *** (-4.78)	Portugal	-0.45 *** (-5.44)
		elementary occupations	-0.55 *** (-6.66)	Austria	4.51 *** (0.27)
		agriculture	reference	constant	-1.12** (-2.43)
		mining (including electricity)	0.34 ** (2.19)		
<b>number of observations</b>			<b>13 946</b>		

Note: \*, \*\*, \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

Weights are applied.  
t-statistics in parentheses.

Finland, the Netherlands and Sweden are excluded from the estimation.

The Netherlands are also excluded due to lack of some data for the first step of estimation, when the 2-stage method is used.

Source: Secretariat estimations based on the European Community Household Panel.

Annex Table A8. **Variables used in the regressions**

<i>Variables</i>	
<i>Skill, education and training:</i>	
training participation	dummy variable representing participation in any kind of training and education during the year prior to the survey
trained once	1 if the variable "training participation" = 1 for at least one year of the period included in the survey, 0 if else
general education only	dummy variable for the workers who participated only in general education
vocational training once	dummy variable for the workers who participated in vocational training courses at least once
training on current job	dummy variable describing whether or not the worker has received formal training that has given him (her) skills needed for his (her) present type of work before the survey
less than upper secondary	highest level of education completed = less than upper secondary education
upper secondary	highest level of education completed = upper secondary education
tertiary	highest level of education completed = tertiary education
years since completion of formal education	number of years after having left formal education
self-estimation of job related skill	1 if the worker does not feel that he/she has skills or qualifications to do a more demanding job than his/her current job
<i>Personal characteristics:</i>	
age	age of the worker at the first year
woman	1 if woman; 0 if man
married	dummy variable for married workers
tenure	number of years that the worker has worked with his current employer
work experience	potential years of work experience, <i>i.e.</i> number of years from the year when the worker entered into the labour market
unemployed before the first job	1 if unemployed before the first job; 0 if else
short-term unemployment	1 if the worker has had unemployment experience which is not longer than one year during the five years before joining the survey; 0 if else
long-term unemployment	1 if the worker has had unemployment experience which is longer than one year during the five years before joining the survey; 0 if else
unemployment frequency	number of times the worker has been unemployed during the five years before joining the survey
looking after children	number of hours that the worker spent looking after children
looking after other persons	number of hours that the worker spent looking after persons other than his children
satisfaction with current job	degree of satisfaction measured on earnings, job security, work type, work hours, working time, working conditions and distance from home: 1 if the worker is satisfied very much or much; and 0 if else.
<i>Job/firm characteristics:</i>	
part-time	1 if the worker has a part-time job; 0 if he has a full-time job
employer-sponsored training	1 if the employer provides education or training; 0 if else
occupation	occupational category classified according to ISOC
industry	main activity of the employer classified according to ISIC
firm size	number of persons who are working under the same employer at all locations in the country

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