

# **The impact of recession on adult training: evidence from the UK in 2008-09**

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## **Abstract**

Recent survey evidence in the UK suggests that many firms perceive a strong need to upgrade the skills of existing employees in order to improve their productivity and competitiveness. The main factors driving this higher demand for skills are changes in products, technologies and work organisation. In this context it is of particular interest to explore what effects the recent recession of 2008-09 had on adult training in the UK. This paper analyses evidence from Employers Skills Updating Surveys carried out in five different sectors at two different points in time: in mid-2008 just before the recession began to bite and in mid-2009 when the recession was well under way. The results suggest that in many establishments previous training plans were blown off course, with the recession contributing to reduced coverage of adult training and especially off-the-job training. The effects of such cutbacks on skill levels have been partially alleviated by more precise targeting of on-the-job training on meeting skill improvement needs. However, in a sizeable proportion of establishments, future productivity and competitiveness are likely to be impaired by failure to upgrade adult workers' skills to standards which employers themselves perceived as necessary prior to the recession.

## 1. Introduction <sup>1</sup>

Adult training has been at the heart of recent UK policy debates concerning economic competitiveness. A series of government papers and reports since the late 1990s have argued that future growth in competitiveness depends in part on improvements in workforce skill levels. Since adults constitute a large majority of the workforce, the obvious implication is that education and training policy should focus on developing opportunities for lifelong learning, not just initial skills training at the start of individuals' working lives.

In this context it is of particular interest to explore what effects the recent recession of 2008-09 had on adult training in the UK. For a number of reasons, it is far from obvious what the overall effects of recession on employer-provided training for existing employees will be. In some cases employers may respond to reductions in sales revenue and profits by cutting spending on training; in other cases employers may see recession as an opportunity to devote more time to training. Forward-thinking employers seeking to develop new business strategies for surviving the recession may identify raising skills as a key ingredient in those strategies. Others may lose strategic direction as they become caught up in day-to-day survival issues.

UK experience in the major recession of the early 1990s suggests that the loss of skilled jobs had more significant effects on the stocks of skills than any reduction in training. Indeed, some forms of employer-provided training held up fairly well during that recession, partly because of regulatory requirements in some sectors and partly because of some employers' strategic responses to intensified market competition (Felstead and Green, 1996). In a survey of UK firms' reactions to the early 1990s recession, Geroski and Gregg (2007) found that firms were much less likely to cut expenditures on training and product and process innovation than they were to cut

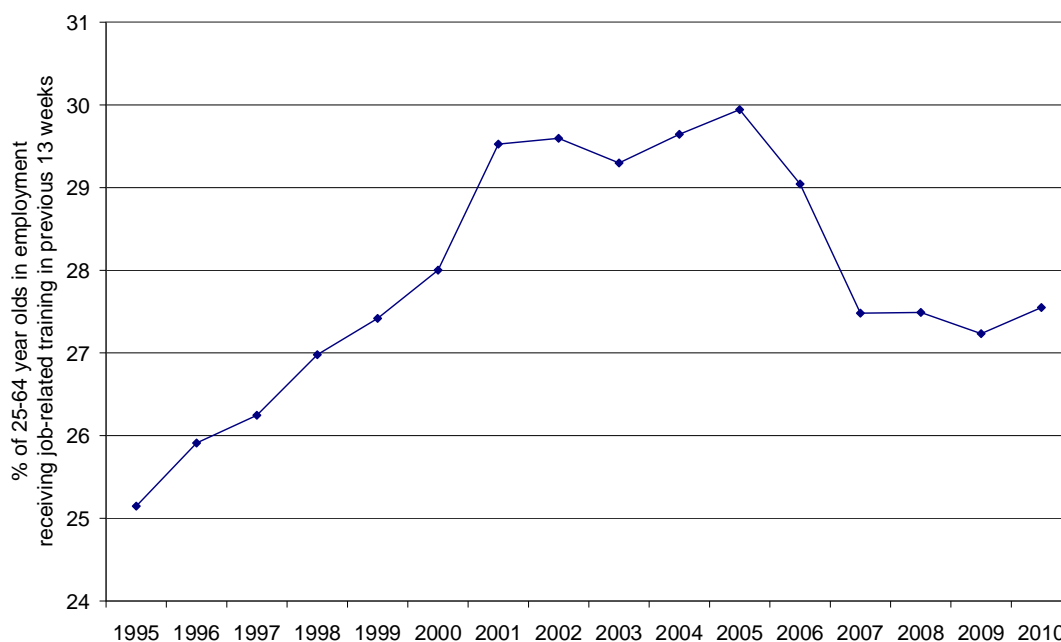
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spending on other forms of investment such as plant and machinery, buildings and advertising and marketing.

During the 2008-09 recession, the decline in output was much greater than occurred in the early 1990s but, in contrast to the earlier period, employment levels did not fall in line with the percentage drop in output (Gregg and Wadsworth, 2010; Bell and Blanchflower, 2011). If employers tended to hoard labour during the 2008-09 downturn, this raises the possibility that more time was available for training. However, analysis of Labour Force Survey data suggests that the proportion of adult employees (aged 25-64) receiving job-related training – which fell sharply between 2005 and 2007 before levelling off in 2008 – declined slightly between 2008-09 and then increased by a similar small amount in 2010 (Figure 1). On the face of things, therefore, the recession had very little effect on medium-term trends in adult training.

**Figure 1: Proportion of employees aged 25-64 receiving job-related training in previous 13 weeks**



Source: Labour Force Survey (Spring quarters)

Notes:

(a) Refers to March-May quarters from 1993 to 2004 and April-June quarters from 2005 to 2010.

(b) Employees include both full-time and part-time workers. Self-employed persons are excluded from the analysis.

In order to examine the impact of recession on adult training in more detail – and in particular to assess some of the sectoral variation lying beneath the aggregate story for

the UK economy – this paper analyses evidence from Employer Skills Updating Surveys carried out in five different sectors at two different points in time: in mid-2008 just before the recession began to bite and in mid-2009 when the recession was well under way. One advantage of surveying the same employers at two different points in time is that we are able to compare training plans in mid-2008 with what actually took place in the next 12 months. The survey data also enable us to explore the impact of recession on different kinds of training, for example, training carried out off-the-job and involving external training providers as compared with on-the-job training provided by employers themselves. In addition to the two surveys, we also gathered further information through semi-structured follow-up interviews with a proportion of survey respondents.

The paper is ordered as follows. Section 2 considers theoretical arguments about how employer-provided training may be affected by recession and sets out a number of hypotheses to be tested through analysis of our survey data. In Section 3 we discuss the extent and nature of adult skills improvement needs and training revealed by the Employer Skills Updating Surveys. Section 4 outlines our empirical model and presents the results of multivariate analysis of survey data. It also draws on qualitative interview data to help interpret our main findings. Section 5 summarises our main findings.

## **2. Theoretical discussion and hypotheses**

In theorising about why, and under what circumstances, many employers are prepared to pay for employee training, it is well understood that in perfectly competitive labour markets there are clear incentives for employers to develop firm-specific skills which, by definition, can only be used within their firms (Becker, 1964). However, in order to explain why some employers are prepared to pay for general skills training (skills that are potentially usable in many different workplaces) it is necessary to relax the assumption of perfectly competitive labour markets in which employee wages equate to their marginal products.

Thus Stevens (1994) develops the concept of ‘transferable’ skills which have value in more than one firm but for which wages could fall below worker productivity for reasons such as small numbers of firms in particular labour markets who value particular kinds of skills and other impediments to competitive labour markets (for example, mobility costs and imperfect information available to both firms and workers). Acemoglu and Pischke (1999) argue that firms’ willingness to invest in equipping workers with transferable skills depends on there being a ‘compressed’ wage structure such that wages increase more slowly than productivity as skills increase. The sources of such compression could include not just transaction costs and asymmetries of information, but also institutions tending to drive up wages at the low-skills end of the labour market such as trade unions and minimum wage legislation.

At the same time, if training firms are to benefit from post-training gaps between worker productivity and wage growth, they need to take steps to minimise the prospect of losing trained workers once they have acquired new skills. Green et al (2000) present evidence for the UK that training firms often succeed in reducing labour mobility by engaging in human resource management practices designed to increase organisational commitment and labour retention.

In this context the impact of recession on training provision will depend on just how the downturn in product and labour market demand affects:

1. The direct, indirect and opportunity costs of providing training
2. The anticipated impact on productivity of developing higher levels of skill
3. The anticipated impact on post-training wages
4. The anticipated impact on post-training labour mobility of skilled workers

These different costs and impacts of training are inter-connected, in large part because of the effects of recession on labour utilisation within firms. For example, economic theory suggests that, when sales fall during recessions, cost-minimising firms take account of adjustment costs and do not cut back immediately on employment (Rosen and Nadiri, 1974; Horning, 1994). These adjustment costs include dismissal costs and also the potential costs of new hiring and initial training if there is an upturn in demand. Particularly at the start of a recession, when its duration is uncertain, employers may hoard labour and, in later stages of the recession, may still prefer to reduce average hours per worker rather than the stocks of workers.

In the context of labour-hoarding, one potential effect of recession is to reduce the opportunity costs (eg, foregone output) of providing training during working hours. At the same time many of the fixed costs of training provision (eg, trainer salaries and training facilities) can be spread over a larger number of trainees than would have been possible at higher levels of capacity utilisation. All else being equal, these developments will increase the perceived cost-effectiveness of training during recessions, as will the reduced probability of trainees finding employment outside the training firm or of post-training wages being bid up when unemployment is rising. All of these factors may contribute to increased willingness to provide training.

These considerations point to the following hypothesis which we are well placed to test through our longitudinal survey data collected just before the 2008-09 recession started and 12 months later when the recession was well underway:

H1: All else being equal, training is more likely to be provided during a recession by firms (or organisations) which have maintained employment levels in spite of reductions in sales (or budgets) <sup>2</sup>

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<sup>2</sup> Public sector and voluntary organisations which took part in the surveys were asked about changes in annual budgets as a counterpart to questions put to private sector firms about changes in annual sales.

Another reason why training provision may increase during recessions in some firms is that the perceived skill requirements needed to compete in future product markets could be rising. Potential drivers of such changes in skill requirements include the introduction of new technologies and the development of new products. This proposition can be expressed in a second hypothesis to be tested:

H2: All else being equal, training provision during a recession will be positively related to the strength of skill improvement needs identified by employers

An alternative scenario for some firms is that training rates may remain relatively unchanged during recessions because many of the factors driving training are themselves unchanged. For example, Felstead and Green (1996) point out that considerable amounts of training take place due to regulatory requirements or customer pressure for suppliers' staff to achieve accredited quality standards. These types of training tend not to be affected by recession and are often sector-specific in nature. In our multivariate analysis we make use of sector dummies to control for effects of this kind.

A third possibility, especially in firms that have experienced above-average declines in sales during the recession, is that training budgets will be reduced along with other expenditures. This is particularly likely to impinge on more expensive forms of training which involve external providers and take place away from the workplace. In some firms cuts in training expenditure may be justified by ongoing drops in average labour productivity if production declines much faster than employment. In these circumstances some firms may lower their expectations of post-training impacts on future productivity and cut back on training provision.

Taken together these considerations suggest a further two hypotheses to be tested regarding the impact of recession on adult training:

H3: All else being equal, training provision during a recession will be positively related to the change in sales (budgets) which has occurred.

H4: All else being equal, off-the-job training is likely to decline relative to on-the-job training during a recession.



### **3. Adult training and skills updating: survey findings**

The first of the two Employer Skills Updating Surveys which we draw on for our analysis was carried out by telephone in mid-2008 and covered 409 employers spread across five different sectors and city-regions chosen for diversity: retail in the Southampton area; social work (including residential care as well as other social work activities) in Glasgow; architectural and engineering services in Birmingham; cultural sectors in Manchester; and electronics and related engineering activities in Bristol and the South West (Table 1A). The second follow-up survey was carried out in mid-2009 and secured the participation of 285 of these establishments, approximately 70% of the 2008 sample. As shown in Table 1B, in spite of this attrition, the achieved sample in mid-2009 still represented a broad mix of sectors and size groups.

All employers in the survey were asked to identify ‘core groups’ of employees defined as the group ‘with the skills and knowledge which make the greatest contribution to the success of business’ (excluding managerial staff). They were then asked a series of questions about the skill improvement and updating needs of their core employees. Common occupations cited in this category included architects and civil engineers in architectural and engineering services; care assistants and housing welfare officers in social work; library assistants and sales staff in cultural sectors; skilled trades and machine operators in electronic engineering; and sales assistants in retail. Across the sample, core employees in each sector held a mix of qualifications but were most likely to be qualified at graduate level in architectural and engineering services; at intermediate level (eg, NVQ3) in social work establishments; and at NVQ2 and lower levels in retail.

Only a minority of establishments in the survey (11%) reported that no skills needed updating or improving among their core employees. The proportion of respondents who could identify skill improvement needs ranged from 82% in retail to 95% in social work, with the deficiencies typically relating to generic skills alone (for example, leadership, supervisory, communication, customer handling or team-working skills) or to generic and technical skills in combination. The widespread nature of skill updating needs of this kind was later confirmed by the 2009 National Employer Skills Survey in England which found that, across the whole economy, 69%

of employers expected that, over the next 12 months, some of their existing employees would need to acquire new skills or knowledge (Shury et al, 2010).<sup>3</sup>

The main factors driving changes in skill requirements were the introduction of new goods or services, new work practices, new technologies or new legislative or regulatory requirements (Table 2A). When we look at skill updating and improvement needs in more detail, it is clear that they apply to core employees at all qualification levels, not just those who hold lower-level or no qualifications (Table 2B). Rather the pace of change and intensity of market competition tends to create new skill needs across large sections of the workforce.

In addition to the main telephone surveys, semi-structured telephone interviews were carried out with 45 respondents (8-10 in each sector) who agreed to discuss their skill requirements in more depth. These supplementary interviews highlighted many sector-specific factors contributing to recurring changes in skill requirements. In architectural and engineering services and electronics-related engineering, for example, many of the new skill needs were driven by customer requirements:

We're reskilling into tunnelling, it's a new sector and we've been driven by a broader client base. We need new technical, craft and practical skills... An example would be reskilling people in tunnelling to build up a tunnelling fraternity -- on the technical side we need engineers and quantity surveyors to be able to work in a tunnelling environment and know the difficulties. On the practical side we need enough drivers to drive tunnelling machines and spray concrete operatives to follow up behind [A7, civil engineering, 25-99 employees]

We get a constant requirement for this [industry standard] and many contractors require us to be familiar with it. It's got two edges: it helps us meet quality standards and also helps us win work so we are making sure all operators and inspectors are trained [E4, electronic engineering, 25-99 employees]

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<sup>3</sup> Note that the 2009 National Employer Skills Survey covered 79,152 establishments in England with at least two people working in them. The minimum establishment size in the 2008 and 2009 Employer Skills Updating Surveys was five employees.

**Table 1: Employer Skills Updating Surveys, 2008 and 2009, respondents analysed by sector and size group**

City-region:	Birmingham	Glasgow	Manchester	South West (a)	Southampton	
Sector:	Architectural and engineering services	Social work	Cultural industries (b)	Electronics and related engineering	Retail	Total
<i>Percent of establishments</i>						

**A: 2008**

Size group:						
5-9	25	22	30	22	40	28
10-24	40	45	41	44	36	41
25 - 49	19	12	13	15	12	14
50 - 99	4	10	6	9	3	6
100 - 199	5	6	9	4	4	6
200-plus	7	4	2	7	5	5
Total	100	100	100	100	100	100
<i>n</i> =	73	98	88	55	95	409

**B: 2009**

5-9	31	19	28	24	45	29
10-24	38	48	40	42	30	40
25 - 49	19	14	12	18	13	15
50 - 99	4	10	5	11	2	6
100 - 199	4	5	12	0	3	5
200-plus	4	4	4	6	7	4
Total	100	100	100	100	100	100
<i>n</i> =	48	79	60	38	60	285

Source: Employer Skills Updating Surveys, 2008 and 2009

Notes: (a) In the electronics and related engineering sector, the survey initially targeted employers in the Bristol city-region but then had to diversify into other parts of the wider South West region in order to increase the sample size.

(b) Cultural industries are defined as covering the following activities: artistic and literary creation and interpretation; operation of arts facilities; motion picture and video activities; library, archives, museums and other cultural activities; publishing; reproduction of recorded media; and radio and television activities.

(c) Sectors defined as follows (Standard Industrial Classification, 2003):

Architectural and engineering services: SIC 742; Social work: SIC 853;

Cultural industries: SIC 9231, 9232, 9211, 9251, 9252, 2211, 2212, 2213, 2214, 2215, 2230, 9220;

Electronics and related engineering: SIC 30-33, SIC 353; Retail: SIC 521-524

Source: Employer Skills Updating Surveys, 2008, 2009

**Table 2: Core employee skills in need of improvement and factors driving changes in core skill requirements, 2008, analysed by main qualifications held by core group employees**

Main qualifications held by core employees:	University degree or equivalent	Intermediate-level (b) qualifications	NVQ2 or lower qualifications	Not known	Total
<i>Percent of establishments</i>					

**A: Factors driving changes in core employee skills over previous 2-3 years**

Development of new goods and services	49	48	44	30	45
Introduction of new working practices	43	54	44	41	47
Introduction of new technologies or equipment	54	51	47	48	50
New legislative or regulatory requirements	49	62	48	48	53
Changed for other reasons	11	5	8	11	8
No change in skill requirements	10	13	22	15	16
Don't know	3	0	1	4	1

**B: Core employee skills in need of improvement**

Computing skills	41	58	41	48	47
Communication, customer handling, problem-solving and team-working skills	77	80	74	48	75
Leadership and supervisory skills	63	61	47	15	53
Technical and practical skills	44	44	46	33	44
Basic skills	0.1	0.3	0.3	0.1	0.2
No skills in need of improvement	10	8	13	19	11
<i>n =</i>	<i>94</i>	<i>130</i>	<i>158</i>	<i>27</i>	<i>409</i>

Source: Employer Skills Updating Survey, 2008

Notes:

(a) Multiple responses permitted.

(b) Intermediate-level qualifications comprise Other NVQ4 qualifications below Bachelor degree level and NVQ3 qualifications.

In other sectors, managerial respondents emphasised regulatory issues such as registration requirements for social work and compliance with health-related legislation in some branches of retail such as pharmacy. But a common tendency in all sectors was establishments seeking to upgrade skills primarily as a means of achieving higher standards and competing more effectively in their respective markets, as these comments illustrate:

We are going to carry on with what we do now- product knowledge. Products are always changing, there is always new research and new legislation, so we will focus on upskilling, and a mixture of off and on the job training [R2, health products retail, 5-9 employees]

We want to develop communication and interpersonal skills. Most of our workforce... have diverse backgrounds in informal caring and so what we want to do is capture and redirect their informal skills, and make them realise what they have can be directed to a more formal qualification- the SVQ [Scottish Vocational Qualification][S2, community care project, 10-24 employees]

We've reskilled office staff to learn products as well so they can give technical info on the phone. They've had to do product training they can answer questions now. They went on the in house product training with the engineers so they can see the products they are selling and get a basic knowledge if people ask questions on the equipment [C4, theatre services company, 10-24 employees]

The majority is in-house...training people to make certain things, but we've also just financed a PhD and we've just financed another person to start a PhD...it's across the spectrum from a technician to formal education. [E1, electronic engineering, 5-9 employees]

As a result, in many cases the continuing existence of skill gaps did not reflect a lack of previous training but rather the need for training to continue in response to the pace of change. Only 14% of establishments had not provided any on-the-job training at all for core employees in the previous 12 months and as many as two thirds of them had provided such training for 60% or more of core employees (Table 3A). The incidence of off-the-job training was lower (especially for core employees with intermediate or lower qualifications) but still a third of establishments had provided off-the-job training for 60% or more of core employees. Seven out of ten establishments had made some use of external training providers, more so for core employees with graduate or intermediate qualifications than for core employees with NVQ2 or lower qualifications (Table 3B). As many as 62% of establishments said it was 'very likely' that they would provide additional on-the-job training in the next 12 months and this proportion rose to 69% for off-the-job training (Table 3C).

**Table 3: Recent training provision and likelihood of organising future training for core group employees, 2008**

Main qualifications held by core employees:	University degree or equivalent	Intermediate-level qualifications	NVQ2 or lower qualifications	Don't know	Total
<i>Percent of establishments</i>					

**A. Training provision for core group employees in past 12 months**

<b>On-the-job training</b>					
None	22	7	12	36	14
Up to 30%	8	5	6	4	6
30-59%	18	15	13	12	15
60% or more	53	73	68	48	65
Total	100	100	100	100	100
<b>Off-the-job training</b>					
None	25	21	38	54	31
Up to 30%	14	23	20	12	19
30-59%	27	18	12	8	17
60% or more	33	39	30	27	33
Total	100	100	100	100	100

**B. Use of external providers for core group training in past 12 months**

Commercial training providers	57	58	38	36	49
FE colleges	44	52	23	19	37
Universities	44	23	11	11	22
Equipment supplier training	41	42	32	31	37
No use of external training provider	17	21	38	52	29

**C: Likelihood of organising training for core group employees in next 12 months**

<b>On-the-job training</b>					
Very likely	57	70	62	41	62
Quite likely	27	21	21	30	23
Not very likely	9	7	12	11	10
Not at all likely	6	2	4	19	5
Don't know	1	1	1	0	1
Total	100	100	100	100	100
<b>Off-the-job training</b>					
Very likely	70	75	66	48	69
Quite likely	27	22	24	33	25
Not very likely	2	2	6	7	4
Not at all likely	1	2	3	11	3
Total	100	100	100	100	100
n =	94	130	158	27	409

Source: Employer Skills Updating Survey, 2008

Taken together, therefore, the 2008 survey results painted a picture of changing skill requirements at all levels of qualification, to which many employers were responding with training designed to upgrade skills. However, with the onset of recession, the 2009 follow-up survey showed evidence of reductions in the proportion of employees receiving training in a majority of firms, and in particular a decline in off-the-job training.

In the case of on-the-job training, the proportion of establishments engaging in such training was little changed between 2008 and 2009. But the coverage of on-the-job training did decline: the proportion of establishments providing such training for 60% or more of their core employees dropped from just under two thirds in mid-2008 to just under a third 12 months later (Figure 2). At the same time, the proportion of establishments who did not provide any off-the-job training for core employees rose from 29% in mid-2008 to 47% in mid-2009. There were also falls in the proportion of core employees receiving off-the-job training in those establishments which did maintain provision.

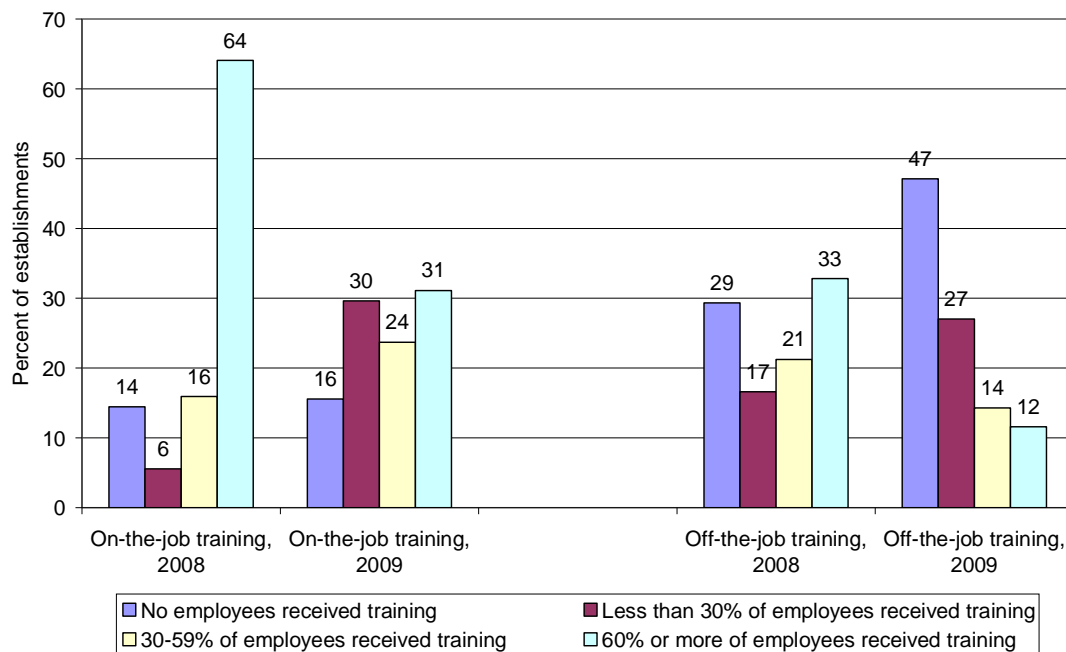
In essence, these longitudinal data suggest that many establishments' training plans were blown off course by the recession. This conclusion emerges clearly when attention is confined to establishments which in mid-2008 reported themselves as 'very likely' to provide training for core employees in the next 12 months in order in order to fill acknowledged gaps in skills. While the great majority (92%) of these establishments did provide on-the-job training in that period, as many as 41% of them did not provide any off-the-job training. This pattern of responses broadly applies across all levels of qualifications held by core employees, but with two main exceptions: graduate-level staff were less likely than other core employees to receive on-the-job training while spending on off-the-job training was most likely to be cut back for lower-qualified workers (Table 4).

As in previous recessions, the impact of the downturn varied greatly between individual firms and sectors. Thus about 38% of establishments in the follow-up survey in mid-2009 reported declines in (private sector) sales or (public sector) budgets since mid-2008. However, falls in sales affected 77% of establishments in architectural and engineering services compared to 39% of establishments in

electronic engineering and 32-33% in retail and cultural establishments while only 19% of social work establishments reported declining budgets.

These sectoral differences in sales and budget changes were mirrored to some extent by differences in training provision. For example, some 72% of social work establishments continued to provide some off-the-job training in 2009 compared with 32% in electronic engineering and 39% in retail. However, this may have reflected the impact of statutory regulation on training in residential care and other social work activities (Gospel and Lewis, 2010) as much as the limited effect of the recession on social work budgets. We now turn to multivariate analysis which will enable us to distinguish the effect of sales and budget changes on training provision from sector-specific characteristics and other variables that were at work during the recession.

**Figure 2: Training provision for core group employees, 2008 and 2009 (n=270)**



Source: Employer Skills Updating Survey, 2008; Employer Skills Updating Follow-up Survey, 2009



**Table 4: Training provision for core employees in 2009 by establishments who said in 2008 that it was ‘very likely’ that they would provide training in the next 12 months**

Main qualifications held by core employees:	University degree or equivalent	Intermediate-level qualifications	NVQ2 or lower qualifications	Don't know	Total
	<i>Percent of establishments</i>				
<b>On-the-job training, 2009</b>					
No employees received training	20	2	10	0	8
Less than 30% of employees received training	29	39	21	29	29
30-59% of employees received training	26	32	29	14	29
60% or more of employees received training	26	27	41	57	34
Total	100	100	100	100	100
<b>Off-the-job training, 2009</b>					
No employees received training	40	25	58	38	41
Less than 30% of employees received training	35	39	18	13	30
30-59% of employees received training	17	18	12	13	15
60% or more of employees received training	8	18	12	38	14
Total	100	100	100	100	100
<i>n =</i>	48	67	66	8	189

Source: Employer Skills Updating Follow-up Survey, 2009

## 4. The impact of recession on adult training

### 4.1 Empirical specification and data description

In order to assess the relative importance of factors contributing to the provision of job-related training for core group employees, we model the probabilities that employers provide or arrange for different kinds of training as follows:

$$(1) \Pr(\text{Trg}_i) = F(X_i \beta_1)$$

where

$$\text{Trg}_i \begin{cases} = 1 & \text{if training is provided for core group employees} \\ = 0 & \text{if no such training is provided} \end{cases}$$

$F(\cdot)$  is the cumulative distribution function of the standard normal distribution; and  $X_i$  is a vector of establishment-level characteristics that might be expected to influence the probability of providing training (for example, sector, size group and age of establishment, the main qualification level of core group employees, whether the establishment is wholly or partly foreign-owned, whether it is part of a multi-establishment organisation and whether it recognises a union).

We then carry out a probit regression analysis of the probability of employers providing either on-the-job training or off-the-job training for core group employees in 2008 and 2009. The analysis is confined to establishments which participated in both surveys.<sup>4</sup> In addition to the establishment-level characteristics listed above, other measures entered as independent variables include:

- A binary indicator of whether each establishment primarily serves foreign or national markets rather than local or regional markets
- Binary indicators of whether sales or budgets increased, fell or stayed the same during the previous 12 months
- A skill improvement needs index which is an additive measure of the number of different types of core employee skills described as needing improving or updating in 2008 (ranging from zero to ten)
- Binary indicators denoting the types of skills that need improvement, that is, whether they solely concerned generic skills, or technical/computing skills, or

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<sup>4</sup> Three of the 285 establishments which participated in both surveys are omitted from the analysis because they do not have observations on core group training for both on and off the job training in both years.

a combination of both generic and technical/computing skills (the reference category for these variables is ‘No skill improvement needs’). Generic skills here include leadership, supervisory, communication, customer handling, team-working, problem-solving and general IT skills.

- Binary indicators of whether establishments had recently introduced new products, processes or forms of work organisation
- A binary measure intended to capture labour hoarding processes which takes the value of one if sales or budgets declined between 2008 and 2009 but employment was stable or grew or declined more slowly than sales or budgets in the same period

Descriptive statistics for these and other variables used in the multivariate analysis are shown in Appendix Table A1.

#### **4.2 Multivariate analysis**

Given the hypotheses set out in Section 2, the main variables of interest in our analysis of training during the recession are the measures of labour-hoarding, skill improvement needs and annual sales (or budgets). Of these it is skill improvement needs which prove to be most clearly related to training provision of different kinds. The probit regression results presented in Table 5 suggest that, in the 12 months prior to mid-2008, the provision of off-the-job training was positively and significantly related to the summary measure of adult skill improvement needs described above (Column 4). By contrast, in this same period, on-the-job training provision was not significantly related to the skill improvement needs measure (Column 1). Twelve months later, in mid-2009, this position was reversed. While off-the-job training provision was no longer significantly related to perceived gaps in skills (Column 5), the provision of on-the-job training was now positively and significantly associated with skill improvement needs (Column 2).

Similar results are obtained when we replace the summary measure of skill improvement needs with indicators of the types of skill that need improvement. In mid-2008 off-the-job training provision was 15 percentage points higher in establishments reporting improvement needs in combinations of technical/computing and generic skills than it was in establishments with no reported skill improvement

needs (Table 6, Column 4). Twelve months later the coefficient on the same variable was much smaller and no longer statistically significant (Column 5). By contrast, on-the-job training was significantly and positively related to two different categories of skill improvement need in mid-2009 but not in mid-2008 (Columns 1-2).

These findings are consistent with the following interpretation of the changes in training incidence shown in Figure 2:

1. Pre-recession, in the 12 months up to mid-2008, on-the-job training was widespread but was not systematically related to skill improvement needs. By contrast, off the-job training was provided for smaller numbers of core employees and was much more closely tailored to perceived gaps in skills.
2. Twelve months later, the coverage of on-the-job training was reduced and, where it existed, it was much more likely to be targeted at employees with identified skill improvement needs than it had been in the earlier period. At the same time off-the-job training was reduced even further, to the point that many establishments no longer made use of off-the-job training to meet identified needs for skills improvement.

Thus there is partial support for Hypothesis 2 which posited that training provision during a recession would be positively related to the strength of skill improvement needs identified by employers. This hypothesis is supported in relation to on-the-job training but not to off-the-job training.

By contrast, there is no support for Hypothesis 3 that training provision during a recession would be more likely to be cut if sales (or budgets) had declined. Whereas establishments with declining sales or budgets were less likely to report either on- or off-the-job training *before* the recession began (Table 5, Columns 1 and 4), the relevant coefficient becomes statistically insignificant once the recession is under way (Columns 2 and 5). At sector level, it is notable that, after controlling for changes in sales and budgets, off-the-job training provision in 2009 holds up relatively well in architectural and engineering services while both on- and off-the-job training remain comparatively strong in social work and cultural sectors.

Table 5, Columns 3 and 6, also shows results pertaining to the effects of labour hoarding. In this model two additional binary variables denote, respectively (1) sales

or budget decline between 2008-09 combined with apparent labour hoarding, ie, without any equivalent decline in employment and (2) sales or budget decline without any sign of labour hoarding. In the case of both on- and off-the-job training, there is no support for Hypothesis 1 which posited that training provision during a recession would be positively related to the presence of labour hoarding.

In order to test the sensitivity of these findings to the use of a different (ordinal) measure of training provision, Table 7 reports the results of an ordered probit analysis of the determinants of the intensity of training coverage (ie, the proportion of core group workers covered by each type of training). This analysis is confined to the 90% of establishments for which information on the coverage of training is available for both 2008 and 2009. In general, these estimates confirm that while, before the recession, the intensity of off-the-job training was systematically related to skill improvement needs, this relationship broke down once the recession got underway (Table 7, Columns 4-6). At the same time, the intensity of on-the-job training provision in 2009 is shown to be positively related to the presence of technical/computing and generic skills (Column 3) but the relevant coefficient on the combined skill improvement needs index, while still positively signed, is no longer statistically well-defined (Column 2).

Overall, there is partial support for Hypothesis 2 as there was when using a binary indicator of the presence or absence of each kind of training. By contrast, when using the ordinal measure of training intensity, we find some evidence of declining sales having a negative effect on the coverage of off-the-job training during the recession when falling sales is combined with labour hoarding (Table 7, Columns 4-5). Thus in this specification there is partial support for Hypothesis 3 in a way that did not arise when using the binary indicator of training provision. However, there is clearly no support for Hypothesis 1 since the ordered probit estimates show a significantly negative relationship between the intensity of off-the-job training and labour hoarding. This relationship may seem surprising but turns out to be explicable when we consider the determinants of the ratio of on-the-job training to off-the-job training in each establishment.

Recall that in Section 2 we hypothesised that cuts in training budgets and a greater availability of internal resources could lead to a decline in more expensive off-the-job training relative to on-the-job training during a recession (Hypothesis 4). This proposition receives some support from descriptive statistics on training provision since the proportion of establishments providing at least some on-the-job training hardly changed between 2008 and 2009, whereas the proportion of establishments providing off-the-job training declined from 71% in 2008 to 53% in 2009 (see Figure 2). Multivariate analysis finds that the probability of an increase in the ratio of on-the-job training to off-the-job training was significantly higher in firms which had hoarded labour following a decline in sales (Table 8). This comes as no surprise since establishments in this situation are likely to have been under more pressure than most other establishments to make greater use of internal training resources during the recession. This is consistent with case study evidence cited by Felstead et al (2011) of firms learning to ‘train smarter’ during the recession through greater provision of in-house training and a tighter focus on training designed to meet business needs.

**Table 5: Probit regression estimates of the probability of providing on- and off-the-job training for core employees, 2008 and 2009, with summary measure of skill improvement needs – Marginal effects (evaluated at sample means)**

	On-the job training			Off-the-job training		
	2008	2009	2009	2008	2009	2009
Core group qualifications_graduates	-0.1620**	-0.2166***	-0.2182***	0.0317	0.0439	0.0452
	[0.070]	[0.075]	[0.075]	[0.071]	[0.089]	[0.090]
Core group qualifications_intermediate	0.0102	0.0144	0.0116	0.0957	0.1647**	0.1635**
	[0.047]	[0.046]	[0.046]	[0.062]	[0.076]	[0.076]
Architectural and engineering services	-0.0372	0.0591	0.0579	0.2199***	0.2715***	0.2685***
	[0.076]	[0.050]	[0.050]	[0.051]	[0.097]	[0.098]
Social work	-0.0026	0.0933**	0.0940**	0.2250***	0.3696***	0.3723***
	[0.058]	[0.045]	[0.044]	[0.057]	[0.087]	[0.086]
Cultural industries	0.0389	0.0995**	0.0974**	0.2140***	0.2917***	0.2906***
	[0.055]	[0.041]	[0.041]	[0.058]	[0.095]	[0.095]
Electronics and related engineering	-0.1461	-0.0008	-0.0003	-0.0366	0.0131	0.0098
	[0.111]	[0.072]	[0.072]	[0.103]	[0.133]	[0.134]
Single-establishment organisation	-0.0073	-0.002	-0.001	0.0447	-0.1320*	-0.1309*
	[0.041]	[0.045]	[0.045]	[0.062]	[0.076]	[0.076]
Foreign ownership	-0.0384	0.1131***	0.1129***	0.0439	0.3013***	0.3008***
	[0.070]	[0.027]	[0.027]	[0.082]	[0.084]	[0.084]
Union recognition	-0.0359	0.0139	0.0155	0.1059	0.0245	0.0238
	[0.055]	[0.050]	[0.050]	[0.075]	[0.092]	[0.092]
National or foreign market focus	0.0349	0.0203	0.0158	-0.0367	-0.1645**	-0.1716**
	[0.040]	[0.042]	[0.042]	[0.065]	[0.079]	[0.080]
Skill improvement needs index	0.0064	0.0173**	0.0171**	0.0325***	-0.0109	-0.0113
	[0.007]	[0.007]	[0.007]	[0.010]	[0.012]	[0.012]
Sales up in previous 12 months	-0.016	-0.0198	-0.0203	-0.0924	0.0767	0.0781
	[0.046]	[0.052]	[0.052]	[0.073]	[0.092]	[0.092]
Sales down in previous 12 months	-0.1629*	-0.0518		-0.3406***	-0.0976	
	[0.091]	[0.050]		[0.120]	[0.087]	
Sales down in previous 12 months, combined with labour-hoarding			-0.0631			-0.1152
			[0.057]			[0.094]
Sales down in previous 12 months, no labour-hoarding			-0.0226			-0.0491
			[0.075]			[0.123]
Observations	282	282	282	282	282	282
Pseudo R squared	0.158	0.185	0.186	0.243	0.173	0.174
Wald Chi2	32.45	50.73	49.59	73.99	59.25	58.9

Source: Employer Skills Updating Survey, 2008; Employer Skills Updating Follow-up Survey, 2009

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Probit estimates. Robust standard errors in parentheses. The dependent variables = 1 if the establishment has provided training for core employees in the previous 12 months and = 0 if no such training has been provided. Marginal effects are evaluated at the mean values of other independent variables. The reference category for core employee qualification groups is NVQ2 and lower qualifications. For sectors the reference category is retail. The skill improvement needs index is an additive measure of the number of different types of core employee skills described as needing improving or updating in 2008 (ranging from zero to ten). The reference category for sales change and labour hoarding measures is no change in sales in the previous 12 months. Other independent variables in the main equation are measures of age of establishment and establishment size and indicators of whether establishments had recently introduced new products, processes or forms of work organisation.

**Table 6: Probit regression estimates of the probability of providing on- and off-the-job training for core employees, 2008 and 2009, with indicators of different types of skill improvement need – Marginal effects (evaluated at sample means)**

	On-the job training			Off-the-job training		
	2008	2009	2009	2008	2009	2009
Core group qualifications_graduates	-0.1782** [0.073]	-0.2140*** [0.076]	-0.2144*** [0.076]	0.0119 [0.075]	0.0442 [0.091]	0.0459 [0.091]
Core group qualifications_intermediate	-0.0006 [0.047]	0.018 [0.045]	0.016 [0.045]	0.0889 [0.063]	0.1589** [0.077]	0.1580** [0.077]
Architectural and engineering services	-0.0224 [0.071]	0.0308 [0.057]	0.0292 [0.058]	0.2300*** [0.050]	0.2789*** [0.098]	0.2754*** [0.100]
Social work	0.0121 [0.055]	0.0788* [0.046]	0.0793* [0.045]	0.2442*** [0.057]	0.3716*** [0.087]	0.3733*** [0.087]
Cultural industries	0.0496 [0.052]	0.0897** [0.041]	0.0876** [0.042]	0.2152*** [0.059]	0.3020*** [0.094]	0.3006*** [0.094]
Electronics and related engineering	-0.1252 [0.106]	-0.0201 [0.078]	-0.0198 [0.078]	-0.0258 [0.105]	0.02 [0.133]	0.0162 [0.134]
Single-establishment organisation	0.0081 [0.038]	-0.008 [0.045]	-0.0072 [0.045]	0.0435 [0.063]	-0.1216 [0.078]	-0.1208 [0.078]
Foreign ownership	-0.0185 [0.066]	0.1048*** [0.028]	0.1047*** [0.028]	0.0678 [0.078]	0.3002*** [0.086]	0.2991*** [0.086]
Union recognition	-0.0301 [0.054]	0.0011 [0.051]	0.0026 [0.050]	0.1076 [0.076]	0.017 [0.092]	0.0158 [0.092]
National or foreign market focus	0.0277 [0.039]	0.0268 [0.041]	0.0228 [0.041]	-0.0526 [0.065]	-0.1631** [0.080]	-0.1692** [0.080]
Technical/computing and generic skill improvement needs	0.0484 [0.061]	0.1726*** [0.065]	0.1707*** [0.065]	0.1486* [0.084]	0.0137 [0.104]	0.0141 [0.104]
Technical/computing skill improvement needs only	-0.0788 [0.105]	0.0959*** [0.032]	0.0962*** [0.032]	-0.0597 [0.134]	-0.0072 [0.156]	-0.0014 [0.156]
Generic skill improvement needs only	-0.0094 [0.066]	0.0614 [0.043]	0.0608 [0.043]	0.0842 [0.076]	-0.0093 [0.113]	-0.0087 [0.113]



Sales up in previous 12 months	-0.0178	-0.0091	-0.0096		-0.0903	0.0743	0.076
	[0.046]	[0.052]	[0.051]		[0.074]	[0.094]	[0.094]
Sales down in previous 12 months	-0.1869*	-0.037			-0.2993**	-0.1053	
	[0.096]	[0.047]			[0.120]	[0.089]	
Sales down in previous 12 months, combined with labour-hoarding			-0.0461				-0.121
			[0.053]				[0.094]
Sales down in previous 12 months, no labour-hoarding			-0.0117				-0.0614
			[0.070]				[0.126]
Observations	282	282	282		282	282	282
Pseudo R squared	0.169	0.204	0.205		0.235	0.171	0.172
Wald Chi2	37.51	56.92	56.34		70.6	59.7	59.37

Source: Employer Skills Updating Survey, 2008; Employer Skills Updating Follow-up Survey, 2009

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

See notes to Table 5 for details of estimates except for the measures of skill improvement needs which here take the form of dummy variables denoting, respectively, technical/computing and generic skill improvement needs; technical/computing skill improvement needs only; and generic skill improvement needs only. The reference category for these variables is 'No skill improvement needs'.

**Table 7: Ordered probit regression estimates of the probability of providing on- and off-the-job training for core employees, 2008 and 2009, with indicators of different types of skill improvement need**

	On-the job training			Off-the-job training		
	2008	2009	2009	2008	2009	2009
Core group qualifications_graduates	-0.6113*** [0.210]	-0.5953*** [0.201]	-0.5574*** [0.203]	0.0563 [0.192]	0.0013 [0.215]	0.0394 [0.216]
Core group qualifications_intermediate	-0.1658 [0.187]	-0.205 [0.159]	-0.1647 [0.161]	0.1598 [0.185]	0.3053* [0.181]	0.3317* [0.180]
Architectural and engineering services	-0.3116 [0.292]	-0.0858 [0.284]	-0.2022 [0.269]	0.7587*** [0.259]	0.8531*** [0.275]	0.7957*** [0.271]
Social work	0.1088 [0.272]	-0.0969 [0.244]	-0.1525 [0.244]	1.0349*** [0.254]	1.1367*** [0.255]	1.0974*** [0.256]
Cultural industries	-0.1714 [0.296]	-0.0348 [0.266]	-0.0642 [0.265]	0.7601*** [0.263]	0.7429*** [0.276]	0.7221*** [0.273]
Electronics and related engineering	-1.0689*** [0.300]	-0.446 [0.280]	-0.5368** [0.273]	-0.327 [0.285]	-0.1344 [0.287]	-0.1993 [0.289]
Single-establishment organisation	-0.1339 [0.194]	-0.0505 [0.182]	-0.0568 [0.183]	0.1363 [0.178]	-0.2572 [0.182]	-0.256 [0.187]
Foreign ownership	0.169 [0.266]	0.4448** [0.223]	0.3858 [0.247]	0.3115 [0.248]	0.5968*** [0.230]	0.5444** [0.241]
Union recognition	-0.0399 [0.232]	0.185 [0.186]	0.137 [0.191]	0.4892** [0.228]	0.3876* [0.211]	0.3575* [0.211]
National or foreign market focus	0.0609 [0.193]	-0.053 [0.161]	-0.0257 [0.160]	0.0195 [0.172]	-0.2815 [0.177]	-0.2561 [0.177]
Skill improvement needs index	0.0378 [0.032]	0.0302 [0.029]		0.0925*** [0.027]	-0.0096 [0.030]	
Technical/computing and generic skill improvement needs			0.4976* [0.292]			0.1326 [0.267]
Technical/computing skill improvement needs only			0.5964* [0.358]			0.3261 [0.348]
Generic skill improvement needs only			0.1036 [0.308]			-0.0771 [0.282]
Sales up in previous 12 months	-0.2254 [0.198]	-0.0637 [0.197]	0.0171 [0.209]	-0.1369 [0.174]	0.2184 [0.205]	0.278 [0.210]
Sales down in previous 12 months	-0.391 [0.278]			-0.6680** [0.292]		
Sales down in previous 12 months, combined with labour-hoarding		-0.2382 [0.202]	-0.2009 [0.203]		-0.4124** [0.205]	-0.3926* [0.209]
Sales down in previous 12 months, no labour-hoarding		-0.1138	-0.0475		-0.1004	-0.0619

		[0.246]	[0.255]		[0.297]	[0.304]
Observations	253	253	253		253	253
Pseudo R sqd	0.108	0.057	0.0656		0.11	0.113
Wald Chi2	83.36	53.69	63.53		94.27	90.93

Source: Employer Skills Updating Survey, 2008; Employer Skills Updating Follow-up Survey, 2009

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Ordinal probit estimates. Robust standard errors in parentheses. The dependent variable is a six-point measure of the coverage of training for core employees in the previous 12 months which ranges from 0 (= no such training has been provided) to 5 (= training received by 90% or more of core group employees). Independent variable definitions and reference categories are as described in the notes to Tables 5 and 6.

**Table 8: Probit regression estimates of the probability of an increase in the ratio of on-the-job to off-the-job training for core employees between 2008 and 2009 – Marginal effects (evaluated at sample means)**

	<b>Increase in ratio of on-the-job to off-the-job training</b>
Core group qualifications_graduates	-0.0041 [0.099]
Core group qualifications_intermediate	-0.1531* [0.088]
Architectural and engineering services	0.0758 [0.141]
Social work	-0.0173 [0.125]
Cultural industries	-0.0685 [0.130]
Electronics and related engineering	0.0292 [0.144]
Single-establishment organisation	0.1027 [0.093]
Foreign ownership	0.086 [0.126]
Union recognition	0.064 [0.104]
National or foreign market focus	0.0522 [0.086]
Skill improvement needs index	0.0066 [0.014]
Sales up in previous 12 months	-0.0168 [0.101]
Sales down in previous 12 months, combined with labour-hoarding	0.2706*** [0.095]
Sales down in previous 12 months, no labour-hoarding	0.0715 [0.136]
Observations	222
Pseudo R sqd	0.0997
Wald Chi2	32.38

Source: Employer Skills Updating Survey, 2008; Employer Skills Updating Follow-up Survey, 2009

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Probit estimates. Robust standard errors in parentheses. The dependent variable = 1 if the ratio of on-the-job to off-the-job training for core employees increased in the previous 12 months and = 0 if this ratio did not increase. Marginal effects are evaluated at the mean values of other independent variables. Independent variable definitions and reference categories are as described in the notes to Table 5. The analysis excludes 53 establishments which either carried out no training of either kind in 2009 or provided insufficient information for the ratio of on to off-the-job training to be calculated.

This raises the question of how much it matters – for skill levels and for organisational performance – if there is a shift away from off-the-job training towards on-the-job training.

In the supplementary interviews which were carried out in 2009, respondents expressed a number of different views on this matter. In some cases, the managers concerned reported that all or most of their skill needs could be met by on-the-job training, for example:

*Historically, in terms of on-the-job training, that's the way we look at it, it's providing training to junior members of staff to carry out the role of QS [quantity surveying]. A university degree goes somewhere, say 50% of the way, and the actual practical means of fulfilling the role of QS can only be achieved by experience and on the job training. In terms of supplementary training, off the job training, seminars and things we get specialist advice say on legal matters, as the law does change in our industry, but we've taken the decision that it will be secondary, although we recognise it needs to be carried out in the medium and short term.[A9, quantity surveying, 10-24 employees]*

*On the job [training] allows you to work in reality with problems being thrown up there and then, it's easy just to get partial solutions with off the job training and when you are dealing with people in a state of crisis this doesn't always work. [S9, children's care services, 5-9 employees]*

*We don't need off the job training, we employ people to do a job, to our standard and we teach them to do things how we like them done, not necessarily how they are done elsewhere. [E5, electronic engineering, 5-9 employees]*

But in a larger number of cases, managers had strong views about the respective advantages of on-the-job and off-the-job training and aimed to provide a mix of both. Several of them considered that off-the-job training was more useful for highly-qualified and senior staff than for lower-skilled people:

*[Off-the-job training provides] technical expertise and the principles of leadership and management, but individuals still need to come back to the workplace and put the learning into practice, not just put the training folder in their drawer...It benefits the more sophisticated, professional level employees who need a bit more stimulus. [A6, engineering design and assembly, 200-plus employees]*

*Off the job is good for the harder stuff, an example is a course we did two years ago on negotiation, it was residential, we couldn't afford that now. On the job is more for coaching, it is for the easier stuff. [C1, publishing, 5-9 employees]*

*Both off and on the job training are important- they go hand in hand. Off is better for learning new skills and concepts- you are in a safe environment to practice and take on board the learning, you can then follow up with on the job learning and put the theory into practice. [C7, publishing, 25--99 employees]*

*Off the job does have some advantages for say training managers and supervisors we'd send them to a local college and they can rub shoulders with other managers - that's all very good for getting ideas. [E3, electronic engineering, 200-plus employees]*

*One of the benefits of off the job for the sales management side of things is that it takes you out of the day to day work, you get outside of the system and see a different perspective...you get a bigger picture. It's more suitable for the manager level, I'd have thought. [E7, electronic engineering, 10-24 employees]*

*So on and off are complementary as product knowledge can be taught more effectively in a class room but people's understanding and reading other people can only be learned on the job. [R1, leisure retail, 5-9 employees]*

In this context, for a sizeable proportion of establishments, if the main effect of recession is to reduce the scope for off-the-job training, this restricts the options available for managers to decide what the best mix of training methods should be. The downsides of this restriction on training activity may not be immediately apparent but some respondents expressed concerns for the future:

*If there has been any reduction [in training] then it has been for the professional staff- our engineering, our CAD [computer-aided design] staff; we've had to cut back as we've not been able to enjoy the training opportunities that are there for lower level staff. There has been some impact because some individuals had planned to go on training courses ...it's affected motivation...people are saying 'I'm feeling stunted'. [A6, engineering design and assembly, 200-plus employees]*

*There is not enough training for admin staff and managers, it is more on an ad hoc basis, we'll work on it next year- that will be a mix of on and off the job [training], again the same logic applies- people will need to go away and study and then be supported in the workplace....[At the moment] we have to focus training on operations staff as we have a primary responsibility to deliver the service. Budgets are tight so there is no developmental slack for non essential, non operations staff. [S5, family resource centre, 200-plus employees]*

*It has had an indirect impact; we have had to cut down on staff and as a result we are really busy on the shop floor so it is harder to send staff for training courses. It hasn't had an impact so far but in the longer term it could affect customer service and that is [our] unique selling point - we are strong at giving advice. [R6, health products retail, 5-9 employees]*

Taking these interview findings together with our longitudinal data analysis for establishments in these five sectors, the clear implication is that the recession has contributed to reductions in the coverage of adult training and especially off-the-job training for skilled and highly-qualified employees. This may help to further narrow the gap in training levels between low-qualified and well-qualified workers but it will not help growth in competitiveness.

## **5. Summary and assessment**

Recent survey evidence in the UK suggests that upgrading the skills of existing employees is a key requirement for improvements in productivity and competitiveness by private sector firms and in improved quality and efficiency of service provision by public sector and voluntary organisations. The main factors driving this demand for skills updating and improvement are changes in products, technologies and work organisation.

In order to explore how adult training in the UK was affected by the recession of 2008-09, this paper draws on evidence from Employers Skills Updating Surveys carried out in five different sectors at two different points in time: in mid-2008 just before the recession began to bite and in mid-2009 when the recession was well under way.

The survey results show that, prior to the recession, many employers were responding to changing skill requirements with training for ‘core groups’ of employees defined as the group ‘with the skills and knowledge which make the greatest contribution to the success of business’ (excluding managerial staff). However, with the onset of recession, the 2009 follow-up survey found marked reductions in the proportion of employees receiving training in a majority of firms, and in particular a decline in off-the-job training.

For example, the proportion of establishments providing on-the-job training for 60% or more of their core employees dropped from almost two thirds in mid-2008 to just under a third 12 months later. At the same time, the proportion of establishments providing off-the-job training for 60% or more of core employees declined from a third in mid-2008 to 12% in mid-2009. Overall, as many as 47% of establishments were providing no off-the-job training at all in mid-2009 compared to 29% a year earlier. These longitudinal data combined with qualitative interview evidence suggest that many establishments’ training plans were essentially blown off course by the recession.



As in previous recessions, the impact of the downturn varied greatly between individual firms and sectors in terms of its impact on private sector sales and public sector budgets. However, multivariate analysis provides very little support for a hypothesis that training provision during a recession would be more likely to be cut if sales (or budgets) had declined. Nor is there any support for a hypothesis that training provision during a recession would be positively related to the presence of labour hoarding, ie, the maintenance of employment levels in spite of falls in sales or budgets

Rather, the key factor driving training levels during the recession is found to be the strength of skills improvement and updating needs as they were identified by employers prior to the start of the recession. Pre-recession, in the 12 months up to mid-2008, on-the-job training was widespread but was not systematically related to skill improvement needs. By contrast, off the-job training was provided for smaller numbers of core employees and was much more closely tailored to perceived gaps in skills. Twelve months later, on-the-job training was reduced in coverage but, where it existed, it was much more likely to be targeted at employees with identified skill improvement needs than it had been in the earlier period. At the same time off-the-job training had been reduced to the point that many establishments no longer made use of it to meet identified needs for skills improvement. The main exceptions to these patterns of decline in training were in social work establishments where minimum levels of training were imposed by regulatory requirements.

Multivariate analysis also highlights the ways in which cuts in training budgets and a greater availability of internal resources contribute to an increase in the ratio of on-the-job to off-the-job training during a recession. Although provision of *on*-the-job training was unrelated to labour-hoarding, the same was not true of *off*-the-job training. Establishments which had maintained employment levels following a decline in sales had experienced the sharpest declines in the intensity of off-the-job training in mid-2009. This reflects the fact that establishments in this situation were under more pressure than most other establishments to rely on internal training resources and cut back on the use of off-site training providers.

Overall, the recession is found to have contributed to reduced coverage of adult training and especially off-the-job training. The effects on skill levels of reducing off-

the-job training have been partially alleviated by more precise targeting of on-the-job training on meeting skill improvement needs. However, in a sizeable proportion of establishments, future productivity and competitiveness are likely to be impaired by failure to upgrade adult workers' skills to standards which employers themselves perceived as necessary prior to the recession.

## APPENDIX

**Table A1: Descriptive statistics for Employer Skills Updating Survey and Follow-Up Survey analysis**

	2008	2008	2008	2009	2009	2009
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
On-the-job training (binary)	282	0.86	0.35	282	0.84	0.36
Off-the-job training (binary)	282	0.72	0.45	282	0.55	0.50
Coverage of on-the-job training (0-5 scale)	278	3.70	1.77	272	2.58	1.60
Coverage of off-the-job training (0-5 scale)	267	2.50	1.93	273	1.41	1.56
Core group_degree qualifications	282	0.23	0.42	282	0.23	0.42
Core group_intermediate qualifications	282	0.35	0.48	282	0.35	0.48
Coregroup_low or no qualifications	282	0.36	0.48	282	0.36	0.48
Core group_qualifications_not known	282	0.06	0.24	282	0.06	0.24
Architectural and engineering services	282	0.17	0.37	282	0.17	0.37
Social work	282	0.28	0.45	282	0.28	0.45
Cultural sectors	282	0.21	0.41	282	0.21	0.41
Electronic engineering	282	0.13	0.34	282	0.13	0.34
Retail	282	0.21	0.41	282	0.21	0.41
Size5_9	282	0.29	0.45	282	0.29	0.45
Size10_24	282	0.40	0.49	282	0.40	0.49
Size25_99	282	0.21	0.41	282	0.21	0.41
Size100_199	282	0.05	0.22	282	0.05	0.22
Size200plus	282	0.05	0.21	282	0.05	0.21
Single	282	0.36	0.48	282	0.36	0.48
Foreign	282	0.11	0.31	282	0.11	0.31
Ageunder10	282	0.11	0.31	282	0.11	0.31
Age10_19	282	0.23	0.42	282	0.23	0.42
Age20plus	282	0.61	0.49	282	0.61	0.49
Age_not known	282	0.05	0.14	282	0.05	0.14
Union	282	0.29	0.45	282	0.29	0.45
National or foreign market focus	282	0.39	0.49	282	0.39	0.49
Sales up in previous 12 months	282	0.40	0.49	282	0.24	0.43
No change in sales in previous 12 months	282	0.31	0.46	282	0.31	0.46
Sales down in previous 12 months	282	0.11	0.31	282	0.34	0.47
Sales change not known	282	0.18	0.38	282	0.11	0.31
Sales down in previous 12 months, combined with labour-hoarding (binary)				282	0.24	0.43
Sales down in previous 12 months, no labour-hoarding (binary)				282	0.10	0.30
New products	282	0.40	0.49	282	0.37	0.48
New processes or work organisation	282	0.35	0.48	282	0.38	0.49
Summary index of skill improvement needs (10-point scale)	282	4.04	2.69	282	4.04	2.69
Technical/computing and generic skill improvement needs (binary)	282	0.58	0.49	282	0.58	0.49
Technical/computing skill improvement needs only (binary)	282	0.09	0.28	282	0.09	0.28
Generic skill improvement needs only (binary)	282	0.22	0.42	282	0.22	0.42
No skill improvement needs (binary)	282	0.11	0.31	282	0.11	0.31

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