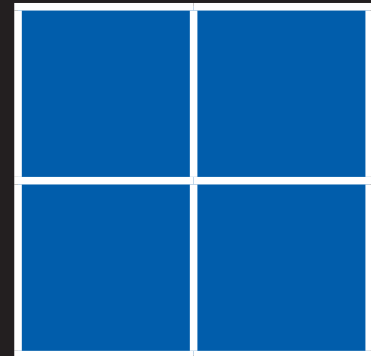


# What Has Been Happening to the Training of Workers in Britain?

Francis Green, Alan Felstead, Duncan Gallie, Hande Inanc, and Nick Jewson

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# **What Has Been Happening to the Training of Workers in Britain?**

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## Table of Contents

Abstract .....	2
Acknowledgements .....	2
1. Introduction .....	3
2. Training and the Knowledge Economy .....	4
3. Previous Commentary on Training Trends .....	7
3. Data Sets.....	8
5. Discussion .....	26
6. Conclusion and Recommendations .....	32
References .....	35
Data Source References.....	37

## List of Figures

Figure 1 Four-Week Training Participation Rate by Employment Status in the UK, 1995-2012 .....	11
Figure 2 Training Participation Rates for Employed Persons in the UK, by Time Interval, 1995-2012 .....	11
Figure 3 Training Episodes in the UK, 1995-2012 .....	12
Figure 4 Training Volume Per Person by Employment Status in the UK, 1995-1998 & 2006-2010 .....	14
Figure 5 Annual Training Participation according to the British Household Panel Study.....	15
Figure 6 Annual Off-The-Job Training Participation in Britain according to the European Social Survey .....	17
Figure 7 Four-Week Training Participation Rate in the UK Relative to 1995, With and Without Industry Controls .....	20
Figure 8 Perceptions of Training Quality in Britain, 2006 and 2012 .....	25
Figure 9 Fall in Industry Training Volume and Rise in Industry Education Level, UK, 1996/7-2008/9 .....	29
Figure 10 Whether Able to Learn Through Teamworking, Britain, 2001-2012 .....	32

## List of Tables

Table 1 Job-Related Training Trends in Britain By Data Source.....	39
Table 2 Trends in the Four-Week Training Participation Rate (%) and the Decline in Volume (%) by Industry.....	41
Table 3 Trends in the Four-Week Training Participation Rate (%) and the Decline in Volume (%) by Major Occupational Group.....	42
Table 4 Trends in the Four-Week Training Participation Rate (%)and the Decline in Volume (%), by Region of Usual Residence.....	43
Table 5 Trends in the Four-Week Training Participation Rate (%)and the Decline in Volume (%), by Age Group .....	44
Table 6 Trends in the Four-Week Training Participation Rate (%) and the Decline in Volume (%), by Sex .....	45

## **Abstract**

*We study trends in the volume, quality, funding and adequacy of training for employed persons in Britain since the mid 1990s, using evidence from eleven survey series in search of a consistent pattern. We find a ubiquitous inverted-U-shaped long-run pattern of training participation in a four-week period, both within groups and in aggregate. The overall participation rate for those in employment peaked in 2002 at 15.1% before falling to 13.1% in 2012, close to the level of the mid 1990s. The movement of annual participation rates is different between surveys. This conventional focus on participation rate movements, however, has obscured a more radical transformation. Over the same period the duration of training fell sharply with the result that the average training volume per worker declined by about a half between 1997 and 2012. While training volumes fell for all groups, they were greatest among the young, those in the private sector, those in the lowest education groups, and those living in Northern Ireland. Employers' funding for training also declined substantially after 2005.*

*We discuss several potential explanations for such a large fall in training volume for employed persons, with contrasting implications for skills policy. Evidence on training type and quality, while informative, does not permit ruling out any of the interpretations.*

*Recognition and discussion of the cut in training volumes may have been hindered by an undue focus on training participation rates. We conclude with recommendations for improvement in the collection of training statistics in the UK, and for future study.*

## **Acknowledgements**

This article draws on some research findings emerging from two projects: 'Training in Recession: Historical, Comparative and Case Study Perspectives' and 'The Skills and Employment Survey 2012'. These LLAKES-affiliated projects are funded by an ESRC/UKCES Strategic Partnership, with additional support to Cardiff University from the Wales Institute of Social and Economic Research, Data and Methods.

Material from the QLFS is Crown Copyright and has been made available by the Office for National Statistics (ONS) through The Data Archive and has been used by permission. The BHPS, ESS2, EWCS and WERS data used in this paper were made available through the ESRC Data Archive. The BHPS data were originally collected by the ESRC Research Centre on Micro-social Change at the University of Essex (now incorporated within the Institute for Social and Economic Research). Neither the original collectors of the data nor the Archive bear any responsibility for the analyses or interpretations presented here. References to all data sources are given at the end.

For helpful comments we thank Lorna Unwin, and seminar participants at the 2013 Annual Conference of the British Universities Industrial Relations Association, at King's College (London), and at Skills Development Scotland.

## 1. Introduction

Although much has been gleaned about training in past years and certain regularities uncovered, the diversity of data sources and the sporadic dissemination of their findings have delivered only a piecemeal appreciation of what has been happening with job-related training in the UK. Commentators – ourselves included – have as a consequence hitherto missed the fact that in the last 15 years there has been a sea change in the volume of training. Bringing together multiple sources for the first time, we find that the volume of training per employee has been going through a substantial decline over a period of at least a decade and a half.

This decline potentially matters because of the assumed importance of skill formation at work in a knowledge-based economy, and the need to optimise relevant government policies. Job-related training, both formal and informal, is taken to be central to delivering ongoing skill increases. In Britain as elsewhere, estimates of the returns to workplace training are generally positive and substantial (e.g. Blundell *et al*, 1996; Dearden *et al*, 2006; Vignoles *et al*, 2004; Booth and Bryan, 2005). The significance of training's aggregate contribution is suggested by the simplest juxtapositions of numbers. For example, in the mid to late 1990s the average worker was spending about 1.1 hours a week in training; over a career, this adds up to the equivalent of spending another two and a half years' in school.<sup>1</sup> Similarly, estimates of employer spending on training in England – £40.5 billion in 2011 – might be compared with the annual maintained schools budget – £33.5 billion.<sup>2</sup> Given training's importance, one of the concerns about the consequences of the 'great recession' begun in late 2008 was that it would lead to a wholesale collapse in training efforts with long-term consequences for workforce skills. This fear turned out to be unwarranted (Felstead *et al*, 2012), but studying training through the recession helped to bring to light the longer-run trend, while highlighting the complexities of gaining timely aggregate insights about training that are of value for commentators and policy-makers.

Interpreting and explaining the decline in training volume is not straightforward; we offer some competing explanations, each of which has some evidential support. Our central objective, however, is to call attention to the major change that has taken place over the medium term, a change that has hitherto been neither debated nor even recognised. In the next two sections we set the scene with a brief discussion of theoretical predictions about the trend for skill formation at work in the modern

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<sup>1</sup> QLFS, authors' analysis. The calculation assumes a 40 year career, yielding roughly 2300 hours of training. A school year entails 190 days of 5 hours a day.

<sup>2</sup> The largest element of training expenditure is the wages of trainees and trainers. See Davies *et al* (2012); UK National Statistics Data Hub (<http://www.statistics.gov.uk/hub/index.html>).

era, and a review of previous commentaries on training trends. The main contribution of the paper follows in Section 4 where we bring together findings about training trends from multiple high-quality surveys. Despite the diversity of their coverage of training forms, their reference periods, and their range of years for which data is available, there is a remarkable consistency in the story that they tell. Because this story is scattered in multiple sources their message appears to have been missed. We think that analysts and policy-makers concerned with training and learning could benefit from an improved statistical service, and so conclude by offering some recommendations for the future.

## **2. Training and the Knowledge Economy<sup>3</sup>**

Theories of the modern economy bring contrasting expectations about the level and direction of training volumes in the current era. The assumption that industrialised economies have become, or are becoming, knowledge-based carries hypotheses about the level and trend of workplace skill formation. The knowledge-based economy is characterised also as a learning economy (OECD, 1996). If technological change is substantive and skill-biased, the new needed skills could not be delivered merely through the education system, for two fundamental reasons: first, most of the adult population is at work, not in the education system, so the pace of expansion of skills in the workforce would be limited by the natural pace at which new generations of college-leavers replace retirees; second, many of the new skills can only be acquired in work settings. If an economy is assumed to be already a fully-fledged knowledge economy, one expects therefore to see higher levels of workplace skill formation (relative to previous eras) to generate both the work skills that cannot be learned during school and college education, and the new skills that become needed through innovation-driven growth. If, rather, it is claimed that a country is transitioning towards being a knowledge economy, then the presumption is that skill formation will be rising.

In the knowledge-economy literature, this prediction about skill formation is typically translated into an expectation about, and objective for, training: it is expected that training will be increasing in the period of transition towards a knowledge economy, and to be sustained at high levels thereafter. In Europe, increased access to training and lifelong learning has been stressed by the European Council as integral to its strategy for European competitiveness, and in particular for achieving its ‘Europe

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<sup>3</sup> We use the word “training” to refer to a wide variety of forms, including informal training, but we are aware that informal training will not always be well captured in survey data, and that even training in this wide sense does not cover all ways of learning in the workplace. The essential point, for examining trends through surveys, is exact consistency over time.

2020' objectives in its 'Agenda for new skills and new jobs' initiative.<sup>4</sup> Since it also has become widely recognised that 'wage compression' and various labour market imperfections that inhibit mobility are sufficient to give firms the incentives to contribute to funding transferable as well as firm-specific training even in a liberal market economy like Britain's (e.g. Stevens, 1994; Acemoglu and Pischke, 1998), it is expected that firms and individuals would both be increasing their investments in transferable skills. Governments are also expected to support training through subsidies, and indirectly via labour market policies such as the National Minimum Wage which may have stimulated training through wage compression.

Yet such a prediction may not be warranted. Once one takes into account other factors impinging on the demand and supply sides of the training market, the trend of training in an era of educational and technological change is theoretically ambiguous. In addition to the above-mentioned demand-side implications of the need for greater skill formation, the higher education levels of the workforce can substitute for some training needs, notably those where the training has a recovery function concerning, for example, basic skills. Better-educated workers could also be expected to learn some of the newly emerging skills more quickly, so requiring less training. Some writers also argue that the growth of the knowledge economy requires new forms of learning that are not best served by traditional forms of training (e.g. Kessels, 2001). On the other hand, writers sceptical of the idea that Britain can be characterised as a knowledge economy, who hold that Britain has been in a low-skills equilibrium or on a low-skills trajectory, would question the strength of the putative increasing demand for workplace skill formation (e.g. Keep and James, 2012). Indeed, the knowledge-economy is often presented as an aspiration rather than a reality; in theory the demand for skill formation is highly dependent on the selected path of development, encompassing economic, fiscal and institutional drivers and evolving management strategies (Green, 2013). Compounding these doubts, Britain's increasingly flexible labour market, it is maintained, may exacerbate the externality problem that firms face, discouraging them from funding training in the absence of cooperative solutions (Crouch *et al*, 2001).

On the supply side of the training market, technological change potentially aids delivery of skill formation more cheaply, as exemplified in the use of e-learning tools. In addition the evolving management of the training function within enterprises and public sector organisations can move towards better practice, in the process eliminating wasteful training time. By lowering the cost of the training function, demand might be stimulated, but unless the demand is especially sensitive to price,

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<sup>4</sup> European Council Resolution of 15/11/2007, COM(300).



other things equal one would expect to find lower training times but better training quality, hence more skill formation.

If the supply-side factors, together with the impact of rising education on training demand, prevail over the effect of the hypothesised increasing demand for skill formation, overall the amount of training could fall. A fair generalisation is that on balance advocates for the reality of the knowledge-based economy hold implicitly that the demand side is dominant and expect to see an increasing volume and quality of training as the knowledge-economy develops. In addition, since the knowledge-economy is held to have the potential to be potentially more inclusive than previous modes of economic development, training access is sometimes expected to become more widely available than hitherto (European Council, 2007). If, on the other hand, the demand for skill formation expands only weakly or even falls, as knowledge-economy sceptics would maintain, one would expect to see a declining volume of training. These contrasting expectations need to be modified, finally, by the possibilities of disequilibrium, in that workers and employers may face training barriers, in which they are unable to obtain the access to training they would optimally demand.

While the trend in the volume of workplace training is, therefore, one of the central variables characterising the model of a knowledge economy, it is somewhat surprising to find that descriptions of training trends over the long term are rarely focussed on the key indicators. To develop an account of training volume several related concepts need to be studied, if the statistics are to be an aid to public discourse and for the design of skills policy. Above all, we need indicators for the volume and quality of training. The key volume indicator is the time per worker spent in training in a given period. Quality is constituted by training's putative generative impact on skill; this could either be measured for each unit of training undergone (to be referred to as “unit training quality”), or for the total training in the given period (to be referred to as “total training quality”). Together, training volume and total training quality are the key concepts of theoretical and practical interest in relation to the underlying concern with how far the national training effort contributes to skill formation’

Also relevant is the training investment cost (both direct and opportunity cost), which combines the volume and the price of the investment. One might expect to get more and/or better training by investing more resources in it. Cost indicators are thus a partial, yet valuable check on volume indicators. The division of the cost between employer, employee and government is also essential for understanding incentive structures.

Finally, also relevant to understanding training trends is the adequacy of training, which is a match concept, according to whether the training received is sufficient to deliver an optimal rate of skill formation; this concept can be applied to all workers, whether or not they received some training.<sup>5</sup> Adequacy reflects how well or badly the training market is functioning. It is typically indicated by employees' or line managers' reports.

Using this range of indicators, the key empirical questions for both scholarly study and policy-related research on training's contribution to skill formation are these: What has been happening to training volumes in Britain? Has the quality of training generally been improving? How has the aggregate funding of training, and its division between employers, employees and government, evolved? Is the adequacy of training improving or deteriorating?

### **3. Previous Commentary on Training Trends**

Much official commentary on training in Britain is rightly focused on employers' skills needs for young people in transition to the labour market, and on the associated discourse on social exclusion, especially the problem of young people who are in neither employment, nor education, nor training. Workplace training for adult workers generally is well-recognised as an important contribution to skill formation in the aggregate, but in most cases commentaries have used one indicator, the participation rate (UKCES, 2009). Official perceptions of the record of training in Britain around the middle of the last decade were focused on the participation rate. Perhaps because the participation rate over a four-week period had become somewhat higher than in the 1990s, then coasting along at a reasonable rate – around 15% – workplace training was not news, nor was it something that government saw fit to intervene in, except for remedial purposes. Unlike with education and youth training, the country came out quite well in international comparisons of workplace training participation rates and funding (Leitch Review of Skills, 2005).

Nevertheless commentators became aware of the fact that participation rates had passed their peak in the early 2000s (Clancy, 2009; Mason and Bishop, 2010; Mason, 2010), and sometimes accepted that training was of relatively low quality in Britain, though the evidence was largely qualitative and dated (e.g. Steedman *et al*, 1991). Academic analyses have been mixed in their emphases, most focusing on participation rates as the key indicator (e.g. Murphy *et al*, 2008; Jones *et al*, 2007; Boheim and Booth, 2004; Booth and Bryan, 2005; Vignoles *et al.*, 2004; Dearden *et al*, 2006) while others have incorporated a duration dimension (Hoque and Bacon, 2008). This neglect of duration

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<sup>5</sup> The opposite, too much training, is quite possible, but there is no data on that.

and volume came despite some prior warning signs. Earlier it had been noted that the trend in the volume of training was already in the opposite direction to movements in the participation rate, that the volume of off-the-job training by the late 1990s was at the same level as it had been during the mid 1980s, and that training quality was also of concern (Felstead *et al*, 1997; 1998; 1999; Green and Zanchi, 1997).

However, the volume and quality of training have since been largely off the radar. Among the ten countries participating in the early 1990s in the OECD's International Adult Learning Survey, the annual training participation rate was greatest in the UK; yet the average duration was lowest equal with the United States. When combined, the result was that the UK, at 50 hours, was a little above the average in respect of the training volume per person employed (Centre for Educational Research and Innovation, 1998). One might have expected that this highlighting of the greatly-distorted perception one obtains, when viewing only participation rates, could have led to a better focus on training duration and volume.<sup>6</sup>

Yet, this absence of recent studies of training volume cannot be attributed to lack of data, as will be seen in the next section. The principle contribution of this paper is to piece together from these diverse sources a picture of recent trends in training volumes and in the other key training concepts.

### **3. Data Sets**

To study training trends in Britain we make use of eight series of surveys of individuals, and three of employers. Apart from the fact that all series have some data on some aspects of training at two or more points in time – these surveys have in common that they all claim to be of high quality and to be representative of either the UK as a whole or of one or more nations within the UK. The series, together with acronyms to be used in this paper are: the British Household Panel Study (BHPS); the Continuous Vocational Training Survey (CVTS), the Employer Skills Survey (ESS1), the European Social Survey (ESS2), the European Working Conditions Survey (EWCS), the NIACE Survey on Adult Participation in Learning, the Adult Learning Survey (ALS), the Quarterly Labour Force Survey (QLFS), the Skills and Employment Surveys (SES), and the Workplace Employment Relations Surveys (WERS). References to descriptions of each series are listed in the Annexe.

The advantage of individuals' reports of their training experiences is that, in addition to reporting formal courses of education and training, they are arguably reliable informants concerning a range of

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<sup>6</sup> Unlike with quantitative studies, in qualitative work there has been a resurgence of concern with the quality of training in Britain – see *inter alia* Felstead *et al* (2009).

less formal or individually-funded training activities. Individuals can also give first-hand assessments of their experiences. Nevertheless, asking managers to inform interviewers about their employees' training experiences also has certain advantages. Especially if the informant is familiar enough with HR practices in the firm, managers can be expected to give reliable answers about the training that the firm has funded over a reasonable period, and may be able to report on the cost of the investment. They could also be expected to give better answers than individuals about the future skills and training needs of the organisation. The disadvantages are that managers may miss informal training, they will normally not report on individual-funded training, and they will typically give average answers concerning training for all employees or for a specified group rather than for each worker.

Besides the surveys we study there are others which provide peripheral information on training but which we neglect, either because they do not capture a representative picture for Britain or significant part of it, or because their data are too remote from the issue of training's contribution to raising workforce skills, or both. Thus, the surveys of the Chartered Institute of Personnel Development provide useful indicative information but have low response rates, e.g. 3.6% in 2012. They cannot be taken to be representative of training among all employers in Britain. There are also a number of business barometer surveys, most notably the Confederation of British Industry's Industrial Trends Survey, which ask employers whether they intend to spend more or less on training over the coming year. Such surveys are, again, not nationally representative. In addition, they provide no information on the extent of change, take no account of inflation, and cannot be converted to per capita forecasts; there are no published validations. The surveys have their uses for macroeconomic forecasting, but are not designed to provide insights into the training trends identified in this paper.<sup>7</sup>

## **4. Findings**

### **a) Aggregate Training Volume**

#### *The Individual as Informant*

The Skills and Employment Surveys (SES) boast good, consistent, training data at two time points, 2006 and 2012, for all of Britain. To capture training comprehensively the surveys specify several

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<sup>7</sup> The Adult Education Survey began in 2011 and is due every 5 years, completing a trio of surveys with data on training available across EU countries. Concerning individuals, it provides more detail than the Labour Force Survey. The OECD's Programme for International Assessment of Adult Competences, begun in 2011-2012, will when repeated eventually deliver change data for more countries.

explicit types of job-related training: training off-the-job, receiving instruction while performing the job, self-teaching with manuals, internet etc., following a correspondence or internet course, taking an evening class, other job-related. They show that the annual training participation rate (among those aged 20 to 65) rose a little, from 65% in 2006 to 68% in 2012. Participation especially rose, from 28% to 32%, in self-teaching modes of training, using electronic or written materials or courses. The surveys also asked respondents to report the number of separate days during the year in which they took part in each form of training. The total number of days for all forms of training declined substantially: in 2006 41% of training recipients had received training on no more than 10 days in the year; this proportion rose to 49% in 2012; the median number of days fell from five to four. Including those not training, we find an overall reduction in average annual number of days per worker from 51.2 to 34.9 days, a fall of 32%.<sup>8</sup>

Over a long period, a key source of regular information about training participation is the Quarterly Labour Force Survey (QLFS). For large samples it records whether participants had “taken part in any education or any training connected with your job, or a job that you might be able to do in the future”. Three periods are asked about: the previous 13 weeks, 4 weeks and one week. Supplementary questions permit study of training duration for those participating in the previous week only (though not for all years), and of the length of the latest training spell. In a third of cases responses are obtained from other members of the household acting as proxies; this procedure reduces reliability, especially for informal and on-the-job training.

Figure 1 presents the most commonly-cited 4-week participation rate. It shows that among the employed the training participation rate was rising through the 1990s, going from 12.8% in 1995, arriving at a peak of 15.1% in 2001.<sup>9</sup> It then fell by more than two percentage points to 13.0% in 2010. Thereafter it has remained roughly steady.<sup>10</sup> Figure 1 also shows that this inverted U-shape for the participation rate of the employed is not compensated by job-related training among the non-employed (unemployed or economically inactive) population; for these groups participation was also higher in the first part of the 2000s than either before or later. Note also that there is no evidence of any sharp breaks around the time of the economic crisis in 2008-9 (Felstead *et al*, 2012).

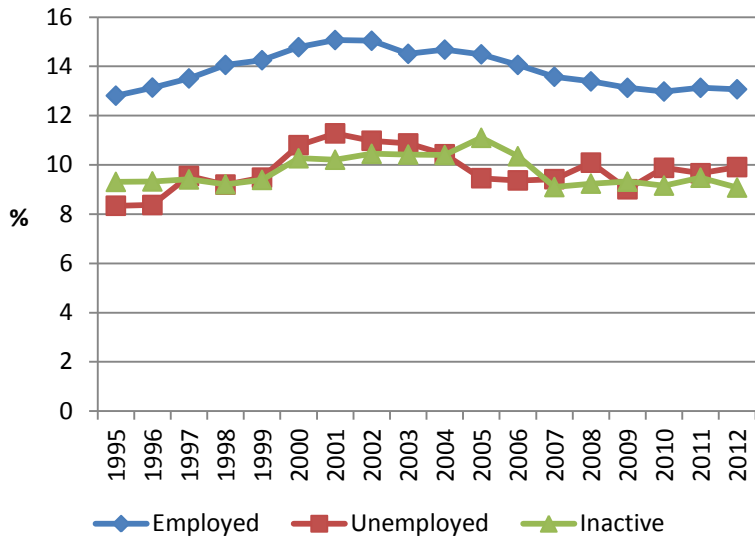
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<sup>8</sup> Respondents need not have spent the whole day training to report some training in the day; hence, multiplying these averages by eight gives an upper bound for annual training hours. The very small proportion, 1.5%, who said they trained every day, were deemed to have had 225 days training in the year.

<sup>9</sup> There was a discontinuity in 1994 in the 4-week training participation; following the Summer quarter’s introduction of the 13-week training item.

<sup>10</sup> This statistic includes almost all those reporting to be doing an apprenticeship. Nevertheless, the apprenticeship statistics in the QLFS are of questionable reliability since they rely on self-report; trainees who transfer to the official apprenticeship scheme are not always aware of the change of status.

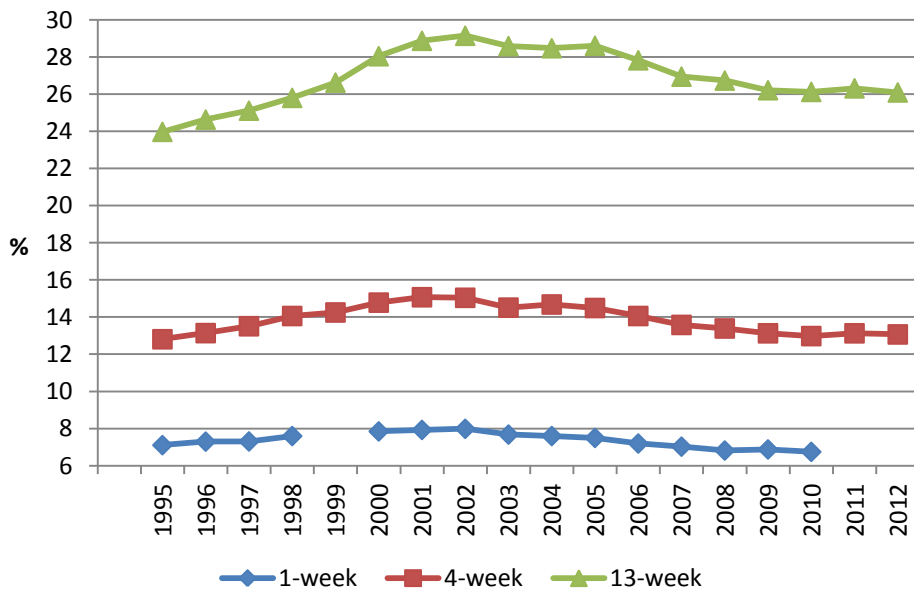
**Figure 1 Four-Week Training Participation Rate by Employment Status in the UK, 1995-2012**



Source: QLFS. Age range 16-65

Figure 2 sets the 1-week, 4-week and 13-week participation rates for employed workers alongside each other. As can be seen, the inverted U-shape is common to all. However, the 13-week trend differs in that the fall from its 2002 peak is not as great as for the 4-week rate, and by the end of the decade it remained well above its figure from the early 1990s. The 1-week rate, by contrast, reached its peak earlier and had fallen by 2010 to below its 1995 figure.

**Figure 2 Training Participation Rates for Employed Persons in the UK, by Time Interval, 1995-2012**

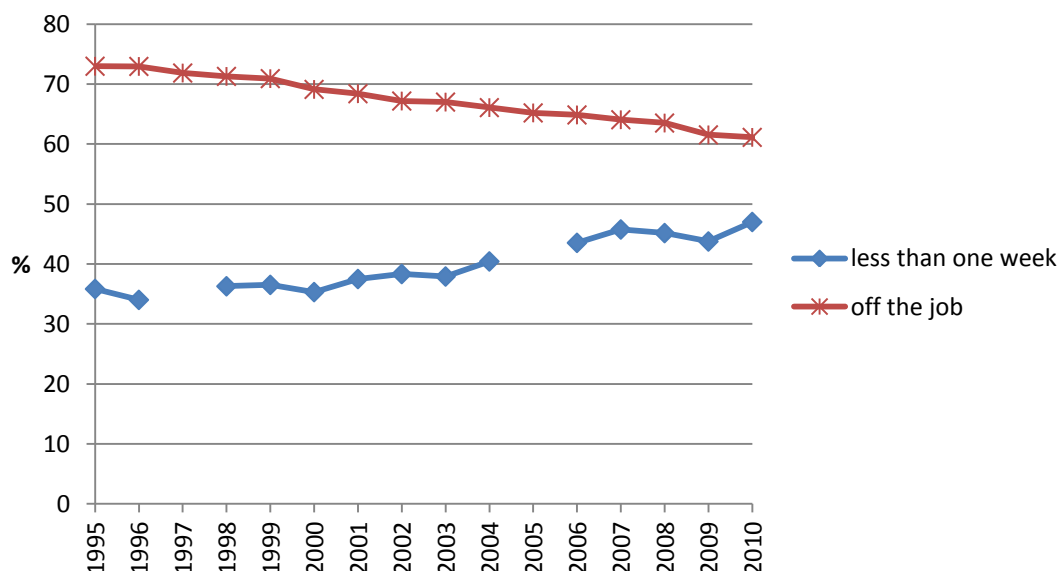


Source: QLFS. Persons in employment, age range 16-65.

Figure 3 shows using the QLFS what has been happening to the duration of training. Respondents who had trained in the four previous weeks were asked to state the length of their most recent training episode. The proportion of training episodes lasting less than a week, just over a third in the mid-1990s, was steadily rising through the 2000s. In 2012 a half of reported most-recent training episodes lasted less than 1 week. A second, indirect indication of what has been happening to training duration is also shown in Figure 3 in the proportion of training in the 4-week period that is undertaken either partly or wholly “away from your job”. Off-the-job training tends to be of longer duration than training on the job, and as a share it has fallen steadily, dropping 17 percentage points from 1995 to 2012 down to 56%. Note that off-the-job training includes training done on the employers’ premises, and that the share of off-the-job training that was carried out in-house remained at 32% between 2000 and 2009.

**Figure 3 Training Episodes in the UK, 1995-2012**

- a) Proportion Undertaken Partially\* or Completely Away From The Job**
- b) Proportion Lasting Less Than One Week**



Source: QLFS (1<sup>st</sup> quarter). Persons in employment, age range 16-65.  
 \* Some off-the-job training also involves on-the-job training.

This decline in the duration of training episodes over the 2000s can explain why the 13-week participation rate did not fall by as much as the 4-week and 1-week rates: it is because when training episodes become shorter they are less likely to overlap with the period about which respondents are questioned; and this matters more the shorter the interval. Even if the annual participation rate does

not change, when training duration is shortened the participation rates over shorter periods will be seen to decline.

We now consider how these trends in training participation and duration translate into training volumes. Respondents were asked, in selected years and quarters, to state the number of hours they trained for in the previous week. The published QLFS data sets include training hours data for all quarters over 1995-1998, and for the second quarters of 2006-2010.<sup>11</sup> Because training is, to some extent, seasonal, we restrict our time series comparison to training in the reference week during the second quarter. Unfortunately, the variable is not included in the data set for a long time at the start of the 2000s, and the question was changed in 2011 to refer to hours over the 4-week period.<sup>12</sup>

The findings are quite remarkable. For those doing training and in work the average weekly training hours were 15.8 in 1995 and 12.4 in 2010. For those doing training but not in work the average duration was greater at 31.1 hours in 1995 and came down to 26.3 hours in 2010.

Figure 4 puts together the participation and hours per participant figures. Focusing on those in work the lower line shows that the average training hours per week per employed person – the closest indicator of training volume – fell substantially between 1997 and 2006, then continued to fall until 2009. The best estimate of the decline in volume over the 1997-2009 interval is from 1.24 to 0.69 hours per employed person, a startling cut of 44%.<sup>13</sup> For comparison, Figure 4 also shows the trends for those not in work. A decline of similar magnitude is found among those who are economically inactive, but among the unemployed the average volume of training has a broadly stable trend.

Independent support for a picture of falling training volumes among the employed<sup>14</sup> during the 2000s comes from the high quality data in the British Household Panel Study (BHPS). The sample is longitudinal, but its representative character is maintained through refreshment. We focus on those aged over 16. From the 2<sup>nd</sup> wave (1992) to the 7<sup>th</sup> employed respondents were asked whether, since September of the previous year, they had “taken part in any education or training schemes as part of your present employment”. A follow up question, which became consistent after wave 3, asked them to estimate the total hours spent in training. Although this question refers to a period which varies

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<sup>11</sup> Between 1998 and 2006 the item remained identical in wording, and preceding items were also the same, despite the long gap. Training hours data are available for just the Spring (March-May) quarter of 2005, and this could not be converted with enough cases to the 2<sup>nd</sup> calendar quarter, so 2005 is omitted from the series shown in Figure 5.

<sup>12</sup> Although we could find no explanation in the 2011 documentation for this change, it seems from the documentation of previous years that the 1-week training participation responses may have been considered more prone to error from proxy responses.

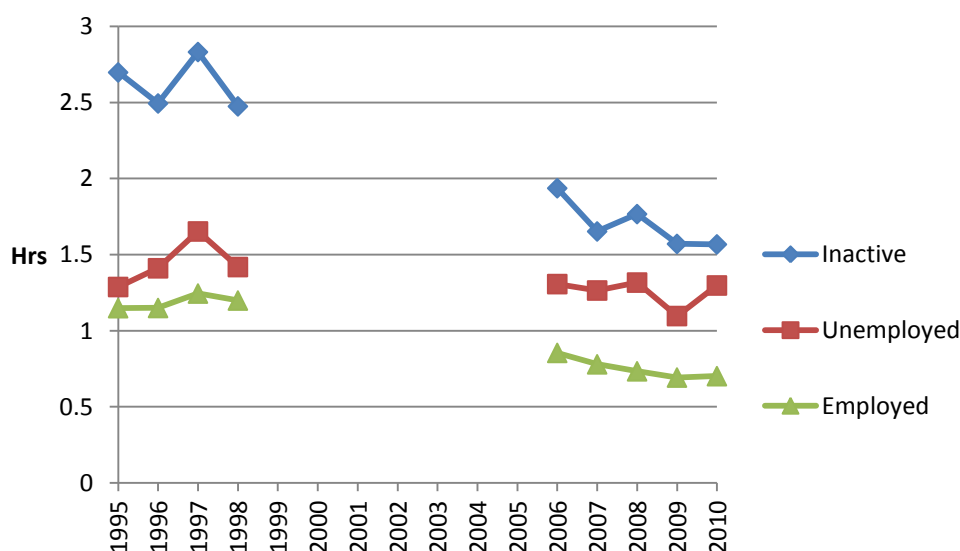
<sup>13</sup> In these figures, the small proportion (0.1%) who reported more than 97 training hours, were coded as doing 97.

<sup>14</sup> From hereon all findings refer exclusively to training for employed persons.



**Figure 4 Training Volume Per Person by Employment Status in the UK, 1995-1998 & 2006-2010**

Hours training in previous week.



Source: QLFS, 2<sup>nd</sup> quarters. Persons in employment, age range 16-65

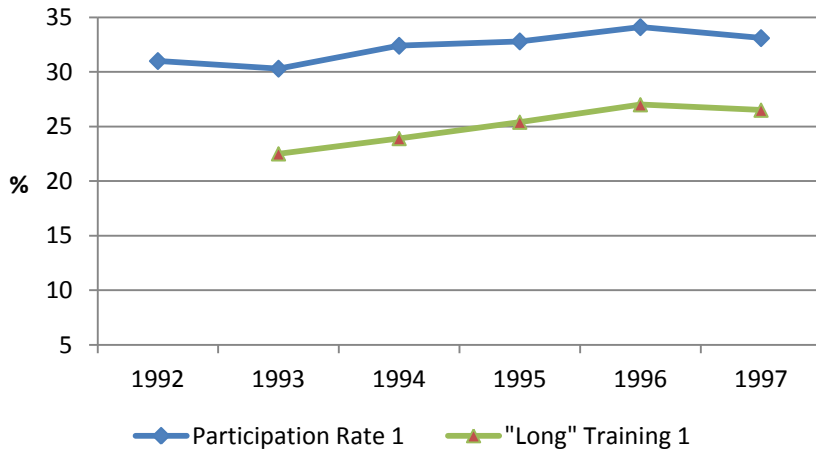
between respondents depending on their date of interview, for the large majority the period is approximately one year, and the interval is known and can be allowed for. From 1998 until the series was closed after 2008, the question was amended to: “Apart from the full-time education you have already told me about), have you taken part in any other training schemes or courses at all since September 1st (in the previous year) or completed a course of training which led to a qualification? Please include part-time college or university courses, evening classes, training provided by an employer either on or off the job, government training schemes, Open University courses, correspondence courses and work experience schemes.”<sup>15</sup> This amendment no doubt clarified the treatment of students in employment; however, in our view the new question is a bit of a mouthful, while neither indicator, before or after the revision, captures on-the-job training if it is not perceived to be a “scheme” or a “course”. The survey then asks about the duration of each course of training (up to three, selecting the longest).

<sup>15</sup> BHPS’s successor survey, *Understanding Society*, did not continue after 2008 with the above training question.

Figure 5a shows that the participation rate rose somewhat from 31.0% in 1992/1 to 33.1% in 1997/6. This rate is substantively lower than that recorded in the Skills Surveys, confirming the suspicion

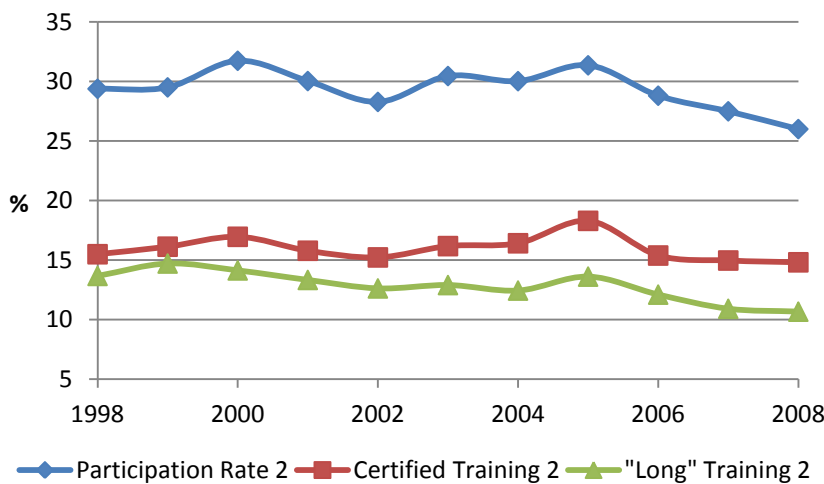
**Figure 5 Annual Training Participation according to the British Household Panel Study**  
Percent participation rate (since previous 1<sup>st</sup> September, approximately one year).

a) 1992-1997



“Long” training refers to participation in multiple training spells lasting in total more than 5 days in the year.

b) 1998-2008 (amended indicator)



“Long” training refers to participation in multiple training spells where the longest three lasted in total more than 5 days in the year.

Source: BHPS. All those in paid employment, over 16

that not all training activities are captured. Yet the interpretation could be expected to be consistent over time. The duration of training did not change greatly, and Figure 5a also shows a rising

participation rate in “long” training – defined arbitrarily as more than five hours in total – over this period. With the revised indicator from 1998 onwards shown in Figure 5b, the annual participation rate held up at around 30% until 2005, and a decline set in thereafter, reaching 26% in 2008. The duration of training courses also fell, with the result that participation in “long” training also trended downwards, dropping 4 percentage points between 1999 and 2008, with 2005 an above-trend exception. The combined consequence of falling participation after 2005 and the longer trend of falling duration is that, over the decade, the volume of training fell substantially. To show how much, we computed the monthly average training volume (allowing for the variable length of the interval between interview and the previous September). Averaging over successive waves, the volume in 1998 and 1999 was 0.68 days per month; this fell to 0.50 days per month in 2007 and 2008, a drop of 26.5%.

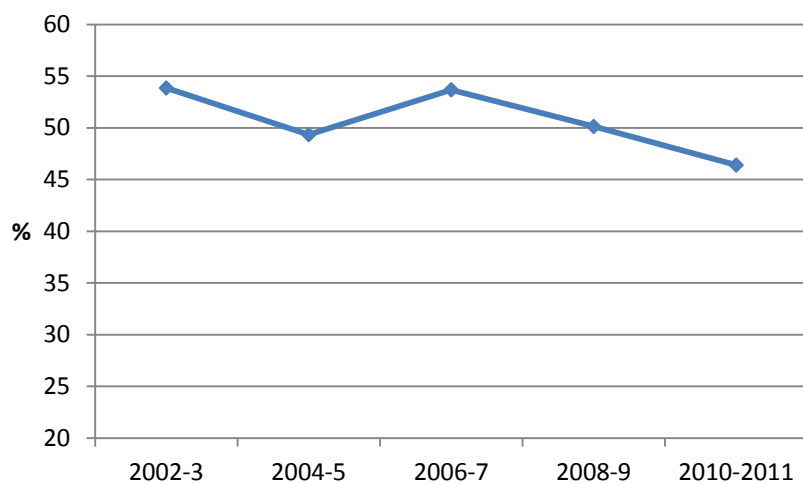
Three further sources of information about the annual participation rate in work-related training are noteworthy. One is the European Social Survey (ESS2), running every two years from 2002-3 onwards, which attempts to capture substantive off-the-job training. In every wave respondents are asked: “During the last twelve months, have you taken any course or attended any lecture or conference to improve your knowledge or skills for work?” Figure 6 shows that the proportion answering yes oscillated was 53.8% in 2002-3, then oscillated but eventually fell significantly to 46.4% in 2010-11. Questions covering training quality and volume were introduced for the first time in 2010-2011, so as yet there is no evidence on quality and volume trends.

Second, using a somewhat broader concept of training but still focusing on those in paid employment and using the year as reference period, the European Working Conditions Survey (EWCS) asked about “Training paid for or provided by your employer or by yourself if self-employed” and “on-the-job training”. With this, the proportion engaged in one or both types of training was 54.7% in 2005 and 56.9% in 2010, with the difference statistically insignificant. The survey gives no indication of either volume or quality.

Third, the Workplace Employment Relations Survey (WERS) includes a self-completion questionnaire distributed by managers to up to 25 employees per establishment in which employees are asked whether they have participated over the previous 12 months in training other than for health and safety. The reported participation rate rose from 73.3% in 2004 to 78.0% in 2011 – which is high compared with other surveys, in part because it only covers establishments with more than five workers. The survey is consistent with the other individual surveys that show a fall in volume: all of the increase in training participation which it records is of the less-than-two days variety, while

the participation of employees in training for more than 10 days fell from 8.2% to 6.1% – the latter outweighing the former in its effect on average volume on any reasonable estimates.

**Figure 6 Annual Off-The-Job Training Participation in Britain according to the European Social Survey**



Source: ESS2. Persons in employment, age range 20-64

Thus, in respect of the annual participation rate in the latter half of the 2000s, the two series with the most restricted coverage show a fall in participation (ESS2 and BHPS), while EWCS suggests stability, and the two with the widest span of training forms (SES and WERS individuals) report a small rise. Nevertheless in the three of these survey series which provide relevant evidence, training volume falls.

Finally, there are two surveys of individuals that cover adult learning broadly defined, using a three-year period and covering both work-related and other learning. The NIACE survey series presents a picture of long-term stability of around 40% in the 3-year participation rate from 1996 through to 2011, though with some annual fluctuations. In contrast the Adult Education Survey (AES), using a complex diary method to try to cover all learning activities, finds a much higher participation rate and reports that the proportion learning rose from 74% in 1997 to 80% in 2005, thereafter falling dramatically to 69% in 2010. Although this pattern of a rise then a fall in learning activity is similar to that recorded by the other surveys, the cut in participation in the recent period is especially severe. However, there are reasons to be more than usually cautious about this finding. The data collection for the 2010 survey, which was interrupted by the General Election of that year, ended during the summer months, and excluded the last quarter of the year which is the season when training peaks. While in principle a three-year retrospective should iron out such differences from previous surveys,

it is to be expected that recent training events are most prominent in memory. We therefore take the implied severity of the 2005-2010 cut with a pinch of salt, even though the direction of change is similar to the volume cuts reported by other surveys. Neither the NIACE surveys nor the AES capture evidence of training volumes, an inevitable consequence of choosing the 3-year time span; in the light of the major trend found in the other surveys, this choice emerges in retrospect as a weakness of these series.

### *The Manager as Informant*

Three survey series deliver useful managerial information about annual training trends in Britain. Do these surveys tell similar stories concerning the trends in training volume?

The Employer Skills Surveys (ESS1) are the most useful and impressive in their coverage of large samples of employers. Available for England at two-year intervals, they show that the proportion of establishments that funded training for any of their workers in the preceding twelve months remained stable at around two-thirds, from 2005 through to 2011. Between 2009 and 2011 they report also on training volumes: a 6.4% fall in training days' per annum per employee from 4.7 to 4.4. This series, if continued, will provide very valuable information for policy purposes – both in the aggregate and by size, region and sector (Davies *et al*, 2012).

The managers responding to WERS reported on the extent of off-the-job training provided to experienced employees in the largest occupational group. These data show that the proportion of “high-training establishments” (those that provide off-the-job training to at least 80% of this largest occupational group) rose from 26% in 1998 to 35% in 2004, then again to 41% in 2011.<sup>16</sup> The latest rise is at odds with the evidence of stability from the ESS1. One issue is that the distribution of the largest occupational group inevitably changes from one survey to the next, which matters since training varies a lot between occupations. Further disaggregative analysis shows that, within groups the proportion of high-training establishments rose within three occupational groups, fell within one, and remained unchanged within four groups. The difference from other surveys could also arise from its coverage being different (all UK, not just England; excludes small workplaces and all managers). Yet, in another respect WERS is in tune with all surveys reporting on duration, in that the reported length of training falls between 2004 and 2011: the share of training establishments where experienced employees received 10 or more days of training fell from 14% to 10%.

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<sup>16</sup> Authors' calculations; also see van Wanrooy *et al* (2013).

A somewhat contradictory picture about changing training emerges, by contrast, from the Continuous Vocational Training Survey (CVTS), which defines vocational training as “pre-arranged training that was at least partially funded by your organisation or training that took place during employee’s paid working time.” The proportion of UK enterprises (of at least 10 workers) where at least one individual participated in vocational training rose 4 percentage points to 91% between 1999 and 2005 (Dent and Wiseman, 2008: 16). Respondents were also asked to estimate the total hours spent on training by all employees in the company annually. The findings indicate that hours per training participant fell from 26 hours in 1999 to 21 hours in 2005. Later figures published by Eurostat using the CVTS4 in 2010 show the participation rate falling to 80%, and the hours per training participant rising to 25 hours.<sup>17</sup> This combination, a large collapse in participation and simultaneous leap in hours, is at odds with all other survey findings over a similar period, even allowing for the exclusions and differences in coverage. Some suspicion falls upon the reliability of comparing CVTS estimates over time, in view of high non-response rates to the telephone interviews. In 2005 the overall response rate was 42%, which is comparable with other surveys. However, the item response rate for the training hours question was approximately 60%; such a high proportion of missing values on a question is a possible sign that the item is difficult to answer, implying that respondents (at enterprise level) may – unsurprisingly – have found it hard to state the total amount of training hours in the company. Combining the survey and item non-response, we see that only 1 in 4 selected enterprises yielded information about hours. One can assume that CVTS4 had similar low response rates (not disclosed on the Eurostat website). Thus, not only is the CVTS an outlier in respect of its findings, compared to those of other UK surveys, its low response rate on the key question concerning training hours gives little confidence in the reliability of its findings about change over time.

## **b) Training Volume Disaggregated**

An obvious question surrounds whether the trend in training volume is concentrated in certain groups or industries. To study this issue we focused first on the four-week participation rate recorded in the QLFS, owing to its large samples and consequent facility to be divided up into large-enough cells that can deliver sufficiently precise estimates. We also studied the 1-week training volume, pooling together the Spring quarters of two successive years, comparing 2009/10 with 1996/7, in order to give us sufficient observations. A related issue concerns the extent to which training changes as the industrial composition of the economy evolves.

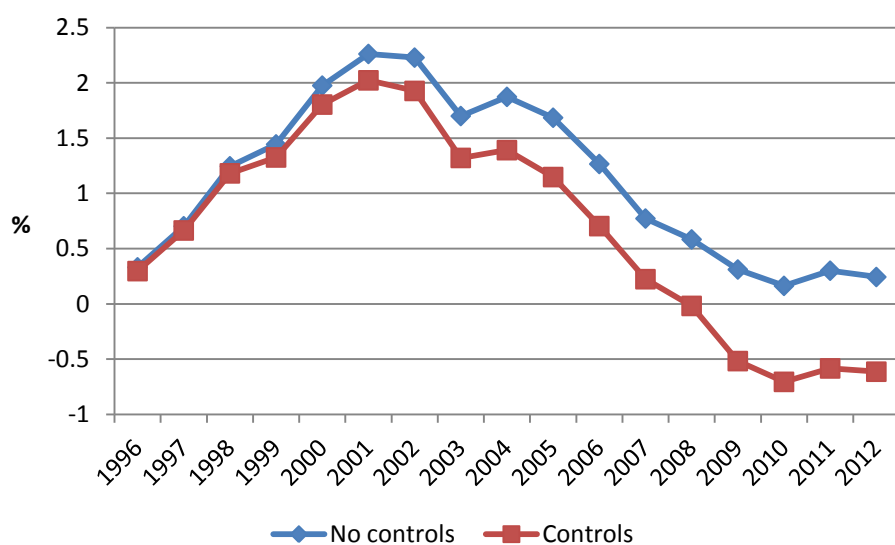
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<sup>17</sup> <http://epp.eurostat.ec.europa.eu/portal/page/portal/education/data/database>; consulted 3/1/2013.

Tables 2 to 7 present our detailed findings. We focused on several categories that have been shown in the literature to have a significant association with training – industry, occupation, region, age, gender, prior education and ethnicity (e.g. Green, 1993; Shields and Price, 1999a and 1999b; Green and Zanchi, 1997; Jones *et al*, 2007). To anticipate, the pattern of a rising then falling participation rate is found within most groups; the fall in participation in the late 2000s occurs without exception. Similarly, the volume of training falls in all groups, but some faster than others.

Table 2 examines industries at the 1-digit level, and as is well known there is a marked variation in training across industries. Long-term industrial restructuring might therefore be expected to lead to some trend in the aggregate participation rate. Figure 7 shows the results of a simple check on this possibility, in which we control for a constant effect of industry affiliation on training and examine the remaining trend. As can be seen from this simple decomposition, there would have been a smaller rise then a greater fall in training participation if there had not been some industrial restructuring towards higher-training industries. With respect to the pattern of change within industries, the Finance industry is an exception because it was a high trainer from the start, but even there training drifted downwards after 2002. All other industries followed the inverted U-shape, some more distinctly than others. The volume of training fell most in the Wholesale industry, and least in Education and in Health.

**Figure 7 Four-Week Training Participation Rate in the UK Relative to 1995, With and Without Industry Controls**



Source: QLFS. Persons in employment, age range 16-65.

Note: the curve with controls gives estimates of year dummy coefficients from a regression including 1-digit industry dummies.

Table 3 shows that there is also a marked variation among occupations. As expected, professional and associate professional occupations participate the most in training. In all occupations except one, the participation rate rises then falls, the exception being Process, Plant and Machine Operatives which, after the same rise and fall as elsewhere, resumes an increase in participation rate from 2007 through to 2012; however, this group experienced a relatively large drop in training volume.

Table 4 looks at training across the regions and nations of the UK, where there is less variation than across industry or occupation.<sup>18</sup> The trend shows again the ubiquitous inverted u-shape. The stand-out case here, however, is Northern Ireland, where the training participation rate fell from 13.0% in 2002 to 5.8% in 2011, before recovering a little to 7.1% in 2012. The fall in Northern Ireland was reinforced by duration reductions, leading to a 65% cut in training volume. At the other end of the spectrum, training volume only dropped by 21% in Greater Manchester.

Table 5 shows that, as expected, training is more prevalent among younger age groups. In each group the participation rate rises then falls over the period. There is, however, a remarkable difference in the rate at which the volume of training declined: by 49% for those under 25, but only by 22% for those between 35 and 65.

Table 6, consistent with earlier studies, shows the greater training participation rate of women compared with men. For both sexes participation fell after a peak in 2001. The volume fell somewhat more for men (46%) than for women (37%). The participation rate for part-timers was a little below that of full-time workers in most years, while the declines in training volume were the same.

Table 7 displays the ubiquitous finding that training participation is higher for those with more prior education. Two earlier studies (Mason and Bishop, 2010; Mason, 2010) have noted and analysed the somewhat greater fall in participation rate among the higher education groups than among those in the lower categories, interpreting this correctly as suggesting an equalisation from above. Yet, the Table here also reveals that those with greater prior education experienced a lower proportionate cut in training volumes over the 1996/7-2009/10 period. Underpinning this finding is the fact that training duration declined more sharply among the lesser educated trainees (for those with no prior qualifications, 14.4 hours down to 9.8 hours) than among higher educated trainees (for those with degrees, 13.5 hours down to 11.0 hours). Unfortunately, therefore, we see no evidence of lower dispersion in training volumes – rather the opposite.

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<sup>18</sup> Mason (2010) explains variation in training participation between city-regions in terms of employment rates and ‘other factors associated with high-level skills’.



Finally, Table 8 shows how the training participation rate is greater for black workers than for white workers, while Asian workers in most years had a lower participation rate than white workers. Nevertheless, all ethnic groups went through a rise and fall in training participation, and all experienced a decline in training volume of more than 40%.

In sum, the long-term decline in training volume is found among all groups, and the pattern of rise and fall in participation rates in most, with some variation in the extent of the changes. Larger falls in the volume of job-related training occurred, relative each to their comparator groups, among the young, those in the private sector, those in the lowest education groups, and those living in Northern Ireland.

### **c) Training Investment Cost**

Monitoring training investment costs is useful, both for helping to confirm and embellish the picture that we have about training volumes, and as background to the issue of incentives and the case for training taxation or subsidy. The best data source for cost indicators is the Employer Skills Survey, which estimates that total employer investment in training in England was £33.3 bn in 2005, and £40.5 bn in 2011. Once inflation is factored in, this represents just a 4% increase, and since the workforce expanded during the interval it represents a real terms cut of 14.5% in training investment per worker (Davies *et al*, 2012).<sup>19</sup>

Over a similar interval, 2005-2010, the Continual Vocational Training Survey confirms a rather more drastic cut of 29.3% in respect of training costs per employee in the UK as a whole.<sup>20</sup> The extra severity of this estimated fall over a slightly shorter interval compared with the ESS1 estimate is hard to explain; the fact that this survey covers a wider population than ESS1 and uses a distinct methodology may partly account for it.

Both these employer surveys inevitably only cover employer costs. Surveys of individuals cannot add to estimates of the total cost but have something to say about the division of costs between employers, individuals and government. Individuals' costs comprise any fees they pay, the time spent training outside paid working hours, and any reductions in wages. The most comprehensive, though still imperfect, estimates of individuals' costs can be gleaned from the SES. Our calculations reveal that, in 2012, training took place out of working hours for 28.3% of training spells, and in 5.6% of

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<sup>19</sup> The part of the fall between 2009 and 2011 was 5.3%, a figure which is consistent with these surveys reported decline in training volume over that interval.

<sup>20</sup> Calculated from Eurostat <http://epp.eurostat.ec.europa.eu/portal/page/portal/education/data/database>. Although these costs were also calculated in 1999 in an earlier wave, the database offers no basis for comparison with the later surveys.

cases employees or their families paid the fees. Combining these two with responses about wage reductions during training, we find that 9.4% of individuals' training spells were wholly funded by employees or their families, and another 19.2% were shared between themselves and their employers or government. Most employee training – 9 out of ten spells – is fully or partially funded by the employer. Some caveats should, however, be added. First, the estimates do not take into account whether trainees could have gained a higher wage elsewhere in another job without training. Second, individuals' responses about fees do not capture employers' other indirect costs, notably the wages of supervisors and managers who organise or deliver the training. Third, individuals may in some cases not know whether the employer is receiving training subsidies from the government.

That said, the estimated shares remained stable between 2006 and 2012. Thus, while the volume of training was falling over this period, there is no evidence to suggest a shifting of the burden between parties. Unfortunately the QLFS, which might have offered a longer time perspective, does not ask whether training takes place in working hours, an indispensable question for allocating the costs.

#### **d) Training Quality**

For the purpose of investigating the processes and reasons behind training decisions that employers were taking in the aftermath of the 2008-9 recession, we interviewed employers in 105 organisations around the country in two waves during 2010 and 2011, using semi-structured interviews.<sup>21</sup> Among those who reported change, quite a common comment was to the effect that they had been running their training more efficiently – sometimes bringing the training function in-house, generally ordering more bespoke courses to meet the companies' needs more closely. A typical response was given by an industrial packaging company: “What we have been able to do is to focus that pool of money, so that we get more bang for our buck, really”. Another respondent said that they were “training smarter”. Several reported an increased use of e-learning. Such respondents felt that they were getting more for their money, in effect raising the quality of each unit of training they were funding. They felt that they were not losing out on training's overall contribution to raising workforce skills, even where they had reduced the expense.<sup>22</sup>

While their replies were specifically directed at the changes they had made in response to the recession, as we have seen the changes to the volume of training were of long standing and not

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<sup>21</sup> The sample was drawn from respondents to the Employer Skills Survey of 2009, and though it is not itself nationally representative it was designed to contain a mix of employers according to whether they had raised or lowered their training input in the previous year, or left it unchanged (Felstead *et al*, 2012).

<sup>22</sup> We had no means, in this study, to validate these responses, and it is recognised that some human resource personnel might need to self-justify their decisions.

specifically stimulated by the recession. The comparative decline in off-the-job training, and the rising use of e-learning were also of long-standing. It is of interest therefore to examine the possibility that, in the aggregate, the unit training quality has been increased over the long term, so that the total training quality could have been maintained despite the substantial cut in training volume.

Unfortunately, notwithstanding the earlier influential qualitative studies from the National Institute (e.g. Steedman *et al*, 1991), relatively little attention has been devoted to studying trends in training quality in the aggregate. The QLFS has some limited information, namely an indicator for certification – it asks whether the training leads to a qualification or a credit towards a qualification. The indicator is made available in the published data sets for all years between 2005 and 2010 (2<sup>nd</sup> quarters).<sup>23</sup> These data show that the certified proportion of the 4-week training incidence varied with no trend in the range 44% to 47% over this period. There is thus no indication here that certification declined, even though the length of training episodes continued to fall in this period. In fact, the decline in the volume of training over this period took place both for the certified and for uncertified training episodes.

Both the BHPS and the SES (see Figures 5 and 8) support this picture of stability in certification, in their cases covering individual-funded as well as employer-funded training. The Employer Skills Surveys also report a similar story. They show that the proportion of employees being funded for training to a qualification over the year, at around 12%, was much lower than with the QLFS (because the ESS1 only cover employer-funded courses) but that it remained fairly steady between 2005 and 2011. Thus, from all these surveys the same rate of certification is being achieved with the reduced duration of training. Implicitly, this is a vote that total training quality has been maintained.

Yet certification – its import being for transferability and progression – is only a partial indicator of quality (how far skills are raised). While substantial gains from work-based training are found in most studies, studies of the association between adults' qualification gains and subsequent pay rises present a mixed picture, with some showing mostly zero economic returns while others show significant positive returns especially in the rarer instances where the gained qualification is at a higher level than previously obtained (Wolf *et al*, 2006; Evans *et al*, 2013). Moreover, the development of competence-based certification (NVQs) enabled certification to come to be awarded after little or no training through the recognition of existing (rather than new) skills; so certification may have become a poorer indicator of the contribution of training to skill formation. The

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<sup>23</sup> The variable “newq” has an uncomfortable proportion of missing values – around 10%.

persistence of certification may be due to the preoccupation of government policies with targets and consequent effects on funding streams.

The SES series offers enhanced information about the quality of the most-recent training spell as reported by those in receipt of the training, for the years 2006 and 2012. Between these years there was found to be little change in the proportions reporting that the training improved skills a lot – see Figure 8. In evaluating all the training received throughout the year, however, there was a rise from 27.3% to 31.7% in the proportion of trained workers for whom the increased skills were industry-specific. There was also a small but statistically significant fall from 59.6% to 57.0% in the proportion reporting that the training “has made me enjoy my job more”.

**Figure 8 Perceptions of Training Quality in Britain, 2006 and 2012**



Source: SES. Persons in employment, age range 20-65.

Training satisfaction questions add to the picture. In the SES series the proportion who were very or completely satisfied with their training fell from 43.8% to 38.6% between 2006 and 2012 (Figure 8). By contrast, according to the WERS matched survey series, with larger samples but much lower response rates, satisfaction with training among trainees rose from 58.0% to 62.4% between 2004 and 2011/12.<sup>24</sup> Yet the responses to both surveys' questions about satisfaction are only partially informative about quality, owing to the dependence of satisfaction on expectations, and to the fact

<sup>24</sup> Given its method of sampling employees via employers, WERS achieves a relatively low net response rate for employees of just 19%. The response propensity of employers may have been affected by the recession but it is hard to assess the extent of any possible response bias.

that the questions can be interpreted ambiguously to refer to either the volume or the quality of training or both.

### **e) Training Adequacy**

Whatever the quantity and quality of training provided, a separate question concerns whether the training meets needs for skill formation. Whether because of training barriers or for more general reasons, it is possible that some workers are failing to find opportunities that would be optimal for them to have. If training volumes are falling, is there any evidence that more workers are finding the training they receive to be inadequate, or becoming more inadequate?<sup>25</sup> This concept of training adequacy can be best measured through individuals' perceptions, and the only source of relevant data is to be found in the SES series where information is available for 2006 and 2012.

The findings are in two parts. First, among those not receiving training, only about 1 in 5 felt that they should have had some in order to keep up with required skills; this proportion remained stable. Second, respondents who had received training were asked whether it had been enough to keep up to date. The proportion agreeing was high and increased somewhat further, from 88.7% in 2006 to 92.4% in 2012.

On the whole, therefore, although training mismatches exist, these subjective responses do not uncover a widespread perception by workers themselves that the volume of training they receive is vastly different from what their jobs require; nor, *a fortiori*, is there any evidence that the degree of training mismatch is deteriorating. These perceptions have not been validated by any independent procedure; yet if they can be accepted as at least partially valid representations of reality, we can conclude that the falling training volume over 2006 to 2012 probably reflects a falling equilibrium in training, rather than a problem of deteriorating match in the training market.

## **5. Discussion**

This collection of findings about the trends in key aspects of training is summarised in Table 1. As noted, most commentary has surrounded participation rates. When the period analysed is a year, surveys indicate a mixed picture during the 2000s with some showing small rises, others stability, and one, the BHPS, showing a fall in the participation rate. When the shorter analysis periods of the QLFS are used (1, 4 or 13 weeks), however, there is a consistent inverted-U-shaped pattern of participation, with rates peaking in the early 2000s, both in the aggregate and for almost all socio-economic groups separately. Without the steady industrial restructuring over this period training

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<sup>25</sup> Note that this concept is distinct from that of a “skills gap”, as regularly measured in the Employer Skills Surveys.

would have been increasingly lower throughout the period. The slow decline in the short-period participation rates in the late 2000s was not substantially accelerated by the onset of recession. Yet some groups stand out: perhaps most remarkable is the fact that the training participation rate more than halved in Northern Ireland between 2003 and 2011.

The story about training volumes, by contrast, is more striking and largely consistent between independent surveys, despite their variations in training periods and coverage of training types. The picture of declining volumes is further backed up by the ESS1 and CVTS data on declining funding for training. The three best sources on training volumes tell us that there have been very substantial cuts since the late 1990s. The QLFS shows a reduction of 44% in weekly training hours during the 12 years from 1997 and 2009; the BHPS indicates a 26% cut in annual training hours over the 9 years from 1998. Though definitions and periods do not quite coincide, the story seems clear. Then, from 2006 to 2012 the SES series records a decline of 32% in the average number of days spent in the form of training. In addition the most reliable employer survey – the Employer Skills Survey – confirms that, in England, training volumes declined by 6.4% between 2009 and 2011. Both surveys in WERS also report a substantive fall in training duration between 2004 and 2011. This picture of decline is countered only by the story of volatility in training volumes given out by successive CVTS surveys, but we are seriously concerned about the reliability of training volume estimates from enterprise-level managers with large numbers of missing values.

Taking the whole period from 1997 till the present, if we add the QLFS finding for 1997 to 2009 to the ESS1 finding, it is estimated that training volume fell by just under a half (48%) between 1997 and 2011. Alternatively one could use the SES measure for 2006 to 2012 together with the QLFS measure of decline between 1997 and 2006 (31.5%) to arrive at an estimated fall of 53% between 1997 and 2012. One should not take these synthesised estimates too precisely because the surveys ask about training in somewhat different ways; nevertheless, it is fair to state that the volume of training per worker has been approximately halved since 1997.

The cuts in training volume are found for all socio-economic groups. Yet they have been somewhat unequally distributed according to prior education: they have reinforced, rather than reduced the inequality in training volumes that already pertained. The volume cuts have been especially large in Northern Ireland.

This radical decline in training volumes over 15 years is a puzzle which may be impossible to fully unravel in retrospect, given the piecemeal nature of our information sources. It could also seem quite

surprising in the context of the characterisation of Britain as a “knowledge economy”. The decline almost certainly reflects a fall in demand for training hours. There is no evidence of a deteriorating training mismatch, with workers and employers expressing frustration at lack of access to courses.<sup>26</sup> An upward shift in the real cost of supply cannot be completely ruled out, since we do not have cost-per-training-hour data; but we think it unlikely in an era of technological change in training delivery and given our qualitative findings from employers.

A fall in demand for training, however, can have competing explanations with very different implications. We highlight four, each of which has some plausibility.

Following the managerial approach, a fall in training demand could be attributed to managers becoming less optimistic about the value of skill formation for their businesses. Such a change could be privately rational if it reflects an unbiased estimate that the expected private returns from training have fallen in an increasingly flexible economy, or it might be simply a consequence of evolving business strategies in the context of deep uncertainty (Green, 2013). In this perspective, a falling demand for skill formation is inherent in a “low-skills” trajectory for large swathes of the British economy; it would represent a trend away from the knowledge-economy. Union power, which is generally found to be positive for training (Green *et al*, 1999; Boheim and Booth, 2004), has been declining, thus pulling the training trend in the same direction. Meanwhile government policies have largely ignored the issue of skills demand: it is only in recent years that, through the auspices of the UK Commission for Employment and Skills, the importance of employers’ business strategies has been identified. The fact that the cuts have reinforced training inequalities rather than reducing them – something that one can only see when looking at volumes, not participation rates – is consistent with the low-skills trajectory perspective, which typically includes an assumption that there is increasing inequality.

Nevertheless there are alternatives to this pessimistic conclusion. A second, equally valid, explanation for training decline could be that the workforce has increasingly been composed of more-educated workers. At first sight, this explanation might seem unlikely given the ubiquitous positive correlation between education and subsequent training. Yet, that correlation arguably arises in cross-sections because more educated workers tend to be in more dynamic jobs which require greater ongoing skill formation. Meanwhile, over time for any given rate of skill formation, prior education can be a substitute for later training. At the low end of the skill spectrum, an increasingly educated workforce should require less remedial training; while at all skill levels one can expect

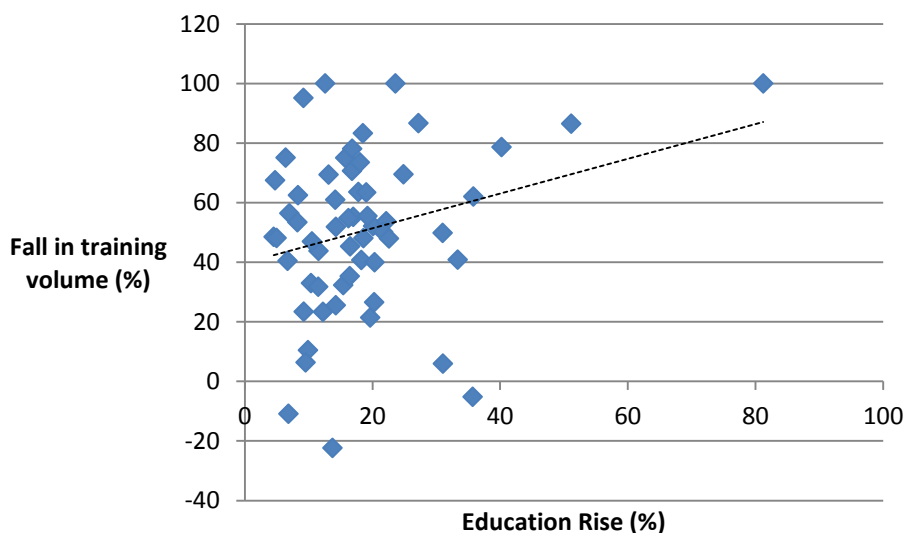
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<sup>26</sup> Nor is there evidence from employers of a secular trend in skill shortages or skill gaps.

more educated workers to learn more quickly, hence to require less training time, than less educated workers. Governments might take some comfort from this interpretation of training volumes falling due to substitution by education, even if it colours how well they are perceived to be doing in the so-called skills race with other nations' governments.

The relative decline in off-the-job training, which is arguably a closer substitute than on-the-job training for prior education, is consistent with this second interpretation. In the aggregate it is also striking that the dramatic decline in training volumes, if replicated over a lifetime, would add up to the equivalent of spending over a year less in training – roughly matching the extent to which the average age of leaving full-time education among employed people rose over the period: from 17.2 in 1997 to 18.3 in 2012. A naive test that the fall in training volume may derive from training being a substitute for prior education can be made using 2-digit industry-level data. Figure 9 plots the decline in industry training volume against the increase in education levels of the employed workforce. There is a statistically significant correlation of 0.27 ( $p=0.04$ ), meaning that training declined more industries where education levels rose more. However, this finding is far from being definitive proof of substitution between training and education because the relationship is loose and because other determining factors could be driving the changes in both training volumes and prior education levels.

**Figure 9 Fall in Industry Training Volume and Rise in Industry Education Level, UK, 1996/7–2008/9**



Source: QLFS. Persons in employment, age range 16-65. Each point shows a 2-digit industry average.

Both explanations considered so far entail a reduction in the demand for workplace skill formation. Yet there is abundant evidence from qualitative and quantitative studies of ongoing needs for skills updating in British industries (Mason and Bishop, 2010; Felstead *et al*, 2007). Moreover, evidence



from the Skills Surveys shows an increasing proportion of workplaces that require or facilitate learning: the proportion of workers who report strong agreement with the phrase “my job requires that I keep learning new things” rose from 30% in 2001 to 35% in 2012”. This trend would suggest that declining training volumes may not indicate a falling demand for skill formation.

The third explanation for falling training demand is that there could have been a radical transformation of the training function in Britain over the last fifteen years, greatly improving the private efficiency of training, and consequently no reduction in skill formation. This efficiency gain will have derived in part from new online training technologies, but also from better targeting of training at employers' needs in relation to their business strategies. We have noted, above, a microcosm of this story among some of the replies we received from the employers we interviewed in 2010 and 2011. In this explanation, this is the age of “lean training”. Indeed there seems to be no reason why the spread of “lean production” methods should not reach HR departments. By this logic there must have been a large amount of time wasted on training that was unproductive from the firm's perspective during the 1990s. Whether it was unproductive from a collective perspective is less clear, as some of the value of training will have been embodied in transferable skills. We reported some evidence, above, that training became increasingly industry-specific between 2006 and 2012.

Central to this third explanation of falling training volumes is the proposition that the unit training quality has improved. In support of this proposition is the finding that the certification of training has held up. The extent to which people are able to gain a qualification from their training remained steady throughout the halving of training volumes. Yet this interpretation is less convincing when it is recalled that certification has often been used throughout this period of an expanding NVQ system as a means to recognise existing skills. The shorter training spells are thus still leading to certification simply because the authorities have become more adept at certifying what workers could do before they started the spell. For this and other reasons, the qualifications achieved may have become less good indicators of the skills gained through training. The supplementary evidence concerning workers' perceptions of unit and total training quality, which only covers the 2006-2012 period, is also mixed.

Our fourth possible explanation of falling training volumes also entails no presumption of a reduction in workplace skill formation. Theories of workplace learning in recent decades have come to stress the significance of learning through participation in workplace activities, through working in teams, and through involvement in ‘communities of practice’ (e.g. Guile, 2001; Felstead *et al*,

2005). The ‘learning organisation’ is both an ideal and a proposition about the prevailing trend of a knowledge economy. In addition, it is held by some writers that the skill formation needs of a competitive knowledge economy are especially geared towards innovation and hence new knowledge and skills, rather than just the acquisition by passive training recipients of existing skill. As learning and development practices evolve with the diffusion of the new theories, and as the innovation imperatives of the knowledge economy expand, it is possible that workplace learning could become less associated with the concept of training, despite the traditional association of formal training and education with the acquisition of scientific knowledge. Thus, processes of learning may have become better embedded in organisations, at least in those that have adopted high-involvement working practices. Regular appraisals and mentoring, a careful design of work organisation and incentives to facilitate employee involvement may be enabling new forms of skill formation that substitute for the typical forms of training reported in surveys.

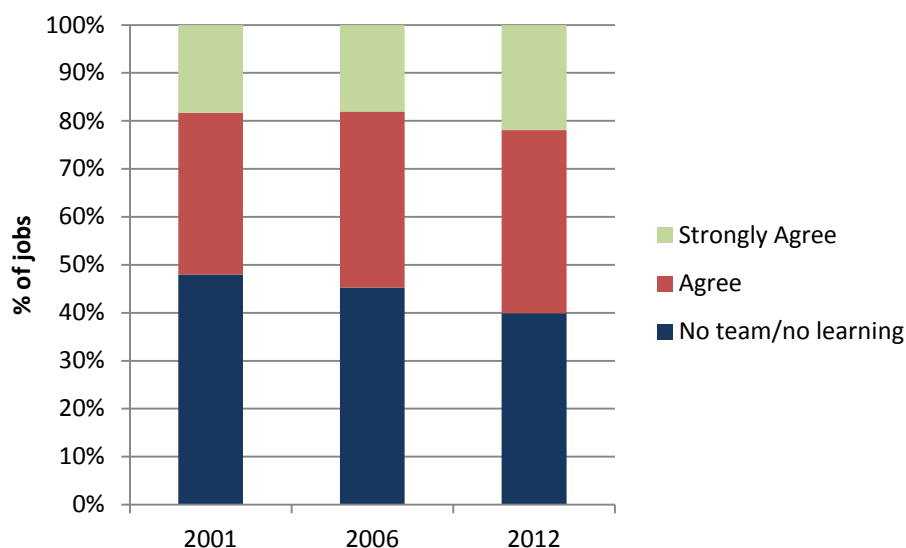
The SES evidence also provides a modicum of support for this explanation. We asked respondents if they worked individually or in groups (teams), and if in a team how strongly they agreed or disagreed with the statement “I am able to learn new skills through working with other members of my work group”. We then classified respondents into three groups: (i) not in a team or, if in a team, disagreement/strong disagreement with the statement; (ii) in a team, agreement with the statement; (iii) in a team, strong agreement. As can be seen from Figure 10, the proportions agreeing and strongly agreeing both rose over the 2001-2012 period, together by 8.1 percentage points. Yet despite this trend an industry-level analysis was less supportive of the thesis that training requirements were being substituted by team-based learning: at the 2-digit level there was a very low, and statistically insignificant, correlation between the decline in training volume and the rising use of team-based learning.<sup>27</sup>

The upshot of this discussion is that each of the explanations for the falling demand for training has at least some evidential support, but given the magnitude of change none convinces as a comprehensive account on its own. The decline in training volumes among the economically inactive (Figure 4) is more consistent with either of the first two explanations which entail a fall in the demand for post-school skill formation, but this does not mean that the third and fourth explanations are not relevant. Additional explanations may also be necessary to form a comprehensive picture: one such could be the role of in-migration of skilled labour in possibly reducing the need for training within the UK, at least in certain regions where high-skilled migrant labour is concentrated.

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<sup>27</sup> This analysis was restricted to the 15 industries with at least 50 cases in each of 2006 and 2012.

**Figure 10 Whether Able to Learn Through Teamworking, Britain, 2001-2012\***



\*Share of jobs according to whether and how strongly worker agrees he/she can learn new skills through teamworking.

Source: SES. Persons in employment, age range 20-60.

Empirically distinguishing between explanations is beyond the scope of this paper, though it would be useful because the explanations have very different implications for skills growth and the economy, and hence for skills policy. In the first explanation there is a falling demand for ongoing skill formation, because the economy is said to be on a low-skills trajectory. This explanation is the only one that reflects badly on the state of the economy. In the second explanation, education substitutes for training, partly by reducing the need for remedial skill formation. In the third explanation there is just as much need for skill formation as before, but ‘lean training’ meets this need more efficiently, the proviso being that leaner training might provide fewer industry-transferable skills. Finally, in the fourth explanation, skill formation is becoming embedded in organisational learning processes that substitute for training.

## **6. Conclusion and Recommendations**

Whatever combination of explanations is correct, the mere fact of the radical fall in training volumes is the most significant finding from this study. Apart from the newly available Skills and Employment Survey, the various sources of evidence visited have all been available in the public domain for some time. One might therefore question why falling training volumes have hitherto not been noticed and discussed.

One answer could be the view that it is participation in training that matters, rather than duration. The UK's training participation rate, with its gentle inverted U-shaped path of evolution and its high standing by comparison with most countries in Europe, may have seemed of little concern. The UK's 'implementation' of Europe 2020 goals with respect to adult training has been way ahead of the game (European Commission, 2011). Yet, while many studies of training's effects do not look at the impact of longer duration, those that do show that, as one might expect, longer training matters (Blundell *et al*, 1996; Bartel, 1995). Equally, longer training courses are sure to cost more in fees and in time spent not working productively. It cannot be justified, therefore, to focus on training participation as a proxy for training volumes, especially when duration is changing.

Another reason for focusing on participation rather than volume may have been that the data on volume are regarded as less reliable and scarcer. Indeed, recall problems affect duration measures even more than indicators of participation, and some survey series collect no data on training durations. Nevertheless, when one looks around there are several surveys that collect indicators, and as we have seen the picture of change is largely consistent between them. If workplace training is thought at all important for future prosperity, there needs to be an urgent improvement in the collection and presentation of statistics surrounding training, and for a fuller understanding of why the volume of training is changing, and of what has been happening with training quality.

We conclude, therefore, with some recommendations for progress in the statistical understanding of training in Britain.

- i. There should be an investment of effort to devise improved, regular training volume indicators for the British labour market, in support of public discourse and as an aid for training stakeholders across the UK. We think that the ONS could be more proactive in this respect by publishing the data on training hours on its statistical pages. Moreover, it should not confine itself to the QLFS data: it should make some use of existing high-quality survey series. We acknowledge, however, that the collection of good training statistics is not a simple matter. There is, for example, a trade-off between reference period and sample size. While a shorter period is better, because individuals' recall deteriorates over time, this necessitates larger sample sizes to capture enough cases of people training, through all seasons of the year; but to get the large sample size of the QLFS one runs into the disadvantage of having proxy responses, which are problematic when it comes to training. We recommend that a collective effort to improve training statistics, rather than hide the problem under the carpet, drawing on a range of expertise, could usefully be led by the Department of Business, Innovation and Skills.

- ii. In parallel it should be considered how to generate suitable regular indicators of the quality of training. There may be a need to generate multiple indicators in order to build the fullest possible picture. It would also be valuable to monitor trends in aspects of work organisation that are conducive to learning in workplaces.
- iii. It is important to continue monitoring funding in a consistent way, that is, through repeat surveys of investment attached to the Employer Skills Surveys. To support any new subsidy/taxation policies, there should also be improved items in individuals' surveys designed to uncover the share of funding by individuals, employers and government. The easiest step, in this case, is to ask whether training takes place in the employees' own time or during paid working hours.
- iv. The especially drastic cut in training volumes in Northern Ireland over recent years calls, in particular, for a focused enquiry. If training volumes continue to fall generally, new research is needed to try to uncover the strength of the competing explanations identified above.
- v. Data on training participation should continue to be collected, if only because it is a constituent part of collecting data on training volumes. Yet researchers and policy-makers should no longer be content to present their analyses solely in terms of training participation, for fear of generating misleading results. Where possible, future research should study volume and quality, the total impact on skills. Studies which only look at training participation rates risk generating biases in the estimation of training impacts and, as we have seen, masking significant trends in the training marketplace.
- vi. Finally, especially for policy purposes it would be useful to have available more regular indicators of training mismatch, not least because training barriers are a prime potential focus for beneficial social interventions.

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### Employer Skills Survey

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### European Working Conditions Surveys

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### NIACE Surveys

See Aldridge and Tuckett (2011).

### Adult Learning Survey

Department for Business Innovation and Skills (2012a and 2012b)

### Quarterly Labour Force Survey



Office for National Statistics. Social Survey Division and Northern Ireland Statistics and Research Agency. Central Survey Unit, *Quarterly Labour Force Survey*. Colchester, Essex: UK Data Archive [distributor], various, since 1995.

Skills and Employment Surveys

Reports are downloadable free from **LLAKES** at <http://www.llakes.org/> and from the survey website at <http://www.cardiff.ac.uk/socsi/ses2012/>

Workplace Employment Relations Survey (managers and employees)

See van Wanrooy *et al*, (2013).

**Table 1 Job-Related Training Trends in Britain By Data Source**

<u>Data Source</u>	<u>Participation Rate</u> <sup>a</sup>	<u>Volume</u> <sup>b</sup>	<u>Funding</u>	<u>Total Training Quality</u> <sup>c</sup>	<u>Mismatch</u> <sup>d</sup>	<u>Remarks</u>
<i>Individuals</i>						
Quarterly Labour Force Survey (QLFS)	(1, 4 or 13 weeks) <b>Rises</b> until early 2000s, <b>falls</b> thereafter	<b>Falls</b> by 44%, 1997- 2009		n.i.	n.i.	More substantial falls, after 2003, in Northern Ireland
Skills and Employment Surveys (SES)	(1 year) <b>Small rise</b> between 2006 and 2012	<b>Falls</b> by 32%, 2006-2012	<b>No change</b> in funding share, 2006-2012	<b>Stable/ falls</b> , 2006-2012 (multiple indicators)	No evidence of worsening mismatch, 2006-2012	
British Household Panel Survey (BHPS)	(~1 year) <b>Stable</b> , 1998- 2005, then <b>falls</b> by 5 percentage points, 2005-2008	<b>Falls</b> by 26%, 1998/9-2007/8		<b>Stable</b> , 1998-2008 training certification	n.i.	
European Social Survey (ESS2)	(1 year) <b>Stable</b> 2004/5-2010/11	n.i.	n.i.	n.i.	n.i.	
European Working Conditions Survey (EWCS)	(1 year) <b>Stable</b> , 2005-2010	n.i.	n.i.	n.i.	n.i.	Quite small samples
Adult Learning Survey (ALS)	(3 years) <b>Rises</b> by 6 percentage points 1997-2005, then <b>falls</b> by 11 percentage points, 2005-2010	n.i.	n.i.	n.i.	n.i.	Severity of recent cut questionable; learning not confined to work-related
NIACE Survey	("currently" and 3 year) <b>No long-term trend</b> in rate of current or 3-year participation in learning, 1996-2011	n.i.	n.i.	n.i.	Some info on barriers to learning, but none on trends	Very broad concept of learning, not confined to work-related; all adults

Workplace Employment Relations Surveys (WERS)	(1 year) <b>Rises</b> by 5 percentage points over 2004 to 2011/12	<b>Fall</b> in long-duration training more than balances rise in short-term training	n.i.	<b>Small rise</b> in satisfaction with training	n.i.	Employees only; excludes small workplaces (<5 people); matched survey delivers relatively low response rate for individuals, 19% in 2011.
<i>Employers</i>						
Continuous Vocational Training Surveys (CVTS)	Small <b>rise</b> in company-level participation rate, 1999-2005, then large <b>fall</b> by 2010	Ambiguous, as duration is reported to rise, 2005-2010	Annual cost of CVT per courses per employee <b>falls</b> by 29.3%, 2005-2010.			The only company-level survey. Low response rate on training hours item questions its reliability.
Employer Skills Surveys (ESS1)			Employers' real training investment per worker <b>falls</b> by 14.5%, 2005-2011.	<b>No change</b> , 2005-2011, in the proportion benefiting from certified training (12%).		
Workplace Employment Relations Surveys (WERS)	(1 year) <b>Stability</b> in prevalence of off-the-job training establishments; 6% point <b>rise</b> in proportion of high-training establishments.	<b>Fall</b> , 2004-2011 in prevalence of establishments with average training times of 10 hours or more.	n.i.			Covers only non-managerial employees, in largest occupational group; participation depends on group; excludes small workplaces (<5 people)

Notes:

n.i. = no information.

a. Proportion of units participating in work-related training or education over a given period.

b. Total time engaged in training per worker (including both trainees and non-trainees).

c. The effectiveness with which the volume of training generates skills.

**Table 2 Trends in the Four-Week Training Participation Rate (%) and the Decline in Volume (%) by Industry**

Year	Manufacturing	Electricity gas & water supply	Construction	Wholesale, retail & motor trade	Hotels & restaurants	Transport, storage & communication	Financial intermediation	Real estate, renting & business activity	Public administration & defence	Education	Health & social work	Other community, social & personal	Total
1995	9.7	17.9	6.8	10.2	10.7	9.4	19.4	13.8	18.7	18.8	19.3	12.0	13.0
1996	9.6	19.8	6.8	11.0	11.6	9.5	19.1	13.8	19.8	18.7	19.8	12.8	13.3
1997	9.9	20.9	7.6	11.1	12.3	9.5	19.2	14.1	20.8	18.4	20.9	13.2	13.7
1998	10.4	18.9	8.5	11.2	12.8	10.1	19.3	14.9	21.7	20.2	20.9	13.3	14.2
1999	10.5	17.6	8.7	11.3	12.3	10.3	20.0	14.9	21.7	20.7	21.2	13.3	14.4
2000	10.6	19.0	8.8	11.7	12.8	10.6	19.4	14.7	21.7	22.5	22.5	14.4	14.9
2001	10.6	17.0	9.2	11.9	13.2	10.5	19.5	14.6	22.4	23.7	23.3	13.9	15.2
2002	10.1	18.4	9.4	11.3	13.9	10.3	19.5	14.7	21.4	22.7	24.4	14.2	15.2
2003	9.3	16.8	9.1	10.6	12.4	10.2	17.9	13.4	21.3	21.6	25.1	13.7	14.7
2004	9.1	16.1	9.7	10.9	12.4	9.9	18.3	13.7	21.1	21.2	25.3	13.9	14.8
2005	9.4	17.0	9.1	10.6	11.9	9.2	17.4	13.1	20.9	21.7	25.0	13.3	14.7
2006	9.1	15.2	8.8	10.3	11.4	9.8	16.0	13.3	18.8	21.1	24.4	12.5	14.2
2007	9.0	15.6	9.1	10.1	10.8	8.2	15.8	12.5	19.3	20.4	23.1	12.3	13.7
2008	8.8	14.2	8.9	9.7	10.5	8.3	15.6	11.8	19.9	20.1	22.8	11.8	13.5
2009	8.4	14.6	8.2	8.7	10.0	7.9	13.7	11.2	18.9	20.2	22.8	12.1	13.3
2010	8.6	13.5	7.7	8.8	10.7	8.3	14.7	10.8	17.5	18.8	22.6	12.9	13.1
2011	8.7	13.1	8.1	9.4	9.0	8.5	15.4	11.2	17.8	18.8	22.6	12.8	13.3
2012	8.6	13.2	7.9	9.0	9.1	8.6	14.5	11.2	18.1	18.3	23.5	12.0	13.2
<u>Volume Cut, 1996/7-2009/10 (%)</u>	48.2	48.3	40.5	50.0	55.5	55.5	52.5	47.9	35.3	23.4	26.6	38.5	48.2

Source: QLFS.

**Table 3 Trends in the Four-Week Training Participation Rate (%) and the Decline in Volume (%) by Major Occupational Group**

	Managers, Directors And Senior Officials	Professional	Associate Professional And Technical	Admin And Secretarial	Skilled Trades	Caring, Leisure And Other Service	Sales And Customer Service	Process, Plant And Machine Operatives	Elementary
1995	12.8	23.4	20.7	12.8	8.1	13.8	12.4	5.3	5.6
1996	13.0	23.0	20.8	13.0	8.1	14.9	13.2	5.6	5.9
1997	12.7	23.4	21.1	13.3	8.7	16.0	13.4	5.8	6.6
1998	13.2	24.4	21.8	13.8	9.2	16.4	13.9	6.1	6.4
1999	13.2	25.1	21.7	13.7	9.1	16.4	13.9	6.6	6.4
2000	13.4	26.3	21.8	14.1	9.7	17.3	14.0	6.5	7.1
2001	13.6	25.1	22.2	13.8	9.9	19.5	15.0	6.5	8.4
2002	13.5	25.0	21.7	14.0	9.7	20.4	14.4	6.3	9.1
2003	12.8	23.6	21.0	13.4	9.2	20.9	13.0	6.0	8.4
2004	13.1	23.5	21.5	13.2	8.9	21.0	13.6	6.1	8.6
2005	12.7	23.1	20.8	12.8	9.0	21.8	13.0	6.3	8.1
2006	12.6	21.5	20.0	11.8	9.0	23.4	12.3	5.8	7.7
2007	11.7	21.8	18.7	11.6	8.8	20.0	12.7	5.7	8.2
2008	11.6	21.2	18.8	11.4	8.6	19.0	11.9	6.0	7.8
2009	10.8	20.9	18.9	10.5	8.0	19.8	10.7	6.4	7.2
2010	11.2	20.6	18.1	10.4	7.7	18.3	11.0	6.4	7.5
2011	10.4	20.7	15.7	10.5	8.2	18.6	11.5	6.4	7.1
2012	10.1	20.8	15.1	10.9	7.6	18.6	11.1	6.7	7.5
<u>Volume Cut, 1996/7-2009/10 (%)</u>	38.6	42.0	38.5	40.8	50.4	48.5	46.6	52.8	40.8

**Table 4 Trends in the Four-Week Training Participation Rate (%) and the Decline in Volume (%), by Region of Usual Residence**

year	Tyne & Wear	Rest Of Northern Region	South Yorkshire	West Yorkshire	Rest Of Yorks & Humberside	East Midlands	East Anglia	Inner London	Outer London	Rest Of South East	South West	West Midlands (Met County)	Rest Of West Midlands	Greater Manchester	Merseyside	Rest Of North West	Wales	Strathclyde	Rest Of Scotland	Northern Ireland
1995	12.2	13.1	13.1	14.0	14.4	11.5	12.2	16.0	13.4	13.1	13.0	12.1	12.3	12.0	13.0	12.7	12.8	11.7	12.1	10.5
1996	13.0	14.4	14.0	13.5	14.1	11.4	12.5	15.8	14.5	13.9	13.2	12.4	13.2	12.5	12.5	13.0	12.4	11.6	11.5	9.8
1997	13.5	15.0	13.3	13.8	14.1	13.1	13.2	16.5	14.0	13.5	13.8	11.8	13.1	13.1	14.5	13.5	13.1	13.3	12.0	12.4
1998	14.5	16.4	14.1	14.2	13.3	13.5	14.4	15.6	13.7	14.5	14.4	13.3	13.7	13.7	15.1	14.3	13.0	12.8	13.4	12.2
1999	13.1	14.9	15.0	15.8	15.3	13.5	13.4	16.1	14.3	14.8	14.7	14.6	13.8	13.6	12.9	13.4	12.8	14.6	13.5	11.4
2000	13.8	14.6	13.2	16.3	15.4	14.1	14.2	15.8	15.2	14.8	16.0	14.3	14.8	15.4	15.7	15.4	14.0	14.3	13.9	10.9
2001	16.2	15.7	14.7	15.3	16.6	13.4	14.7	16.7	16.0	14.8	15.7	14.0	16.0	15.6	16.2	15.5	14.6	13.7	14.3	13.0
2002	16.9	15.8	16.0	15.9	15.4	14.5	12.7	17.1	16.0	14.6	15.6	14.4	15.5	15.4	15.0	14.3	15.9	14.2	13.8	12.9
2003	16.3	15.9	16.9	14.9	14.8	14.0	12.5	15.7	15.1	14.1	14.4	14.8	14.6	14.9	12.8	13.7	16.1	14.0	14.2	12.4
2004	18.0	16.2	16.1	15.5	15.2	14.8	13.7	14.5	14.4	14.6	14.6	14.8	14.1	15.6	12.2	13.9	15.9	15.2	14.7	10.0
2005	15.8	16.6	17.2	14.6	14.5	14.3	14.0	13.0	14.2	14.4	14.9	14.4	14.1	16.1	13.9	14.3	15.5	14.0	15.1	9.6
2006	16.5	15.9	17.0	13.9	13.7	14.2	13.0	14.4	14.0	13.6	14.5	12.9	14.6	15.1	13.6	12.9	14.4	14.6	14.3	7.7
2007	15.0	14.3	12.9	13.5	12.1	13.1	13.5	13.6	13.1	13.5	14.3	14.8	14.4	13.3	13.1	12.9	14.5	14.4	14.5	9.7
2008	16.0	13.6	12.7	13.2	12.5	13.2	12.9	14.0	12.3	13.3	14.6	13.6	13.0	13.2	14.8	12.9	15.0	13.8	14.2	8.6
2009	14.0	14.4	14.1	12.5	14.2	12.8	11.8	13.9	12.7	12.9	13.5	12.7	12.6	14.4	13.0	13.7	14.8	13.5	14.1	7.6
2010	14.1	14.2	13.7	11.9	13.2	13.1	12.6	14.6	13.1	12.9	13.0	12.1	11.3	14.2	11.6	13.5	14.9	14.3	12.6	7.1
2011	13.8	13.6	14.8	11.6	13.0	14.5	12.7	13.9	13.2	13.7	13.0	10.5	12.3	13.9	11.1	13.7	15.0	13.2	13.2	5.8
2012	14.9	13.4	15.3	12.4	12.9	13.7	12.9	13.1	12.5	13.5	13.4	12.0	12.0	13.1	13.2	13.0	13.9	13.9	12.9	7.1
<u>Volume Cut, 1996/7-2009/10 (%)</u>	38.6	42.0	38.5	40.8	50.4	48.5	46.6	52.8	40.8	43.1	35.4	42.8	46.3	20.9	46.0	33.4	37.3	38.1	30.9	65.3

Source: QLFS.

**Table 5 Trends in the Four-Week Training Participation Rate (%) and the Decline in Volume (%), by Age Group**

	<u>&lt;25</u>	<u>25-34</u>	<u>35-65</u>
1995	21.0	14.2	10.1
1996	22.1	14.8	10.2
1997	22.9	15.0	10.6
1998	23.5	15.6	11.2
1999	23.8	15.4	11.6
2000	24.4	16.1	12.1
2001	24.7	16.5	12.3
2002	24.7	16.5	12.4
2003	23.0	16.0	12.1
2004	22.4	15.9	12.5
2005	22.5	15.9	12.3
2006	22.2	15.2	11.9
2007	21.1	14.5	11.6
2008	20.2	14.4	11.6
2009	19.3	14.4	11.5
2010	18.9	14.0	11.5
2011	19.6	13.9	11.6
2012	19.3	13.9	11.6
<u>Volume Cut, 1996/7-2009/10 (%)</u>	49.2	38.7	22.4

Source: QLFS.

**Table 6 Trends in the Four-Week Training Participation Rate (%) and the Decline in Volume (%), by Sex**

	<u>Men</u>	<u>Women</u>
1995	12.0	13.8
1996	12.0	14.5
1997	12.4	14.8
1998	13.0	15.3
1999	13.0	15.8
2000	13.3	16.5
2001	13.4	17.0
2002	13.4	17.0
2003	12.7	16.6
2004	12.8	16.9
2005	12.6	16.7
2006	12.0	16.5
2007	11.8	15.6
2008	11.7	15.3
2009	11.4	15.1
2010	11.3	14.9
2011	11.5	15.0
2012	11.5	14.9
<u>Volume Cut, 1996/7-2009/10 (%)</u>	45.8	37.0

Source: QLFS.



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