

Incentivising employers to train low-skilled workers: evidence from the UK Employer Training Pilots

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Abstract: We use unique workplace and employee-level data to evaluate a major UK government pilot programme aimed at increasing qualification-based employer-provided training for low-qualified employees. We evaluate the programme's effect on the take-up of training among eligible employers and employees in a natural experiment setting, and study how the take-up varies depending on the incentives offered to the employers and on the time off the job for training received by the employees. To this end, we compare changes in receipt and provision of training across similar low-qualified employees and workplaces employing such individuals, in pilot areas and a set of comparable control areas, from before to after the implementation of the programme. We use rich information on training activity from specially commissioned surveys of eligible employers and employees collected one year *before* and in the two years *after* the beginning of the pilot. We estimate that around 8 percent of eligible employers would have provided qualification-based training to their eligible employees in the absence of the programme, and that the early impact of the pilot was to increase this proportion by less than one percentage point. This translates into only 10 to 15 percent of the training provided under the programme being additional. Our results for training provision by employers are re-enforced by our findings on receipt of training by low-qualified employees. Together, these findings suggest that improving the additionality of the national programme is crucial if it is to make a significant contribution towards UK government targets to increase qualification levels among this section of the workforce.

Keywords: Government policy; Human capital; Training; Welfare programmes

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1 Introduction

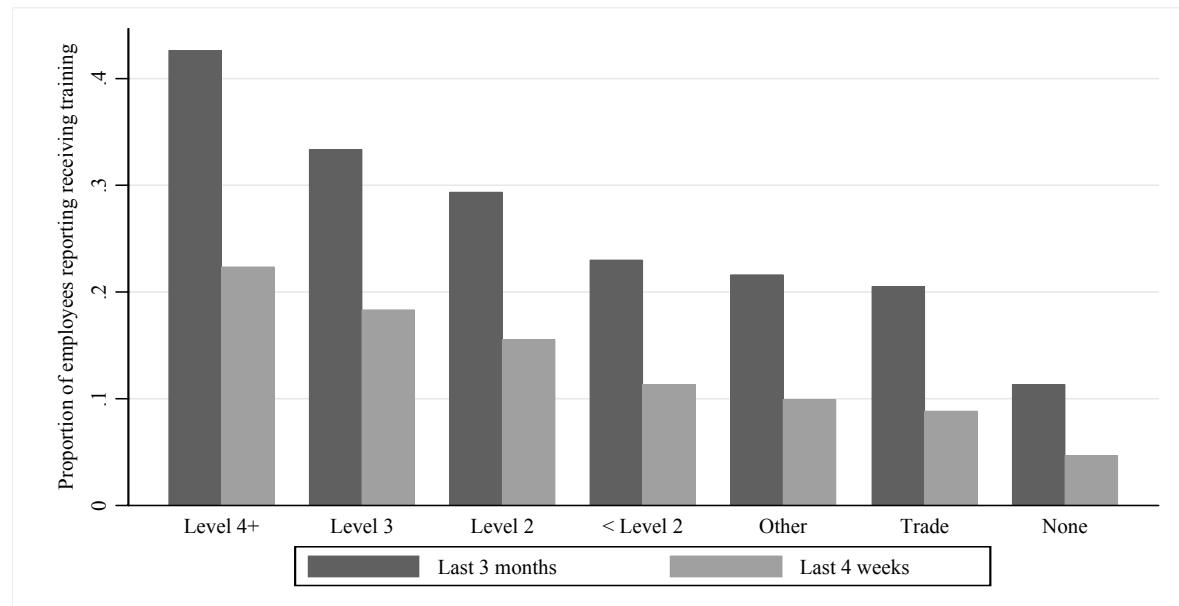
Starting from the late 1990s the UK government has implemented a range of different policies aimed at raising the skill level of the UK workforce, and improving the UK's long-run productivity performance. This paper examines the effectiveness of one policy approach, which targeted low-qualified individuals in employment. The Employer Training Pilots (ETP) which ran between 2002 and 2006 provided financial incentives to employers to provide qualification-based training to their low-qualified employees. The paper focuses on the early impact of the ETP on the provision of training to low-skilled employees by their employers, namely on the effects of the pilot program on the take-up of training in the two years following its implementation.

As many as 1 in 3 working aged adults (aged 19-64), and 1 in 3.5 employees in Great Britain lack skills equivalent to the basic school leaving qualification, which are high proportions by international standards. Compared to other developed countries such as Sweden, Finland, the USA and Germany, the UK has a significantly larger proportion of adults with low qualifications and a smaller proportion holds intermediate level qualifications (see HM Treasury, 2005). The proportion of employees receiving formal training at work is also inversely related to an individual's existing qualification level as documented in Figure 1.⁶ Although considerable opportunities exist for the low-skilled long-term unemployed to receive qualification-based training, the opportunity for those who are in work is generally more limited.

There are some reasons why market failures might exist that prevent the efficient level of workplace training from taking place. In general, economic theory suggests that where individuals are credit constrained, there may be under-provision of training of transferable skills, which basic qualifications generally impart. There may also be informational failures, or positive externalities associated with basic qualifications, that lead to under-provision.

⁶ Level 1 is a formal qualification that is below the basic school leaving standard. Level 2 is the basic expected school leaving qualification at age 16; Level 3 is a more advanced school leaving qualification, generally at 18 (though there are adult vocational equivalents of Level 2 and Level 3 that can be obtained at any age); Level 4 is a university degree or other higher education qualification. Trade qualifications are "recognised trade apprenticeships", while "other" refers to qualifications that either cannot be classified or their classification is not known.

Figure 1: Employee training (in last 3 months and 4 weeks), by level of highest qualification



Source: Labour Force Survey, Spring 2005. Employees in Great Britain, aged 19-64.

Note: Level 1 qualifications are those equivalent to fewer than five GCSEs grades A*-C, which is the basic school leaving qualification; Level 2 qualifications are equivalent to five GCSEs grades A*-C (basic expected school leaving qualification); Level 3 qualifications are equivalent to two or more A level passes, a higher-secondary level qualification; and Level 4 and above qualifications are equivalent to at least a first (tertiary level) degree.

In response to such concerns the UK government launched the National Employer Training Programme (NETP) in April 2006. This is a policy designed to encourage employers to provide work-related training to low-skilled employees in order for them to acquire basic skills and Level 2 vocational qualifications (NVQ2).⁷ The NETP offers free training either to a basic skill qualification or a Level 2 to employees who do not possess a first Level 2 qualification or who lack basic literacy, numeracy or language skills. In addition to free training, employees receive a number of hours of paid time off for training during working hours, and small employers (those with less than 50 employees) receive wage compensation for these hours – available at least in 2006-07 and 2007-08. The package also includes an independent brokerage service to help employers identify their training needs and source appropriate training provision. The NETP is expected to cost £268m in 2006-07

⁷ See note to Figure 1 for an explanation of qualification levels.

and £437m in 2007-08 (of which around £38m in each year will pay for the wage compensation to small businesses).⁸

Before implementing the NETP, the government piloted elements of the programme in selected areas of England, in the form of the ETP, and commissioned an extensive evaluation. This included testing the effects of the pilots on the take-up of training amongst employers and employees in those areas where the pilots were in operation. The design of the evaluation involved collecting unique surveys of employees and employers, in pilot and non-pilot (control) areas, before and after the introduction of the pilots (see Abramovsky *et al.*, 2005).

Although there is an extensive literature assessing the effectiveness of policy interventions to encourage training, this paper marks something of a departure from these. First, the ETP is an intervention aimed at *all* low-qualified *employees* rather than at the unemployed or to a specific group such as young people. To this extent it differs from other training interventions involving the use of subsidies, which have often been open to the unemployed and have been coupled with employment initiatives (see Heckman, 1998, for a summary of evidence on the effectiveness of more general training and employment programs in the US, and Heckman, LaLonde and Smith, 1999, for evidence from programmes operating in a range of countries). There is relatively less evidence on the effectiveness of comparable interventions targeted at employees.⁹

Second, what evidence there is on policies aimed at employees has tended to focus on the longer-term effects on participants, e.g. their wages and employment trajectories (for example, see Krueger and Rouse, 1998, who investigate the effects of subsidised workplace education programs at two companies in the US). By contrast we consider whether or not the subsidies embodied in ETP increase overall levels of training in the areas where it has been implemented. Our focus is thus on the determinants of the take-up of training by employers and employees, as we don't have information for a sufficiently long period of

⁸ Figures provided by the Department for Education and Skills.

⁹ HM Treasury (2002) gives some details of international approaches to workforce training more generally, including the use of training levies in France and Australia and vocational training programs for young people in Germany.

time after the implementation of the pilot to study its longer-term effects on unemployment and wages.

Perhaps closest in spirit to our research is Leuven and Oosterbeek (2004) who examine a change to Dutch tax law in 1998 that entitled employers to a tax deduction when they trained employees aged 40 and over. The authors consider the effect of the age-related tax deduction on both training participation and on wages. They find that the training participation rate for workers aged just above 40 is around 15-20 percent higher than that for workers aged just below 40, training expenditure on whom does not qualify for full tax deductions. But the authors find that this difference is largely due to a reduction in training for those aged just below 40, who are used as the control group.

In this paper we evaluate the effect of the ETP on the take-up of training among eligible employers and employees in a natural experiment setting using a difference-in-differences approach. We compare changes in receipt and provision of training across similar low-qualified employees and workplaces employing such individuals, in the pilot areas and a set of comparable control areas (where the program was not implemented), from before to after the implementation of the programme. We estimate that on average around 8 percent of eligible employers would have provided qualifications-based training to their eligible employees in the absence of the pilot, and that the early impact of the pilot was to increase this proportion by less than one percentage point. This translates into only 10 to 15 percent of the training provided under the programme being additional. In general these estimates are not statistically significant. Our results for training provision by employers are reinforced by our findings on receipt of training by low-qualified employees. The early evidence from evaluation of this policy suggests, therefore, that unless the level of ‘deadweight’ improves from its initial levels, the likely impact on UK productivity of the national programme will be at best only modest.

The paper proceeds as follows. Section 2 sets out the main features of the ETP. Section 3 describes the data collected for the ETP evaluation and the evaluation methodology. Section 4 discusses our main results and a series of robustness checks and Section 5 concludes.

2 The Employer Training Pilots

The ETP were established in September 2002 in six Local Learning and Skills Council (LLSC) areas in England (each covering workforces ranging from just under 300,000 to just over 1 million individuals). Since their initial introduction the pilots have been extended in both length and coverage. Six new LLSC areas were introduced to the ETP in September 2003, and a further five plus a regional pilot in the North East in September 2004. By September 2004, ETP covered around one third of the English workforce.¹⁰ All three ‘waves’ ran until April 2006.

A primary aim of the pilots was to increase the level of training provided by employers and received by employees, who would not otherwise engage in qualification-based training. More specifically, the pilots aimed to encourage training to either NVQ Level 2 or equivalent, or basic skills qualifications, for employees who were not already qualified to Level 2 (i.e. for employees below the basic school leaving standard). Other objectives included tackling barriers to the provision of training to qualifications for low skilled employees, and encouraging more flexible and responsive provision of training to meet employers’ needs.¹¹ Participation in the programme was *voluntary*, and the decision to participate made by the employer. In the remainder of this paper, we will refer to eligible employers as those employing eligible employees, i.e. employees without a first Level 2 qualification.

The policy implemented in the pilot areas combined four elements, namely:

- Free or subsidised training;
- Paid time off for training (funded for either 35 or 70 hours);
- Wage compensation (paid to employers for the 35 or 70 hours time off);
- Information, advice and guidance to employers and employees.

The exact details of the policy varied across regions and with the size of employers (small, medium and large), with the main differences being in the levels of wage compensation and the number of hours of time off the employee was required to be allowed by the employer to attend training. Table 1 sets out the different policy variants implemented in the

¹⁰ Adult education policy in Scotland and Wales and Northern Ireland is covered by different arrangements.

¹¹ See HM Treasury (2002).

Employer Training Pilot areas. Every pilot area had a different combination of wage compensation paid as a percentage of a nominal basic rate (between 110 and 150 percent, 75 and 120 percent and up to 75 percent for small, medium and large workplaces, respectively) and hours of time off (multiplied by the wage compensation hourly rate to give the maximum amount an employer could receive). It is worth point out that the largest subsidy was the free tuition; on average a Level 2 qualification costs £1,000 per employee.¹² In the case of those pilots providing wage compensation, assuming a ‘basic’ pay of £5 per hour, this varied from £87.50 to £525 per worker in the most generous cases.¹³ In one pilot area no wage compensation was offered for the time-off.

Table 1: ETP areas

LLSC area	Level of wage compensation (percentage of pay, by size of firm)			Time off (hours)
	Small (under 50 employees)	Medium (50 to 249 employees)	Large (250 or more employees)	
<i>1st wave (started September 2002)</i>				
Greater Manchester	150	120	75	35
Derbyshire	130	100	50	35
Essex	110	75	0	35
Tyne & Wear	150	120	75	70
Wiltshire & Swindon	130	100	50	70
Birmingham & Solihull	110	75	0	70
<i>2nd wave (started September 2003)</i>				
Shropshire	150	120	75	35
Leicestershire	130	100	50	35
Kent	0	0	0	35
East London	150	120	75	70
Berkshire	130	100	50	70
South Yorkshire	110	75	0	70
<i>3rd wave (started September 2004)</i>				
Northumberland	130	100	50	70
Co. Durham	130	100	50	70
Tees Valley	130	100	50	70
Lancashire	130	100	50	70
Black Country	110	75	0	70
Cambridgeshire	110	75	0	70
Devon and Cornwall	130	100	50	70
West Yorkshire	110	75	0	70

¹² Preliminary figure provided by the Institute for Employment Studies.

¹³ This is the case for the most generous variant that provides the workplace with a subsidy equivalent to 150% of the hourly wage. If we assume a wage of £5 per hour, the subsidy amounts to £7.5 per hour, which means a total of £525 per employee for 70 hours time off.

3 Data and Evaluation Design

In this section we outline our data on employers and employees, and our methodology for evaluating the effect of the programme on both the provision of training by employers and the take-up of training by employees.

3.1 Data

ETP employer and employee surveys

Two specially commissioned surveys were collected in summer 2003 (first round) and summer 2004 (second round) to evaluate the effect of the ETP pilots on the take-up of training. Interviews were carried out with *independent* random samples of employers and employees to obtain information on training activity. The *Employer Surveys* were carried out in *four* first wave pilot areas (Birmingham & Solihull, Derbyshire, Essex, Wiltshire and Swindon) and *four* second wave pilot areas (Berkshire, East London, Leicestershire, Kent), as well as two selected control areas (Bedfordshire and Sussex). The *Employee Surveys* took place in *two* second wave pilot areas (Berkshire, Leicestershire), and the two selected control areas. A summary of where and when the surveys were conducted is presented in Table 2. To ensure comparability of results across areas, and to ensure that the characteristics of pilot and control areas were aligned, the areas surveyed were chosen to be similar in terms of their industrial structure and a number of labour market indicators (such as the unemployment rate) in the five years prior to the announcement of the pilot.¹⁴ The pilot areas surveyed were also chosen so to be representative of the policy variants in operation.

The ETP began in the first wave pilot areas in September 2002 and in the second wave pilot areas in 2003. It follows from Table 2 that for the first wave pilot areas information was collected in the two years *after* the first announcement of the programme, but unfortunately *no* survey was conducted prior to the announcement. On the other hand, for the second wave pilot areas this survey design provided contemporaneously collected before-after information on training activity.

¹⁴ The same design has been used in the evaluation of other important programmes in the UK. See, for example, Battistin, Emmerson, Fitzsimons *et al.* (2005) and Blundell, Costa-Dias, Meghir and Van Reenen (2004).

Table 2: ETP Employer and Employee Survey areas

LLSC area Conducted	EMPLOYERS		EMPLOYEES	
	First survey (Summer 2003)	Second survey (Summer 2004)	First survey (Summer 2003)	Second survey (Summer 2004)
<i>1st wave pilots (started September 2002)</i>				
Derbyshire	X	X		
Essex	X	X		
Wiltshire & Swindon	X	X		
Birmingham & Solihull	X	X		
<i>2nd wave pilots (started September 2003)</i>				
Leicestershire	X	X	X	X
Kent	X	X		
East London	X	X		
Berkshire	X	X	X	X
<i>Control areas</i>				
Bedfordshire	X	X	X	X
Sussex	X	X	X	X

The Employer and Employee surveys were *independent*, in that the sample of employees was not specifically chosen from the workplaces that were surveyed. Moreover, the employer survey interviewed the *same* employers in both years, while the employee survey carried out interviews of random samples of individuals in both years. It therefore follows that the information available for the analysis consists of *repeated cross sections* of employees from second wave pilot and control areas before and after the implementation of the programme, and *longitudinal* information on employers in pilot and control areas that, only for the second wave pilot, was collected before and after the launch of the ETP.¹⁵

A key part of the survey process was to accurately identify eligible employers and employees. For the Employer Surveys, *eligible employers* were identified as those either employing individuals without basic skills or Level 2 qualifications or employing individuals in occupations that are associated with low-qualifications, at the time of the first interview. Perhaps not surprisingly, for some firms eligibility turned out to depend on whether it was defined by identifying low-skilled employees from the “qualification-based”

¹⁵ The 2003 Employer Survey had response rates of 41 percent. The 2004 Employer Survey successfully re-interviewed around 67 percent of the 23,000 eligible employers that were interviewed in 2003. The 2003 Employee survey involved face-to-face interviews, with around 5,500 eligible individuals. The overall approximate response rate was around 55 percent, which results from the product of 73 percent response rate to the screening phase and 76 percent achieved individual interviews out of the total eligible contacted. The 2004 employee survey was carried out by telephone and around 8,000 completed interviews were obtained, with an approximate response rate of 45 percent. More details on the sampling design as well as on the survey methodology can be found in Abramovsky *et al.* (2005).

or the “occupation-based” measure. Though it may be worthwhile combining these two sources of information to limit the effects of misclassification (see Battistin and Sianesi, 2006), in this paper we define eligibility by looking at the “qualification-based” measure, which is the definition closest to the ETP policy, and use the “occupation-based” measure as a robustness check for our results. For the Employees Surveys, *eligible employees* were defined as those with less than a Level 2 qualification using self-reported information on their education contained in the questionnaire.

As for the measurement of training provision, detailed information was collected in each survey to narrow down the definition of training to the definition of training provided under the ETP. Training provision at the workplace level was measured by asking employers whether, during the last year, their eligible employees had any off-the-job training which was funded, arranged or supported by the employer, and whether that training led to a basic skills or a Level 2 qualification (specifically an NVQ Level 2).¹⁶ The measures of ETP-type training that we consider in the Employee Surveys relate to training *in the last three months* (to ensure comparability with data from the Labour Force Survey – see below), including whether any training allowed time off from normal duties, was externally provided, or employer-supported; and also information on whether any training would lead to, or had led to a qualification, and if so, the type of qualification.

As pointed out earlier in this section, no information is available on training provision *before* the announcement of the ETP for employers in the first wave pilots (September 2002), as for this sample we only have longitudinal data collected in summer 2003 and in summer 2004. To overcome this limitation, the Employer Surveys also included retrospective questions on training activity in the previous year. This allows us to obtain information on training activity in the first wave pilot areas *before* the ETP was implemented.

The Employer Surveys also collected information on a range of workplace characteristics, including size, industrial sector and whether the workplace is part of larger company. The Employee Surveys collected information on key demographic characteristics and work-

¹⁶ Note that we use training to NVQ Level 2 as the definition of training to a Level 2 qualification. However, our main results are very similar if we categorise employers that did not specify the type of qualification to which their eligible employees were training in the group of workplaces providing ETP-type training, or if we drop them from the analysis altogether.

related information of eligible individuals, such as age, marital status, age at which they left full-time education and occupation. Descriptive statistics on employer and employee characteristics are provided in the Appendix.

Labour Force Survey

We supplement the ETP employee survey with data from the Labour Force Survey (LFS). The LFS is a quarterly survey of around 60,000 households living at private addresses in Great Britain. It is a five-wave rolling panel, with each household in the LFS interviewed for five successive quarters. It is worth noting that the information that we had access to was very detailed, as the Office for National Statistics (ONS) granted us access to special LFS data that contains ETP pilot identifiers. This allows us to identify whether an individual lives in a first or second wave ETP area.¹⁷ As the ETP Employee Survey only contains data for two pilot areas (as well as the two controls), these additional data allow us to examine the impact of ETP across a much wider range of pilot areas.

We use LFS data from the spring quarters of 2002 through 2004. This is because spring is the only quarter containing information on the size of the employee's workplace, and on whether their training leads to a qualification.¹⁸ In each spring we have a sample of approximately 10,000 eligible individuals (i.e. employed individuals with less than a Level 2 qualification) in England, of whom around 1,500 live in first wave pilot areas, and around 1,000 in second wave pilot areas.¹⁹

We select control areas from England using only areas that have similar recent trends in job-related training.²⁰ These are listed in the Appendix. This is particularly important as we will see in Section 3.2 that our evaluation methodology rests on the assumption of common trends in training over time. We also make sure that the control area(s) for each pilot area are geographically close to each pilot area, again to minimise any unobserved area differences between pilots and controls that would confound the estimated effects. Eligible

¹⁷ This information is not available in the data that are in the public domain.

¹⁸ The definitions of training are broader in the LFS than in the ETP data, with the latter allowing us to define a training variable closer to the actual training subsidised by the ETP.

¹⁹ ETP eligibility is based on workplace rather than home address, so we need to assume that region of residence is the same as region of work. We believe this to be reasonable for all pilot areas apart from East London, and for this reason we exclude East London from the second wave pilots.

²⁰ In the robustness checks we also use all non-pilot areas in England as control areas.

individuals, i.e. those with highest qualifications below Level 2, are identified using detailed data on educational qualifications.

Local area data

We map local area characteristics, sourced from the ONS, to each of the above data sets. For employers, the local area data are at the local authority level. Local authorities are smaller geographic areas than LLSC areas in which the pilots operate. The local area data include pre-programme information on the proportion of the working age population qualified up to Level 1 in 2001, a deprivation index for the year 2000 capturing further characteristics of the local area and workforce, and the change in the employment rate between the years 2000 and 2001. For employees, the local area characteristics are measured at the LLSC level²¹, and include the proportion of individuals receiving job-related training in the last 13 weeks in 2000-2001, for each of private services, production, and public sectors; the proportion of individuals with Level 3 qualifications or below receiving job-related training in the last 13 weeks, 2000-2001; the economic inactivity rate in 2000-2001 amongst all individuals aged 16-25, 25-49, and 50-plus; and the unemployment rate in 2001-2002 amongst working age males and females separately. Full details are provided in the Appendix.

3.2 Evaluation Methodology

General formulation of the problem

In the *potential outcomes* framework (see, amongst others, Rubin 1974, and Heckman, LaLonde and Smith, 1999), interest lies in the causal impact of a given ‘treatment’ on an ‘outcome’ of interest. To fix ideas, and with our application in mind, in the following let the ‘treatment’ be the ETP policy and let the ‘outcome’ be a binary indicator for the take-up of training. Let Y_1 (Y_0) denote the potential outcome that would result from the ETP being (not being) in operation. The causal effect of the policy on the take-up of training is then defined as $Y_1 - Y_0$. For example, for eligible employers this corresponds to the difference in the provision of training to their low-skilled employees induced by the ETP policy. A similar interpretation holds for eligible employees.

²¹ However for the analysis that uses the LFS data, discussed further below, we have to combine information across LLSCs as the region identifiers in the LFS data are sometimes broader than the LLSC level.

The average policy impact for those going through the ETP (or the *average treatment effect of the programme on the treated*) is therefore defined as

$$E[Y_1 - Y_0 | P = 1] = E[Y_1 | P = 1] - E[Y_0 | P = 1],$$

where $P=1$ denotes pilot areas in which the ETP policy is in operation. The evaluation problem consists of dealing with the missing data problem that precludes direct estimation of $E[Y_0 | P=1]$. This term in fact refers to a counterfactual situation in pilot areas which is not observable in the data, requiring as it does knowledge of what the average provision of training would have been, had the ETP not been in operation.

The estimators used in this paper, as in many other similar evaluations, rely on the assumption that the evolution in the provision of training in pilot and control areas would have been the same in the absence of the ETP (see Heckman, Ichimura and Todd, 1997, and Abadie, 2005). Our approach to estimating the impact of the ETP builds upon information for pilot and control areas before and after the program was launched. To this end, let Y be the observed outcome (whether for employers or employees), so that we have $Y \equiv Y_1$ in the presence of the ETP and $Y \equiv Y_0$ otherwise.

Consider the quantity

$$\{E[Y | P = 1, t = 2] - E[Y | P = 1, t = 1]\} - \{E[Y | P = 0, t = 2] - E[Y | P = 0, t = 1]\}$$

where $t=1$ denotes the pre-ETP period and $t=2$ the post-ETP period. In essence, the above expression measures the *change* in the take-up of training (whether by employers or employees) in pilot areas from before to after the program, compared to the *change* in the take-up of training in control areas from before to after the program.

By simply using the definition of Y in the last expression we have

$$\{E[Y_1 | P = 1, t = 2] - E[Y_0 | P = 1, t = 1]\} - \{E[Y_0 | P = 0, t = 2] - E[Y_0 | P = 0, t = 1]\},$$

which can be re-arranged to obtain

$$\begin{aligned} & \{E[Y_1 | P = 1, t = 2] - E[Y_0 | P = 1, t = 2]\} + \\ & \{E[Y_0 | P = 1, t = 2] - E[Y_0 | P = 1, t = 1]\} - \{E[Y_0 | P = 0, t = 2] - E[Y_0 | P = 0, t = 1]\}. \end{aligned}$$

The first term in the last expression represents the average policy impact for those (employers or employees) in areas going through the ETP (i.e. our parameter of interest). Under the assumption that the evolution over time in the outcome would have been identical in pilot and control areas had the policy not been introduced, the remaining terms in the expression cancel each other out. This comes down to assuming that there are common time effects between pilot and control areas, and that any difference in training activity between pilot and control areas due to unobserved factors is fixed over time.

Throughout our empirical section, we will assume that the difference of the outcome growth over time in pilot and control areas identifies the average effect of the ETP program in pilot areas. The credibility of this approach can be enhanced by further controlling for pre-programme characteristics that are observable (for employees or employers and at the area level) in the data. Let these characteristics be denoted by X . It follows that the difference in the outcome growth between pilot and control areas net of compositional differences due to X ,

$$\{E[Y | P = 1, X, t = 2] - E[Y | P = 1, X, t = 1]\} - \{E[Y | P = 0, X, t = 2] - E[Y | P = 0, X, t = 1]\} \quad (1)$$

will correspond to

$$\begin{aligned} & \{E[Y_1 | P = 1, X, t = 2] - E[Y_0 | P = 1, X, t = 2]\} + \\ & \{E[Y_0 | P = 1, X, t = 2] - E[Y_0 | P = 1, X, t = 1]\} - \{E[Y_0 | P = 0, X, t = 2] - E[Y_0 | P = 0, X, t = 1]\}. \end{aligned}$$

The last expression defines a *conditional difference in differences* estimator, whose validity rests upon the condition for the standard difference in differences estimator *within* cells defined by X (see, for example, Blundell, Costa-Dias, Meghir and Van Reenen, 2004, for a recent application of this idea in the context of another UK programme). Note that the reasons for conditioning on X are first, that it enhances credibility of the standard estimator, and second, that it allows for estimation of *heterogeneous* treatment effects, in line with the recent literature on programme evaluation (see Heckman, LaLonde and Smith, 1999, and Abadie, 2005).

Identification strategy

In Table 3 we summarise the survey information available for employers and employees and the way in which we combine it to implement the identification strategy described in the last section. Columns in the table refer to the two survey periods (summer 2003 and summer 2004) and to data collected using retrospective information for the period before the first survey wave (summer 2002). Rows in the table refer to first wave pilot areas, second wave pilot areas and control areas, separately by survey information (Employer data, Employee data and LFS data). Finally, the shadowed cells in the table indicate post-program periods, namely periods where the ETP was in operation.

As far as employers are concerned, the top panel of Table 3 suggests that the only “feasible” comparison of outcome growth for treated and control areas refers to second wave pilots (summer 2003 vis-à-vis summer 2004), as survey information for first wave pilots was collected only for two post-program periods. Recall data on training provision during 2002 was collected in summer 2003, thus making it possible to gain pre-program information also for first wave pilots. The advantage of using recall information in the analysis is twofold. First, it allows estimation of first year and second year effects of the ETP for the first wave pilots. Second, by comparing the outcome growth in second wave pilot areas to that of control areas between 2002 and 2003 we can provide an over-identification test for the validity of the difference in differences condition.²² To this end, the quality of recall data can be investigated by comparing survey information collected in 2003 to recall information for 2003 collected in 2004.

As for employees data, it is clear from the mid and the bottom panels in Table 3 that repeated cross sections from the Employee Surveys can only be used to estimate the first year effect of the ETP in second wave pilot areas. Special LFS data granted by the ONS allows us to extend the analysis to first wave pilot areas, as well as implement an over-identification test using data for 2002 and 2003.

Finally, along the lines of what presented in Blundell, Costa-Dias, Meghir and Van Reenen (2004) and Angelucci and De Giorgi (2006), one could replicate the plan for the analysis

²² It is worth noting that the results of this test can shed light on mechanisms that can potentially contaminate the estimates, e.g. anticipation effects in the second wave pilots.

described above restricting the sample only to employees who are not eligible for the policy (namely, those with at least basic expected school leaving qualifications) in order to study whether the introduction of the ETP has generated displacement or substitution effects.

Table 3: Summary of survey information

Employer Surveys	Summer 2002	Summer 2003	Summer 2004
1 st Wave Pilots (started September 2002)	recall	recall X	X
2 nd Wave Pilots (started September 2003)	recall	recall X	X
Control Areas	recall	recall X	X

Employee Surveys	Summer 2002	Summer 2003	Summer 2004
2 nd Wave Pilots (started September 2003)		X	X
Control Areas		X	X

LFS Data	Summer 2002	Summer 2003	Summer 2004
1 st Wave Pilots (started September 2002)	X	X	X
2 nd Wave Pilots (started September 2003)	X	X	X
Control Areas	X	X	X

Note: “X” denotes that survey information was collected in that period for areas involved in the pilot; “recall” denotes that retrospective information on training activity was collected for that period from the two survey waves.

Estimation

Estimating the effects of the ETP simply corresponds to implementing the relationship in equation (1). The idea is in principle straightforward. For example, in the case of employees, estimation would consist of the following steps. First, we should consider only employees with the *same* characteristics X living in pilot and control areas using cross-section data from before ($t=1$) and after ($t=2$) the ETP. Second, we should take the difference in the outcome growth for pilot and control areas to estimate the average effect of the policy for this group. Finally, by iterating the same procedure for all groups defined

by X and by averaging over these groups we would obtain an estimate of the average effect of the programme on the population living in pilot areas.²³ As the number of X's increases, similarities between individuals in different groups could be defined by using propensity score methods (see Heckman, LaLonde and Smith, 1999, and Imbens, 2004).

Though the above semi-parametric estimation of treatment effects is feasible, we chose to estimate the effect of the ETP on the take-up of training using a fairly flexible parametric difference-in-differences model.²⁴ Our basic specification of the estimating equation is given by (see Heckman and Robb, 1985):

$$y_{it} = \alpha_0 + \alpha_1 P_i + \alpha_2 1.[t = t_2] + \alpha_3 P_i 1.[t = t_2] + \gamma_0 x_i + \varepsilon_{it}, \quad (2)$$

where i refers to the sample unit (the employer or the employee), t refers to the time period (before and after the implementation of the policy), $1.[]$ is an indicator taking the value of one if the condition in parentheses holds, and X are characteristics that are pre-determined with respect to the announcement of the ETP. Under the assumptions stated in the previous section, the coefficient α_3 yields the effect of the ETP on provision/take-up of training.²⁵ Note that heterogeneity of the policy effects could easily be modelled by allowing for interactions of the variable $P_i 1.[t = t_2]$ in (2) with the covariates X. Throughout, we estimate the effects separately for first and second wave pilots. Note that for the analysis of the first wave pilots we also use the second wave pilot areas as control areas. Standard errors for the estimated parameters are computed by bootstrapping the original sample (stratified by pilot/control areas and workplace size and clustered by sector of activity) 500 times.

Some additional considerations are worth mentioning. First, on a technical side, equation (2) is embedded in the class of linear probability models, as despite the binary nature of

²³ The employer analysis uses information on the *same* employers before and after the policy is introduced, so we could control for workplace-specific time invariant unobservable characteristics.

²⁴ The reason for doing so is mainly related to the gain in efficiency for inferring the causal effects of the policy. However, we checked that our results are robust to using semi-parametric kernel based matching. Results from this analysis will be discussed amongst our robustness checks.

²⁵ Since the Employer Surveys contain longitudinal information, we draw inference on the causal effects of the ETP on the take-up of training by employers using the specification $\Delta y_{it} = \beta_0 + \beta_1 P_i + \delta x_i + \nu_{it}$, where Δy represents the change in training provision for employer i between the pre- and post-programme periods and β_1 can be given a causal interpretation. This model is more general than model (2), as the X's are assumed to determine the outcome growth rather than the outcome level.

outcome Y, a standard linear regression (rather than a binary regression) is estimated.²⁶ Second, on a practical side, note that implicit in our estimation strategy is that it is possible to find employers and employees living in pilot and control areas that share the same (or reasonably close) pre-programme characteristics X. This boils down to making a common support assumption for the populations in the two groups of areas (see Heckman, LaLonde and Smith, 1999). As we show in the Appendix, the characteristics of firms, workers and areas share the same support in pilot and control areas for the samples used in the OLS estimation. Third, we also conducted a number of robustness checks on our basic specifications, which are further outlined in Section 4.5. Finally, in order to make sure that attrition, at around 30% in the second Employer Surveyor, is not a source of bias, we estimated equation (2) for the employers by both considering *all* observations in the pre- and post-programme periods (i.e. regardless of attrition) and by restricting the sample to employers who were successfully re-interviewed in the second period. We used the results from these regressions as an informal check on the robustness of our findings to the presence of non-random attrition. We find that the results using the two samples are not statistically different from each other.

4 Results

In this section we present our main findings, followed by a number of robustness checks. We present separate findings for the effect of the ETP on the provision of training by eligible employers and the receipt of training by eligible employees. The two sets of results paint the same picture, that in the first years of its operation the ETP pilots had, if anything,

²⁶ Bearing this in mind, in future research we plan to investigate the robustness of our results with respect to the model specification by using fixed effects logit estimation.

only a very small positive effect on the incidence of training. This conclusion is reinforced by each of our robustness checks.²⁷

4.1 Descriptive statistics

To our knowledge, there is little published evidence on the characteristics of low-skilled employees that take up formal training and particularly little has been documented about the type of employers that provide training to low-skilled employees. Before presenting our estimates of the effect of the ETP programme on the take-up of training, we first provide some descriptive statistics showing how the propensity to train (or in the case of employers, to provide training) varies, according to the characteristics of the individual and the firm.

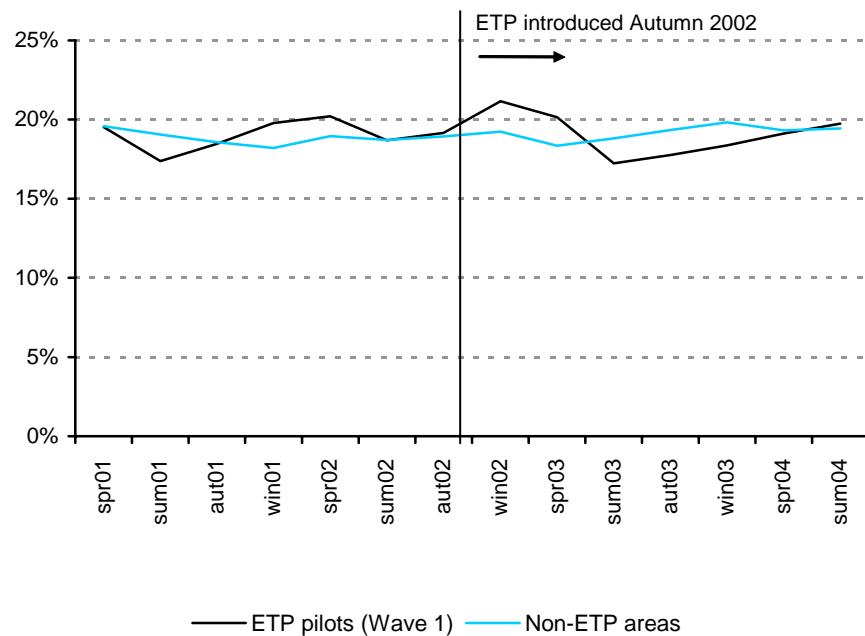
Table 4 presents the marginal effects from two probit models. Each model estimates the probability that an individual has received job-related training in the last three months, conditional on the listed individual characteristics. The first regression covers all employees, whilst the second is estimated only for low-qualified workers, the target group for the ETP policy. The results confirm the suggestion in Figure 1 that the probability of training is inversely related to qualification level. Amongst the low skilled, the following characteristics are associated with a greater probability of receiving training: being relatively young; being in the public sector, in particular in the health, social work and education sectors; being in a supervisory role; being relatively new to one's job (with job tenure less than one year). Those in higher occupational grades are more likely to receive training than those in lower grade occupations, and full-time workers are more likely to receive training than part-timers. Workers in medium and large firms are significantly more likely to receive training than workers in small firms.

Figure 2 shows trends over time in training amongst low-qualified workers, comparing rates of training in the first six areas where the ETP was introduced, to areas in England where the ETP was not introduced. Whilst there is more variation over time in the ETP

²⁷ In this version of the manuscript we do not present results on the over-identification test for the validity of the difference in differences assumption, which we plan to discuss in future research. Also, we build upon results in Abramovsky *et al.* (2005) pointing to no effect heterogeneity with respect to size of the workplace and present results for pilot areas vis-à-vis control areas only, without distinguishing for level of the wage compensation and number of hours of time off for training. In future research we plan to report estimation results from regressions that allow for differential program effects depending on these features of the ETP policy.

areas than in non-ETP areas, this probably reflects sampling variation arising from smaller sample sizes. There is no discernible change in the trend in training from before to after the introduction of the pilots in autumn 2002.²⁸

Figure 2: Percentage of low-qualified (< Level 2) employees receiving training in last three months



Source: Labour Force Survey 2001-2004, England

Table 5 reports the results from a multivariate analysis describing the characteristics of those employers who have provided ETP-type training in the period September 2002-August 2003. Amongst those eligible employers that employ low-skilled individuals, the following characteristics are associated with a higher probability of providing ‘ETP-type’ training, conditional on the other factors: being a larger workplace, being part of a larger organisation as opposed to a stand-alone workplace; increasing employment levels in the last year; operating in the health care sector; having a business or training plan and having received public support in the past.

²⁸ Note that similarities in training provision for pilot and control areas before the introduction of the ETP are in favour of the common trend hypothesis underlying the difference in differences estimator discussed in the last section.

Table 4: The probability of receiving job-related training in the last 3 months

Dependent variable: 1(training)/0(not training)	All employees	Employees <L2 qualifications
<i>Previous highest qualification level (base group Level 4+)</i>		
Level 3	-0.016 (0.007)*	
Trade	-0.071 (0.010)**	
Level 2	-0.046 (0.007)**	
< Level 2	-0.075 (0.007)**	
Other	-0.073 (0.008)**	
None	-0.156 (0.008)**	
<i>Gender(base group Female)</i>		
Male	-0.023 (0.005)**	-0.003 (0.009)
<i>Age (base group 19-24)</i>		
25-34	-0.077 (0.008)**	-0.017 (0.013)
35-44	-0.083 (0.008)**	-0.049 (0.012)**
45-54	-0.091 (0.008)**	-0.049 (0.013)**
55-59	-0.115 (0.009)**	-0.067 (0.013)**
60-64	-0.147 (0.010)**	-0.078 (0.013)**
<i>Responsibility for supervising other employees</i>	0.056 (0.005)**	0.045 (0.008)**
<i>Length of job tenure (base group <1 year)</i>		
1-5years	-0.042 (0.006)**	-0.06 (0.009)**
5 years+	-0.077 (0.007)**	-0.086 (0.010)**
<i>Public sector</i>	0.067 (0.007)**	0.045 (0.012)**
<i>Industry (base group primary industries & construction)</i>		
Manufacturing	-0.054 (0.009)**	-0.038 (0.013)**
Distribution	-0.023 (0.009)**	-0.015 (0.013)
Finance and Business	0.042 (0.010)**	0.037 (0.018)*
Education, Public Health, Social work and Other Services	0.071 (0.010)**	0.041 (0.016)*
<i>Occupation (base group Managers and Senior officials)</i>		
Professional	0.073 (0.009)**	0.084 (0.033)*
Associate Professional and Technical	0.072 (0.009)**	0.054 (0.020)**
Administrative and Secretarial	-0.056 (0.008)**	-0.018 (0.015)
Skilled Trades	-0.027 (0.010)**	-0.017 (0.017)
Personal Services	0.092 (0.012)**	0.140 (0.023)**
Sales and Customer Services	-0.007 (0.011)	0.011 (0.018)
Process Plant and Machine Operatives	-0.069 (0.010)**	-0.041 (0.014)**
Elementary	-0.095 (0.009)**	-0.066 (0.013)**
<i>Firm size (base group <50 employees)</i>		
Medium (50-249)	0.034 (0.006)**	0.04 (0.009)**
Large (249+)	0.049 (0.006)**	0.06 (0.010)**
<i>Basic hours worked each week (base group < 20 hours)</i>		
20-35 hours	0.044 (0.009)**	0.04 (0.012)**
>35 hours	0.05 (0.007)**	0.051 (0.010)**
Observations	44,866	12,587

Source: Labour Force Survey, Spring 2005. Great Britain.

Note: Coefficients shown are marginal effects of a probit model, calculated at the mean. Standard errors are in parentheses. * Significant at 5%; ** significant at 1%. Other characteristics controlled for in these regressions: ethnicity, region of work, whether or not on temporary contract.

Table 5: The probability of providing job-related training to low-skilled employees in the last year

Dependent variable: 1(provide training)/0(do not provide training)		
<i>Size (base group workplaces with less than 50 employees)</i>		
Medium (50 to 249 employees)		0.045 (0.008)**
Large (over 250 employees)		0.132 (0.021)**
<i>Industry (base group primary industries & construction)</i>		
Manufacturing		-0.042 (0.005)**
Distribution		-0.031 (0.007)**
Finance/Business Services		-0.042 (0.005)**
Education and Public sector		-0.000 (0.010)
Health and Social Work		0.039 (0.014)**
Other Services		-0.018 (0.008)*
<i>Age (base group less than five years)</i>		
6 to 15 years		0.010 (0.007)
>15 years		-0.001 (0.006)
<i>Whether a private workplace</i>		0.005 (0.006)
<i>Whether a stand-alone workplace</i>		-0.018 (0.005)**
<i>Past trend in employment (base group increasing)</i>		
Decreasing		-0.003 (0.007)
Stable		-0.018 (0.005)**
<i>Past trend in sales (base group increasing)</i>		
Decreasing		-0.005 (0.007)
Stable		0.003 (0.005)
<i>Expected trend in employment (base group increasing)</i>		
Decreasing		-0.010 (0.010)
Stable		-0.001 (0.005)
<i>Expected trend in sales (based group increasing)</i>		
Decreasing		0.009 (0.011)
Stable		0.005 (0.006)
<i>Whether has a business/training plan or special budget for training</i>		0.043 (0.005)**
<i>Whether has received any type of public support (including for training)</i>		0.032 (0.005)**
<i>Proportion of full time employees</i>		0.007 (0.007)
<i>Proportion of eligible employees</i>		-0.000 (0.008)
<i>Extent of capacity use (base group below full capacity)</i>		
Above		-0.004 (0.009)
Full		0.005 (0.005)
Observations		11,066

Source: First Random Employer Survey. The data used corresponds to employers in control and second wave pilot areas and training between September 2002 and September 2003. Standard errors are in parentheses; * significant at 5%; ** significant at 1%.

4.2 Main findings

Table 6 shows estimates of the effect of the ETP programme on the provision of training by employers. We focus mainly on ‘first year’ effects in both the first and second wave pilots. As outlined in Section 3, we use the ETP employer survey that provides information on training before and after the period the policy was introduced, for eight out of the twelve first and second waves ETP pilots. The table first shows the policy-off baseline. We estimate the baseline as the difference between the level of training in the control areas after the policy was implemented and the estimated effect. The row labelled ‘Effect’ gives the estimate of the coefficient β_1 from the equation in footnote 17, together with the associated standard error. The regression contains the full set of control variables detailed in Table 14 and Table 15 of the Appendix.

The results for both the first and second wave pilots suggest a small positive effect of ETP on the proportion of eligible employers who provide ETP-equivalent training, increasing the incidence of training by less than one percentage point from a baseline of around 8%; however the results are not statistically different from zero at conventional levels.²⁹

Table 6: One year impact of ETP on employers’ take-up, first and second wave pilots

Qualification measure	First wave pilots	Second wave pilots
Policy-off baseline	8.40%	8.23%
Effect	0.38ppt (0.52ppt)	0.71ppt (1.16ppt)
Sample size pilots	8,123	4,688
Sample size	19,189	7,001

Results are estimated including workplace characteristics and local area characteristics detailed in the Appendix. The estimates for first wave pilots use both control and 2nd wave pilot areas as the comparison group. The estimates for second wave pilots use only control areas as the comparison group. Estimates are from linear OLS difference-in-differences regressions. Bootstrapped standard errors are in parentheses.

Turning to the results for employees, in line with the analysis for employers, we use a parametric difference-in-differences framework and we focus on the first year impact of the programme. As discussed in Section 3, we exploit both the ETP employee survey and the LFS to estimate the ETP effect on employees’ take-up of training. The ETP survey has the

²⁹ In both first and second wave pilot areas the sectoral composition and the size distribution of workplaces providing ETP-type training remains fairly stable over time. For example, in both the first and second wave pilot areas, around 60% of the workplaces providing ETP-type training were small, both before and after the implementation of the ETP pilots.

advantage that the training variables are closer to the actual training subsidised by the ETP; furthermore the sample sizes in pilot areas in the ETP data are larger than those in pilot areas in the LFS data. The LFS on the other hand has the advantage of covering more pilot areas than the ETP data, containing as it does all twelve of the first and second wave ETP areas (though we exclude East London from the analysis – see footnote 19).

Table 7 shows the estimates of the ETP effect obtained using the ETP data. Apart from considering the outcome corresponding to the strict definition of ETP training (outcome 3 in Table 7), we also consider two broader outcomes. Our results are, in general, consistent with small positive effects of ETP on employees' take-up of training. For example, for most outcomes the estimated effects of ETP are around 0.5 percentage points, although in general not statistically significant from zero at conventional levels.³⁰ The evidence suggests that the impact of ETP on the incidence of employee training is similar to the impact of ETP on employers' provision of training.

In the analysis that uses the LFS data, we first separately estimate the effects on training for each ETP pilot area, selecting appropriate control areas from the rest of England for each pilot area, using only areas that have similar recent trends in job-related training and that are geographically close to each pilot area. This is in order to reduce any unobserved area differences between pilots and controls that would confound the estimated effects.³¹ We then combine the effects across all pilot areas to obtain the estimated effect of the ETP on training.³²

Table 8 shows the estimates of the ETP effect using the LFS data. We consider the effects on training in the last 3 months and on training to a qualification in the last 4 weeks.³³ Again, we find no statistically significant effects of ETP on training in the first year for either the first or second wave pilot areas. Moreover, the effect on 'training in last 3

³⁰ The policy-off baseline for training to a Level 2 qualification is likely to be an underestimate as a substantial proportion of respondents do not know the level of qualification to which they are training. However we include this measure to show that our findings are robust to using a narrow definition of ETP-type training.

³¹ See the Appendix for a list of the chosen controls for each pilot area.

³² Note that for first wave pilots, the potential control areas are the whole of the rest of England. For second wave pilots, the control areas are the whole of the rest of England, excluding first wave pilot areas and London.

³³ Here we do not look specifically at training to a Level 2 qualification as a substantial number of respondents do not know the qualification to which they are training.

months' for the second wave pilots is practically the same as the effect on the same outcome using the ETP data, presented in Table 7. This consistency across both data sets is reassuring.

Table 7: One year impact of ETP on employees' take-up of training, selected second wave pilots, ETP data

	Second wave pilots
1 Training in last 3 months...	
Policy-off baseline	19.90%
Effect	0.57ppt (1.17ppt)
2 leading to a qualification	
Policy-off baseline	8.90%
Effect	0.82ppt (1.83ppt)
3 ... externally provided, employer supported, leading to Level 2 qualification	
Policy-off baseline	1.00%
Effect	0.11ppt (0.31ppt)
Sample size pilots	3,908
Sample size	13,393

Notes to table: The ETP pilots are Berkshire and Leicestershire; the ETP controls are Bedfordshire and Sussex. Figures reported are the differences in training across pilot and control areas in 2004, net of the differences in training across pilot and control areas in 2003. These figures are obtained from parametric difference-in-differences regressions. All specifications control for the individual and firm characteristics listed in the Appendix. Standard errors are in parentheses.

Table 8: One year impact of ETP on employees' take-up, first and second wave pilots, LFS data

	First wave pilots	Second wave pilots
Training in last 3 months		
Policy-off baseline	19.50%	18.8%
Effect	0.78 (1.90ppt)	1.37 (1.98ppt)
Training to qualification in last 4 weeks		
Policy-off baseline	4.40%	6.0%
Effect	-0.66 (0.90ppt)	-0.87 (1.14ppt)
Sample size pilots	1,722	938
Sample size	11,129	4,364

Notes to table: Second wave ETP pilots do not include East London. Results are obtained by estimating separate regressions for each of the pilot areas - using appropriate control areas for each - and combining the estimated effects across all pilot areas (within each wave). All figures are obtained from parametric difference-in-differences regressions. All specifications control for the individual and firm characteristics listed in the Appendix. Bootstrapped standard errors are in parentheses.

We also considered attainment as an outcome - in particular, whether the proportion of eligible employers reporting that one or more of their employees had obtained a qualification through ETP type training increased due to the pilots. We examined this question using information collected in the second Employer Survey. Across all workplaces during the period September 2003 to summer 2004 we find that around 4% of employers report that at least one employee obtained a qualification through ETP-type training. However we find no evidence of a significant impact of the ETP on the proportion of employers that had employees who obtained qualifications. But it may well be that it is too early to assess the impact of the ETP on attainment using these data for the first year of the second wave pilot areas, given the length of time involved in achieving a qualification and in certification.

Finally we examined whether the impact of the ETP on employers' provision of training and on employees' take-up of training varied by workplace size or by industrial sector. This is important since, for example, the more generous wage compensation for small workplaces may have led to higher participation rates in the ETP scheme among this group. Training decisions may also differ across the public and private sectors, and we therefore estimated specifications using samples which excluded the public, health and social work sectors. However from all of these experiments we find no consistent evidence of statistically significant heterogeneous effects by workplace size or industry.

4.3 Robustness

In this section, we present a number of robustness checks for both the employer and employee analyses. First, we define eligibility using slightly less stringent criteria than before. Second, we change our choice of control groups and assess the sensitivity of the estimates to this. Third, we use propensity score matching to estimate the impacts of the programme.

Defining eligibility

Employers may not always know whether or not their employees have a first Level 2 qualification. For this reason, we construct a measure of training that is based on defining eligible employers as those with at least one employee in an occupational category that is

associated with “low-qualification” jobs (we refer to this as the “occupation-based” measure).³⁴ Results are presented in Table 9 below. We find a positive and, unlike for the qualification-based measure, marginally significant effect for first wave pilots. This may be explained by the fact that this definition may more accurately capture the types of employers (and their employees) who are actually participating in ETP, as it could include some employees in low-skill occupations who are already qualified to Level 2, but who nonetheless receive ETP training.³⁵

Table 9: One year impact of ETP on employers’ take-up, occupation-based classification of eligibility, selected first wave and second pilots

Occupation measure	First wave pilots	Second wave pilots
Policy-off baseline	8.29%	6.83%
Effect	0.64ppt (0.42ppt)	1.05ppt (1.30ppt)
Sample size pilots	8,407	4,969
Sample size	20,095	7,350

Notes: See notes to table 5. All results are estimated controlling for workplace and area characteristics.

Thus far, in the employee analysis eligibility has covered employees who have no qualification, have a qualification below Level 2, or have obtained a Level 2 qualification since the programme started. However, we have two potential concerns with this classification. The first is that individuals who already had a Level 2 qualification were often allowed to undertake ETP training. We therefore re-classify eligible individuals to include those with a Level 2 qualification (“Plus Level 2”). The second concern is that in the analysis thus far individuals who report having “other” qualifications have been assumed to be ineligible, which would result in misclassification if these individuals have less than Level 2 qualifications. We thus follow LFS conventions and assume that 55% of “other” qualifications are Level 1, thus rendering them eligible for the policy (“Plus Other”).³⁶ Both sets of results for first and second wave pilot areas, presented in Table 10 below, suggest that our main results are robust to redefining eligibility of employees.

³⁴ We include the following occupational categories: administrative and secretarial staff, personal service occupations, sales and customer service occupations, process, plant and machine operative occupations and elementary occupations.

³⁵ Hillage et. al. (2005) report that around one fifth of ETP learners already have Level 2 or equivalent qualifications.

³⁶ However, rather than randomly assigning 55% of individuals who report “other” to “Level 1”, we assign the individuals who are most similar in observable characteristics to those who actually report having a Level

Table 10: One year impact of ETP on employees' take-up, broader measures of eligibility, first wave and second pilots, LFS data

	Eligible “Plus Level 2” Wave 1 Pilots		Eligible Plus “Other” Wave 2 Pilots	
	First wave pilots	Second wave pilots	First wave pilots	Second wave pilots
Training in last 3 months				
Policy-off baseline	22.20%	23.20%	17.90%	19.50%
Effect	1.03ppt (1.58ppt)	-0.87ppt (1.69ppt)	0.23ppt (1.57ppt)	0.57ppt (1.94ppt)
Training to qualification in last 4 weeks				
Policy-off baseline	4.90%	5.20%	3.20%	5.10%
Effect	0.43ppt (0.74ppt)	0.94ppt (0.95ppt)	0.51ppt (0.77ppt)	0.03ppt (0.99ppt)
Sample size pilots	2,403	1,382	1,519	1,000
Sample size	26,232	20,261	18,071	14,498

Notes to table: Second wave ETP pilots areas do not include East London. Results are obtained by pooling all 1st or 2nd wave pilot areas and using the rest of England as control areas. All figures are obtained from parametric difference-in-differences regressions. All specifications control for the individual, firm and area characteristics listed in Appendix.

Varying the control group

While the control areas were specifically chosen to be similar to the pilot areas in terms of labour market characteristics and workplace demographics, here for the employers' analysis we use first wave pilots to assess whether our findings change with the choice of comparison group. We define two comparison groups: the first includes control areas only; the second includes second wave pilot areas only. Our reason for estimating one specification using only control areas as the comparison group is because of the possibility of training decisions in the second wave pilots incorporating anticipation effects; that is firms may have anticipated the introduction of the policy and refrained somewhat from training the year before. If so, this would result in an upward bias on the estimated effect of the programme, when second wave pilots are used as a control group. Indeed, the fact that the positive and significant effect of around one percentage point (for the occupation measure) comes from using the second wave pilots as a control group, as shown in Table 11 below, suggests that this could indeed be the case.

1 qualification. The characteristics that we consider include gender, marital status, employment sector, job responsibility, whether job is permanent or temporary, and job tenure.

Table 11: One year impact of ETP on employers' take-up of training, varying control groups, selected first wave pilots

	First wave pilots	
	Controls = control areas only	Controls = 2nd wave only
Qualification measure		
Policy-off baseline	9.15%	8.17%
Effect	-0.37ppt (0.59ppt)	0.60ppt (0.66ppt)
Sample size pilots	8,123	8,123
Sample size	11,753	15,559
Occupation measure		
Policy-off baseline	8.80%	8.11%
Effect	0.13ppt (0.75ppt)	0.82ppt (0.49ppt)
Sample size pilots	8,407	8,407
Sample size	12,106	16,396

All results are estimated controlling for workplace and area characteristics. Columns labelled ‘Controls only’ use only control areas as the comparison group. Columns labelled ‘2nd wave only’ use only 2nd wave pilot areas as the comparison group. Estimates are from parametric difference-in-differences regressions and bootstrapped standard errors are in parentheses.

For the employee analysis, rather than estimating the effects on training for each ETP pilot area separately and then combining them across pilot areas to obtain an estimate of the effect of the ETP on training, we pool all pilot areas and use as controls employees from across all of England. The result of this exercise is shown in Table 12, and again indicates that our main results from Table 8 are robust to changing the control areas.

Table 12: One year impact of ETP on Employees' take-up, varying control groups, first wave and second pilots, LFS data

	First wave pilots	Second wave pilots
Training in last 3 months		
Policy-off baseline	19.10%	19.30%
Effect	1.10ppt (1.25ppt)	1.05ppt (1.59ppt)
Training to qualification in last 4 weeks		
Policy-off baseline	3.70%	4.90%
Effect	0.11ppt (0.62ppt)	0.31ppt (0.82ppt)
Sample size pilots	1,567	841
Sample size	16,537	12,633

Notes to table: Second wave ETP pilots do not include East London. Figures are obtained by pooling all 1st or 2nd wave pilot areas and using the rest of England as control areas. All figures are obtained from parametric difference-in-differences regressions. All specifications control for the individual, firm and area characteristics listed in Appendix. Standard errors are in parentheses.

Matching

Here we estimate the effect of the programme using non-parametric propensity score matching in a difference-in-differences framework.³⁷ This essentially matches employers in pilot areas to their counterparts in control areas on the basis of a weighted index of observable characteristics that are chosen on the basis that they may have an important influence on training decisions. The aim is to ensure that the distributions of workplace and local area characteristics in the pilot and control areas are similar. We then compare how the change in training over time (before to after the introduction of the policy) differs between employers in the pilot areas and their matched controls. The matching results show impacts of a fairly similar magnitude to our main specification.

Table 13: One year impact of ETP on employers' take-up, propensity score matching, selected first wave and second pilots

	First wave pilots	Second wave pilots
Qualification measure		
Policy-off baseline	7.55%	6.17%
Effect	0.24ppt (0.92ppt)	1.70ppt (1.35ppt)
Sample size pilots	7,993	4,526
Sample size	19,054	6,834
Occupation measure		
Policy-off baseline	7.45%	4.13%
Effect	0.50ppt (0.57ppt)	2.14ppt (1.32ppt)
Sample size pilots	8,297	4,763
Sample size	19,980	7,138

Estimates are from propensity score matching, and for the 1st wave pilots both control and 2nd wave pilot areas are used as the comparison group. Results are estimated including workplace and local area characteristics. Bootstrapped standard errors are in parentheses.

³⁷ Note that we have not carried out this particular robustness check for employees due to the computational complexities involved in matching cross-sections of individuals. Moreover, the battery of robustness tests that we have carried out for employees all point to non-significant effects of the programme, and we are therefore fairly confident in this finding.

5 Conclusions

The evidence we have shown suggests that the ETP pilots have had small positive effects on the take-up of training amongst eligible employers and employees, but that the associated levels of ‘deadweight’ (i.e. training that would have been undertaken even in the absence of the ETP) are relatively high. For example, the evaluation findings suggest that in the early years of the pilots the proportion of eligible employers providing Level 2 training to low qualified workers has risen from approximately 8% to around 8.5% as a result of the policy. ‘Back of the envelope’ calculations on the basis of these evaluation results suggest that about 10% to 15% of the ETP training is ‘additional’ training, and about 85% to 90% is ‘deadweight’.

Such levels of deadweight are perhaps to be expected amongst training programmes of this kind. Given that the ETP was universally available, widely marketed, and offered employers financial incentives to provide training, we would expect the programme to attract a considerable number from the minority of employers who would have provided this type of training without the ETP offer. In addition, some of the new training under ETP may have been at the expense of training that would otherwise have occurred: this could arise particularly if there were supply constraints in training provision and providers switched towards ETP training and away from other non-ETP Level 2 training.

It should also be noted that this evaluation focussed mainly on the first year effects of the ETP programme. It might be the case that additional training generated by the policy increases beyond its initial levels, since the numbers of employers and employees participating in ETP have increased considerably over time. For example, in the first six LLSC areas in which the ETP was piloted, the number of new employers and employees signing up to ETP increased from around 2,400 and 17,000 respectively in the first year to 4,800 and 43,000 in the second year, and approximately 4,000 and 41,000 in the first 11 months of the third year of operation.³⁸

³⁸ These figures are derived from the ETP Management Information data, provided by the Institute for Employment Studies. The first year figures cover September 2002-August 2003, and the second year covers September 2003- August 2004. Note that the third year figures are provisional as they presently only cover September 2004 – July 2005.

However thus far, the evidence for the ETP's likely effectiveness on improving the UK's productivity is not very strong. Although there is some limited evidence on the existence of positive returns to NVQ2 obtained through the employer, as measured by employees' wages³⁹, as we have shown, the ETP did not appear to raise the levels of training much beyond what would have occurred in any case. Whether the public funding directed towards the NETP provides value for money in terms of fulfilling its key productivity aims will ultimately depend on its effectiveness in terms of generating both additional take-up of training and positive returns to the qualifications acquired through the policy.

³⁹ See Dearden, McGranahan and Sianesi (2004). Note that this measure could be underestimating the effect on productivity since it does not take into account any productivity gains captured by firms. Note also that these findings are based on general research on the gains to NVQ Level 2s; there has been no specific research on the wage gains amongst participants in the ETP programme.

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Appendix

The workplace characteristics include size, a narrowly defined description of the industry (2-digit level SIC92 category) in which the employer is active, whether or not the employer expects to expand or contract activities, the extent of capacity utilisation, whether the workplace is part of a larger group, the extent to which the employer's workforce comprises full versus part-time employees, the age of the workplace, whether the employer is in the public or private sector, whether the employer has used government business support schemes in the past, and whether the employer has a training or business plan. The information on these characteristics refers to the pre-programme period.

For employers, the local area data are at the local authority level and include the following pre-programme variables, the proportion of the working age population qualified up to level 1 in 2001, a deprivation index for the year 2000 capturing further characteristics of the local area and workforce, and the change in the employment rate between the years 2000 and 2001.

Table 14: Descriptive statistics for pre-programme characteristics used in the 1st wave employers results

Unconditional averages	Pilots (1 st wave pilots)	Control (Control and 2 nd wave pilots)	
Workplace characteristics			
<i>Size (%)</i>	Small (less than 50 employees) Medium (50 to 249 employees) Large (over 250 employees)	85.76 12.08 2.17	83.17 14.00 2.82
<i>Industry (%)</i>	Primary industries & construction Manufacturing Distribution Finance/Business Services Education and Public sector Health and Social Work Other Services	8.28 13.82 34.84 14.43 9.57 8.54 11.51	7.87 12.62 34.30 16.13 8.15 9.58 11.35
<i>Age (%)</i>	<5 years 6 to 15 years >15 years	24.05 26.37 49.58	24.36 26.79 48.85
<i>Whether a private workplace (%)</i>		77.86	78.92
<i>Whether a stand-alone workplace (%)</i>		66.26	65.77
<i>Past trend in employment (%)</i>	Increasing Decreasing Stable	35.62 11.48 52.13	34.67 12.09 52.31
<i>Past trend in sales (%)</i>	Increasing Decreasing Stable	51.28 14.32 28.75	50.08 15.14 28.61
<i>Expected trend in employment (%)</i>	Increasing Decreasing Stable	40.93 4.34 52.46	42.12 4.93 50.19
<i>Expected trend in sales (%)</i>	Increasing Decreasing Stable	64.00 4.99 25.20	63.79 5.78 23.80
<i>Whether has a business/training plan or special budget for training (%)</i>		68.59	69.59
<i>Whether has received any type of public support (inc. for training) (%)</i>		33.13	28.76
<i>Proportion of full time employees (%)</i>		64.41	66.4
<i>Proportion of eligible employees (%)</i>		37.27	35.81
<i>Extent of capacity use (%)</i>	Below Above Full	38.54 6.27 52.71	38.86 5.98 52.38
Local area characteristics			
<i>Proportion of the working age population qualified up to level 1(2001)</i>		48.26	44.17
<i>Deprivation index (2000)</i>		21.81	21.29
<i>Change in employment rate (2000 and 2001)</i>		0.98	-0.68
Observations		9,598	13,354

Source: First Random Employer Survey. The sample sizes correspond to all observations used in both the qualification and occupation measures analysis.

Table 15: Descriptive statistics for pre-programme characteristics used in the 2nd wave employers results

Unconditional averages	Pilots (2 nd wave pilots)	Control (Control areas)
Workplace characteristics		
<i>Size (%)</i>	Small (less than 50 employees) Medium (50 to 249 employees) Large (over 250 employees)	81.29 15.37 3.33
<i>Industry (%)</i>	Primary industries & construction Manufacturing Distribution Finance/Business Services Education and Public sector Health and Social Work Other Services	7.15 11.84 32.46 16.21 9.91 10.72 11.71
<i>Age (%)</i>	<5 years 6 to 15 years >15 years	23.86 26.84 49.29
<i>Whether a private workplace (%)</i>		75.56
<i>Whether a stand-alone workplace (%)</i>		63.30
<i>Past trend in employment (%)</i>	Increasing Decreasing Stable	36.08 11.83 51.52
<i>Past trend in sales (%)</i>	Increasing Decreasing Stable	51.95 15.64 27.18
<i>Expected trend in employment (%)</i>	Increasing Decreasing Stable	44.89 4.75 48.50
<i>Expected trend in sales (%)</i>	Increasing Decreasing Stable	66.18 5.95 22.30
<i>Whether has a business/training plan or special budget for training (%)</i>		73.31
<i>Whether has received any type of public support (inc. for training) (%)</i>		31.75
<i>Proportion of full time employees (%)</i>		65.99
<i>Proportion of eligible employees (%)</i>		34.60
<i>Extent of capacity use (%)</i>	Below Above Full	40.49 6.18 50.91
Local area characteristics		
<i>Proportion of the working age population qualified up to level 1(2001)</i>		44.55
<i>Deprivation index (2000)</i>		22.82
<i>Change in employment rate (2000 and 2001)</i>		-0.72
Observations	5,934	2,857

Source: First Random Employer Survey. The sample sizes correspond to all observations used in both the qualification and occupation measures analysis.

For the employee analysis the demographic data include information on age, gender, marital status, detailed education and qualification history, including age left full-time education and any qualifications held. The data on employment contain information on occupation, industry, size of workplace, job tenure, supervisory duties, hours of work, and income from employment.

Table 16: Descriptive statistics for pre-programme characteristics used in the 2nd wave employees results, ETP Data

Unconditional averages		Pilots (2nd wave)	Control (Average of selected)
Individual characteristics			
<i>Male (%)</i>		40.91	41.06
<i>Age</i>		43.46	43.58
<i>Married (%)</i>		69.74	69.33
<i>Job tenure (%)</i>	<1 year	17.31	17.21
	1-5 years	34.83	33.92
	> 5 years	47.47	47.32
	DK	0.40	1.55
<i>Main occupation group</i>	Manager/Senior Official	12.98	14.58
	Professional	1.72	1.92
	Associate Professional/Technical	6.91	7.47
	Administrative/Secretarial	15.86	15.96
	Skilled Trades	8.46	8.84
	Personal Service	11.45	12.60
	Sales/Customer Service	10.24	10.04
	Process Plant/Machine Operation	11.29	10.15
	Elementary	19.72	15.03
Has supervisory role at work		28.67	32.17
Workplace characteristics			
<i>Size (%)</i>	Small (less than 50 employees)	51.17	53.35
	Medium (50 to 249 employees)	25.39	24.06
	Large (over 250 employees)	20.19	19.13
	DK	3.25	3.47
<i>Industry (%)</i>	Primary industries & construction	5.66	5.65
	Manufacturing	16.11	13.42
	Distribution	24.56	23.61
	Finance/Business Services	13.23	11.74
	Educ/Public sector	13.43	13.43
	Health/Social work	10.15	13.49
	Other Services	14.25	14.03
	DK	2.62	4.63
Observations		6,805	6,722

Source: Random Employee Training Pilot Survey. The sample sizes correspond to all observations used in the analysis. Note that workplace sector is not observed in 2003 ETP data.

Table 17: Descriptive statistics for pre-programme characteristics used in the 1st and 2nd wave employees results, LFS Data

Unconditional averages		Pilots (1 st wave)	Control (Average of selected)	Pilots (2 nd wave)	Control (Average of selected)
Individual characteristics					
<i>Male (%)</i>		49.32	49.33	48.95	49.36
<i>Age (%)</i>	19-24	12.22	12.47	12.52	11.92
	25-34	23.72	23.04	21.89	21.79
	35-44	27.87	27.42	28.28	27.53
	45-54	23.22	23.89	23.70	23.61
	55-59	9.44	9.24	9.82	10.29
	60-64	3.53	3.93	3.78	4.86
<i>Married (%)</i>		69.59	71.21	71.52	71.17
<i>Job tenure (%)</i>	<1 year	17.21	17.97	17.77	17.44
	1-5 years	34.15	34.74	35.34	36.06
	> 5 years	48.51	47.07	46.53	46.21
	DK	0.12	0.22	0.36	0.29
<i>Main occupation group</i>	Manager/Senior Official	13.50	12.23	13.70	15.30
	Professional	10.97	10.51	12.23	12.18
	Associate Professional/Technical	13.32	12.67	13.00	13.19
	Administrative/Secretarial	15.17	14.92	14.75	14.09
	Skilled Trades	9.26	9.82	9.00	8.93
	Personal Service	8.02	8.13	8.10	8.31
	Sales/Customer Service	8.50	8.41	8.37	8.15
	Process Plant/Machine Operation	8.89	9.94	8.98	7.99
	Elementary	12.35	13.32	11.85	11.80
Has supervisory role at work		37.47	36.42	38.35	39.86
Workplace characteristics					
<i>Sector (%)</i>	Public	28.49	27.56	27.40	25.63
	Private	66.32	68.27	68.58	69.24
	Voluntary	4.83	3.87	3.60	4.72
	DK	0.37	0.31	0.42	0.41
<i>Size (%)</i>	Small (less than 50 employees)	43.54	46.88	47.27	48.73
	Medium (50 to 249 employees)	26.05	24.42	25.92	26.96
	Large (over 250 employees)	26.73	24.84	25.75	23.59
	DK	3.67	3.86	1.06	0.72
<i>Industry (%)</i>	Primary industries & construction	9.34	9.87	10.53	9.56
	Manufacturing	16.79	16.83	14.45	14.85
	Distribution	25.50	25.78	26.36	26.84
	Finance/Business Services	12.41	11.86	11.88	12.95
Educ/Public sect/ Health Social Work/Oth Services		35.91	35.63	36.71	35.75
	DK	0.05	0.04	0.07	0.05
Observations		13,796	23,567	8,008	23,906

Source: Labour Force Survey. The sample sizes correspond to all observations used in the analysis.

Table 18 below details the areas selected as controls for the employees analysis using the LFS. The control areas were chosen on the basis of having similar recent trends in job-related training and being geographically close to the matched pilot area.

Table 18: Selected Controls, LFS Data

First wave pilots	Selected controls for first wave pilots, first year effects
Birmingham & Solihull	Black Country, Leicestershire, Herefordshire and Worcestershire, Staffordshire
Derbyshire	Leicestershire, South Yorkshire
Essex	Cambridgeshire
Greater Manchester	Lancashire, South Yorkshire, West Yorkshire
Tyne & Wear	County Durham, Northumberland, Tees Valley
Wiltshire & Swindon	Bournemouth, Dorset and Poole, Gloucestershire, Somerset, West of England
Second wave pilots	Selected controls for second wave pilots, first year effects
Berkshire and Kent	Milton Keynes, Oxfordshire and Buckinghamshire, Surrey, Sussex
Leicestershire	Lincolnshire and Rutland, Northamptonshire, Nottinghamshire
Shropshire	Black Country, Herefordshire and Worcestershire, Staffordshire
South Yorkshire	Humberside, Lincolnshire and Rutland, North Yorkshire, Northamptonshire, Nottinghamshire