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9 Public- and Private-Sector Training of Young People in Britain

Peter J. Dolton, Gerald H. Makepeace, and John G. Treble

The size of the provision of vocational training for labor market entrants and the extent to which this provision should be the responsibility of the state are questions that are currently high on the policy agenda in many different countries. In Britain over the period 1977–91 there has been a massive change in the level of public support for training. The main route by which this support has been delivered is through the Youth Training Scheme (YTS) (now called Youth Training [YT]). At the same time there has been a dramatic fall in the number of traditional apprenticeships in the private sector. (Blanchflower and Lynch describe this in chap. 8 in this volume.)

These changes in the labor market opportunities faced by young people prompt a large number of questions. What are the outcomes and consequences of these changes in the labor market conditions faced by young people? To what extent has the private-sector system of training via apprenticeships given way to a public-sector one of training via government schemes? What is the size and pattern of the state subsidy to individual training? What is the rate of return to this form of training compared with that to the traditional apprentice-

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ship? In this paper we provide partial answers to these questions using aggregate data from official statistics and individual data from the third cohort of the Youth Cohort Study (YCS3).

It would seem fairly straightforward to determine how state training enhances an individual's labor market employment prospects and earnings compared to the more traditional form of private-sector apprenticeship. In fact, assessment is made more difficult by at least two complications. First, given the way in which state training programs are delivered in Britain, the determination of who has borne the costs of training, whether it be the state through a subsidy to the employee, the employer through training costs, or the individual through forgone earnings, is not clear.

Second, it is seldom acknowledged that a large proportion of young people do not have straightforward transitions from one form of training into a job. There is a large diversity in the pattern of early career histories of young people. We document this fact using a large sample of a cohort of young people, all of whom started the transition from school to work/higher education at the same time.

Previous studies (Main and Shelley 1990; Whitfield and Bourlakis 1991) have sought to examine the effect that participation in the YTS scheme may have on earnings or employability. These papers have modeled participation in state training as a simple dichotomous decision. Further analysis of our cohort data shows that the simple categorization of individuals, into those who have received state training and those who have not, is naive, since YTS support is provided for private-sector programs of various kinds, including apprenticeships (Chapman and Tooze 1987; Department of Employment *Gazette,* December 1981, 501). The returns to training under different parts of the YTS program are different, and this makes the task of evaluation more complex than has been claimed previously.

The paper is arranged as follows: In section 9.1 we describe in some detail the changing structure of training in the United Kingdom since 1978, including a summary of the main aggregate changes in the youth labor market, the level of state subsidy to training, and the character and composition of the YTS scheme.

Section 9.2 describes the main features of the YCS3. This relates to about 10,000 16–19-year-olds between the years 1985/86 and 1988/89 and provides a rich source of information about the school-to-work transition process at the height of the YTS/YT program. In section 9.3, we present our estimates of the earnings effects of training and show that these effects vary qualitatively across different subgroups of participants in YTS. We conclude from this that it is important to take account of the existence of such subgroups when attempting an evaluation of a mixed public/private training system such as that currently in place in Britain. We conclude with a summary showing how our work has contributed to understanding the effects of private- and public-sector training in Britain.

9.1 Training in the United Kingdom since 1978

In 1978 the introduction of the Youth Opportunity Programme (YOP) established the principle that all those between the ages of 16 and 18 who had left school, were not in full-time education, and were unable to get a job should have the opportunity of training or participating in a government-funded program. Following the election of the Conservatives in 1979, government-provided training schemes became a more important feature of the training market. By 1981 an estimated one in three of all school-leavers were entering the YOP, compared to one in six the previous year. In 1983 the Youth Training Scheme (YTS) was launched. This started as a one-year scheme, but in 1986/87 it became a two-year scheme, and greater efforts were made to ensure the quality of the training. The scheme became widespread in many sectors of British industry and commerce. The range of jobs covered increased, and to some extent it replaced (or at least coexisted with) the traditional apprenticeship. The YTS trainees were often on a training scheme with a company that would lead to a formal apprenticeship qualification, which prior to the start of YTS may have been provided by the company without subsidy. Other YTS employees gained work experience in fields such as sales, community and personal care, and other areas not always associated with traditional apprenticeships.

In 1989, YTS was replaced with a successor, Youth Training (YT), that guarantees a place to all 16–18-year-olds who are without a job. Youth Training is modeled closely on YTS, except that YTS did not promise 100 percent coverage, and unemployment benefit penalties for nonparticipation if otherwise unemployed were less harsh. Youth Training also offers more flexibility in the length and nature of training schemes than did YTS. A common feature of both programs is the offering of incentives for unemployed youths to join the scheme and for employers to offer training places. For example, it is impossible for people aged 16–18 to claim unemployment benefit if they refuse YT, but the training allowance they receive if they do participate is slightly larger than unemployment benefit. Participating employers gain, since they do not have to pay a substantial part of the costs of training.

The plethora of new initiatives and schemes associated with training, special employment measures, and "enterprise" during the 1980s and early 1990s is remarkable. The latest developments in a complex, ever-changing system have been the Technical and Vocational Education Initiative (TVEI), designed to stimulate technical and vocational education among 14–18-year-olds in school, and the establishment of the National Council for Vocational Qualifications (NCVQ) in 1986, to standardize qualifications in business and industry. The face of training in Britain continues to change with the emphasis shifting to the provision of Employment Training (ET) for those not eligible for YT (who are mainly older workers), through the 100 newly established Training and Enterprise Councils (TECs). These have been set up on a regional basis and

engage the participation of local employers. Their objective is to deliver suitable training programs through local colleges or other providers and to tailor ET and YT to local demands.

The one common thread through all the initiatives has been the need to tackle the youth unemployment problem. Little objective evaluation of the training which has been received on these schemes has been undertaken. In addition, the extent to which schemes like YT constitute an optimal allocation of state subsidy to training is debatable.

9.1.1 The Youth Labor Market, 1975–90

Unemployment among 16–19-year-olds rose from less than 10 percent prior to 1978 to 27 percent by 1984. This figure has since fallen to around 12 percent by 1990. This improvement has not been associated with increasing employment for this age group but rather with a growing level of participation in government training schemes.

Perhaps the clearest way of understanding what has happened to the youth labor market in the United Kingdom over the past 15 years is to look at activity rates of each cohort of 16–18-year-olds (fig. 9.1). Over the period, school staying-on rates have remained roughly the same, at 16–17 percent, while the proportion of the cohort entering further or higher education has risen slowly from 11 percent in 1975 to around 17 percent in 1990. The biggest changes have occurred in the split of the remaining majority of these cohorts between the destinations of work, unemployment, and government training schemes. The proportion in a job has fallen from 61 percent to 41 percent over the 1977–90 period, while the proportion who are unemployed rose from 9 percent in 1975 to 17 percent in 1986 and 1987. Most dramatic of all has been the proportion of the cohort involved in one of the government training schemes. These schemes did not exist prior to 1978, but by 1989 the proportion of young people entering YTS was as high as 16 percent.

These changes represent a huge difference in the prospects of young people. Prior to 1975 the pattern was one of entering employment or staying on in full-time education, with only a minority being unemployed. By the late 1980s the job choices for 16–18-year-olds had been curtailed, with only a minority able to enter the labor market directly. For a sizable minority, up to 25 percent, the choice is unemployment or a government training scheme.

9.1.2 The State Subsidy to Training

In chapter 8 of this volume, Blanchflower and Lynch describe the decline of the apprenticeship system in Britain. The number of young people in apprenticeships in the manufacturing sector fell during the 1980s, although there are discrepancies between different data sources that make it difficult to ascertain exactly how large this fall was. At the same time, the number of young people

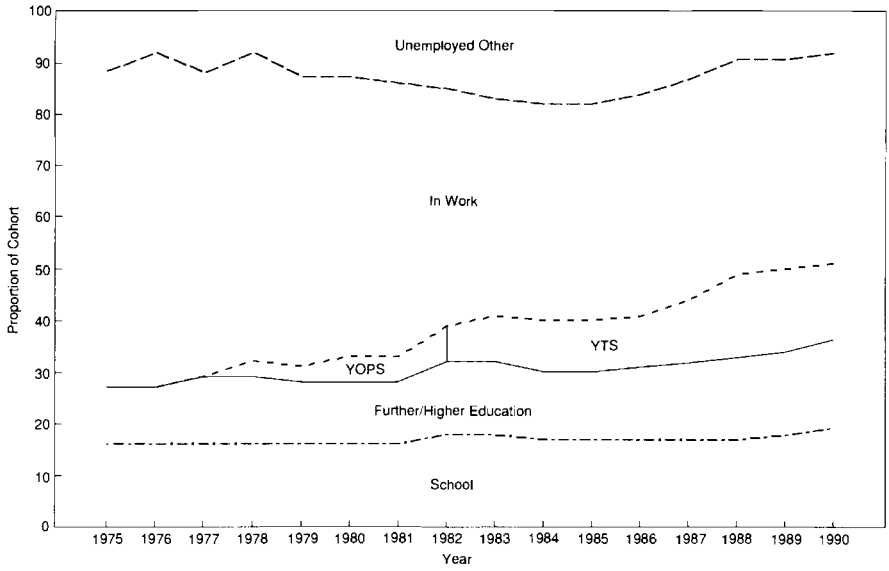

Fig. 9.1 Economic activity of 16–18-year-olds, 1975–89
Source: Education Statistics for the United Kingdom (London: HMSO, various years).

with YTS places increased, suggesting that there has been a shift to a higher degree of state subsidy in training.

Evidence on the size of this subsidy can be found in figures relating to total central government spending on vocational training over the 1978/79–1990/91 period. Total training and enterprise expenditure has risen from £940.5 million in 1978/79 to £2,853.1 million in 1990/91 (in 1990 prices). However, the share of this total expenditure which has gone on youth training reached a peak in 1983. The real level of spending on YOP and YTS over the period, at 1990 prices, is graphed in figure 9.2. More revealing still is the trend of central government expenditure per participant in YOP and YTS. The subsidy per head rose from about £1,200 under YOP to over £3,000 associated with YTS. This trend has now apparently stopped since recent expenditure on YTS has been falling in real terms.

One factor which is less clear is the extent to which the individual is subsidized rather than the employer. The figures discussed above are aggregate sums which cannot be apportioned between the individual recipient of a YTS allowance (plus training costs) and the subsidized employer. This combined with the uncertain extent of double counting (how many individuals are both on YTS and in an apprenticeship) and displacement (how many individuals would have been employed in a regular capacity by the firm were it not for the YTS scheme) mean that calculating the total size of the apportionment of the state

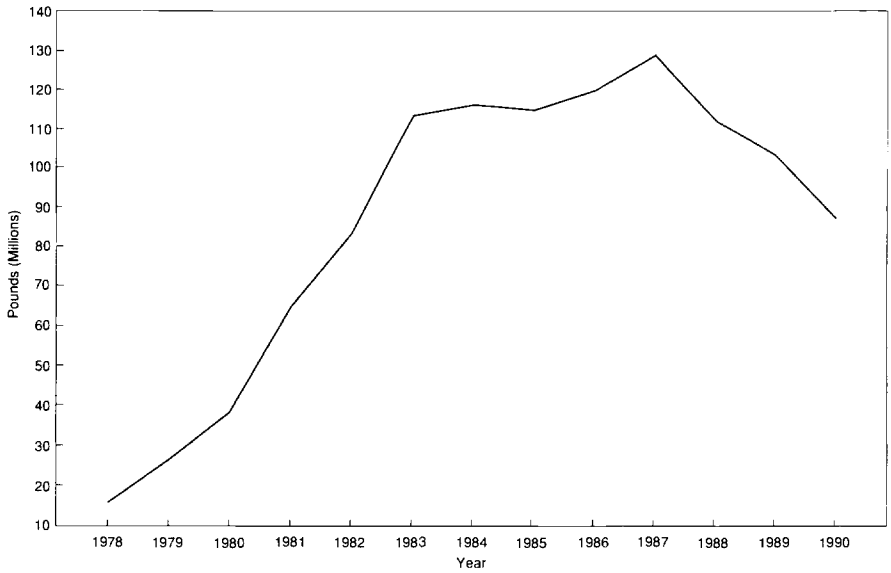

Fig. 9.2 Government training expenditure on YOPs and YTS (1990 £)
Source: Training Statistics (London: HMSO, 1990).

subsidy to training to the individual and to the employer is more or less impossible.

9.1.3 The Character and Composition of the YTS

This section will briefly summarize what kind of employment and training individuals on YTS enter, how much time they spend on their training, and what they do after leaving their training. Table 9.1 shows the numbers in YTS in 1990 by provider type and occupational classification. Here we see that the public sector actually accounts for about one-quarter of all placements and that the largest proportions of YTS trainees are in administrative and clerical occupations (19 percent), construction and civil engineering occupations (16 percent), health, community, and personal service occupations (11 percent), mechanical engineering and metal production and processing occupations (10 percent), selling and storage occupations (9 percent), and motor vehicle repair occupations (8 percent).

Table 9.2 shows what has happened to the YTS leavers, in terms of their destinations after YTS, over recent years. A rising proportion of them enter full-time jobs (53 percent in 1985/86, rising to 61 percent in 1989/90), slightly more than half of whom work for the same employer as they trained with. A falling proportion become unemployed (only 14 percent in 1989/90 vs. 28 percent in 1985/86), and a rising proportion enter another YTS scheme.

Of course these aggregate figures disguise the destination pattern across oc-

Table 9.1 **YTS: Numbers in Training by Provider Type and Training and Occupation Classification**

Training and Occupation Classification	Private Sector	Public Sector	Voluntary Organizations	Information Technology Centres	Total
Total	224,300	85,900	23,700	9,900	343,800
A. Administrative and clerical	39,000	15,400	2,600	7,700	64,700
B. Creative, educational, and recreational service	4,700	3,000	700	100	8,600
C. Health, community, and personal service	21,100	13,100	4,600	200	39,100
D. Selling and storage	28,400	2,700	1,300	–	32,300
E. Scientific	900	600	–	100	1,600
F. Catering, food preparation, and processing	7,300	2,900	1,100	100	11,300
G. Agricultural and related	2,900	9,600	1,000	–	13,500
H. Fishing	100	100	–	–	300
J. Transport operating	4,000	1,000	–	–	5,000
K. Construction and civil engineering	37,800	12,500	5,300	–	55,700
L. Mining, oil extraction, and quarrying	100	–	–	–	200
M. Electrical and electronic engineering	15,200	2,500	300	1,400	19,500
N. Mechanical engineering and metal production and processing	25,900	6,100	900	–	32,800
P. Motor vehicle repair	21,400	6,300	1,100	–	28,900
Q. Nonmetal processing	3,800	800	1,000	–	5,600
R. Printing	2,100	700	500	–	3,300
S. Clothing and textiles	5,900	1,000	500	–	7,400
T. Security service	–	100	–	–	100
Other	3,600	7,400	2,800	200	14,000

Source: Training Statistics (London: Her Majesty's Stationery Office [HMSO], 1990).

Note: Figures are for March 31, 1990.

Table 9.2 **Destinations of YTS Leavers between 1985/86 and 1989/90 (%)**

Year of YTS Graduation[a]	Employed with Same Employer	Employed with Different Employer	Unemployed	In Another YTS Scheme
1989/90	33.5	27.6	14.0	10.7
1988/89	32.5	29.4	14.0	12.0
1987/88	22.6	32.8	20.6	11.9
1986/87	27.6	28.8	22.7	10.6
1985/86	27.5	25.2	27.9	6.5

Sources: Training Statistics (London: HMSO, 1990, 1991).

Note: The residual category not tabulated includes those who enter self-employment, part-time employment, or full-time employment, those who are "doing something else," and those who did not answer.

[a]For 1985/86, figures refer to graduates from the original one-year YTS. For 1987/88 and later years, they refer to the two-year scheme. The 1986/87 figures are a mixture of one- and two-year graduates.

cupations. Table 9.3 makes the variations of destination by occupation more explicit. In some occupations (transport and engineering) approaching 80 percent of the trainees enter a job on leaving YTS, while in others (catering) as few as 29 percent enter a job on leaving. Most occupations lie between these extremes, but clearly the individuals' job prospects differ substantially depending on the occupations in which they have received training.

9.2 Training and YCS3

Our objective in this section, and the next, is to throw light on the returns to public- and private-sector training using the YCS3 data. The problems inherent in such an exercise have been well aired in the literature, and we concentrate here on difficulties that are specific to our data.

The Youth Cohort Study is intended to be the government's primary source of information on the transition between school and work. It has been running

Table 9.3 **Destinations of YTS Leavers between April 1988 and March 1989 by Training and Occupation Classification (%)**

Training and Occupation Classification	Employed with Same Employer	Employed with Different Employer	Unemployed	In Another YTS Scheme	In a Full-Time Course
A. Administrative and clerical	38.3	34.7	8.8	9.4	3.2
B. Creative, educational, and recreational service	28.0	28.2	15.1	10.8	6.4
C. Health, community, and personal service	18.0	28.6	19.1	11.0	7.2
C40. Hairdressers	34.8	29.2	11.4	12.2	2.7
D. Selling and storage	26.9	28.2	15.7	14.9	2.3
E. Scientific	44.3	28.2	7.9	8.1	6.3
F. Catering, food preparation, and processing	10.8	15.2	8.7	8.2	2.0
G/H. Agricultural, fishing, and related	23.9	27.2	14.8	11.6	11.8
J. Transport operating	54.9	24.9	7.9	6.8	1.1
K. Construction and civil engineering	34.3	25.5	17.1	12.6	1.6
M/N. Electrical, electronic, and mechanical engineering and metal production and processing	46.3	28.1	8.9	9.1	2.7
P. Motor vehicle repair	37.1	30.9	13.2	11.2	1.5
Q. Nonmetal processing	33.7	28.1	16.3	13.3	1.9
R. Printing	39.4	29.6	12.5	7.7	3.8
S. Clothing and textiles	28.1	27.8	19.2	14.2	2.2
Other	18.3	25.1	24.7	17.7	3.3

Source: Training Statistics (London: HMSO, 1990).

since 1983–84. Cohort-3 respondents were drawn from people completing their compulsory schooling during the school year 1985–86. About 20,000 of these 16-year-olds were sent a questionnaire asking for details of their educational achievements and their experiences of the labor market or of postcompulsory schooling. Respondents to the first sweep were sent a second questionnaire one year later, and second-sweep respondents were contacted two years after the initial mailing to give the Sweep-3 information. Rather fewer than 10,000 of the original sample responded to the Sweep-3 questionnaire. A preliminary analysis of the data (which is described in some detail in Dolton, Makepeace, and Treble 1991) revealed great diversity in the routes by which the transition from school to work is made.

The YCS3 at the moment includes only data for the first three years in the labor market. This is a period of heavy human-capital investment, and many individuals will not have completed their training, and none will have received the long-term benefits of their training. To take an extreme example, we cannot say anything about the benefits obtained by individuals undertaking full-time education as their first destination. However the problem is more pervasive than this. Many working individuals who are undertaking training courses will not have completed their training by Sweep 3 of YCS3. Not only do we not observe the long-term benefits of training, but the earnings of trainees may actually be lower than those of individuals with no training, not because their expected earnings stream is generally lower, but because we only observe that part of it which happens to be lower. This is almost certainly the case for the apprentices in our sample.

Further, there is the question of how we should distinguish private-sector from public-sector training in a system in which some private-sector training provision is heavily subsidized by the state. In some institutional contexts, this may be clearly defined, but we have been unable to construct an entirely satisfactory operational definition within the context of the British training system. The problem is that it is not clear that any single agent can be identified as the initiator of a particular spell of training or training program. If we conceive of training being provided within a market, then provision will reflect the mutual interests of both employer and employee, and presumably of any other agent who may be involved.

One way out of this difficulty is to break the set of training spells up into a number of subsets determined by the nature and financing of the training. This essentially enables some analysis to be done while maintaining a degree of agnosticism as to whether a particular spell is provided in the public or in the private sector. This approach has the characteristic that a critic who does not agree with one particular aggregation of these subsets being treated as "private" can always choose a more appealing aggregation.

The extent to which we can divide up training spells using YCS3 is, of course, limited by the information that is available in the data set. We use a classification of our data into seven cells determined by the reported nature of

training received and YTS status. We represent training outcomes with a variable called T7. The definition of T7 is as follows:

$$
\mathrm{T7} = \begin{cases}
0 \text{ if "no training" and non-YTS,} \\
1 \text{ if "no training" and some post-16 education,} \\
2 \text{ if "no other training" and YTS ("YTS only"),} \\
3 \text{ if off-the-job training received, not an apprentice and non-YTS,} \\
4 \text{ if off-the-job training received, not an apprentice and YTS,} \\
5 \text{ if an apprentice and non-YTS, and} \\
6 \text{ if an apprentice and YTS.}
\end{cases}
$$

In this definition, "YTS" refers to individuals who report ever having received training under a YTS program.

An interesting hypothesis to test is whether the YTS/non-YTS distinction is unimportant for people receiving training or whether, for example, apprentices with a YTS background are treated differently from more traditional apprentices. Consequently, we also define a variable, T5, that aggregates categories 3 and 4 of T7 into a single category, and categories 5 and 6 of T7 into another. In the regressions, these two variables are normally unpacked into sets of dummy variables, TRGij, $i = 5, 7$, $j = 1, \ldots, i - 1$, where i indicates the order of the classification referred to and j indicates the specific class within that classification. Thus TRG72 takes the value one if T7 = 2, and zero otherwise. When these dummies are used, the reference category is thus always "no training." The variable T5 reflects the traditional view of training. Young men and women would either stay in school or leave at school-leaving age. At work, employers would provide two types of training: off-the-job training and apprenticeships, although some youngsters would receive no training. The variable T5 adapts this typology to the extent that some people receive training only through YTS. As we outlined earlier, the influence of YTS was more pervasive, and for example, some YTS entrants would enter apprenticeships. This motivates the introduction of T7, which enables us to examine more broadly potential differences arising from YTS.

The key policy issue is the value of government intervention in training, compared to that of other sorts of provision. This requires some evaluation of the extent to which employers support training and the specificity of that training. We therefore wish to make inferences about the effects of employers' involvement in training. Like all individual-based surveys, YCS3 provides what is essentially supply-side data, which should facilitate comparisons of individuals with different backgrounds but which is contaminated by the operation of government training schemes, in our case, mainly YTS. It gives no information on how employers view their commitments and no detailed data about the extent of their commitments. Nor is there information about the extent to which YTS has affected the aggregate provision of training by employ-

ers.[1] These problems are bound to lead to ambiguity in the distinction between private- and public-sector training.

Finally, we should mention two further issues:

1. One nonpecuniary benefit of training which is often stressed is security of employment. The likelihood of employment, appropriately defined, increases with the amount of training. Typically this question has been investigated by examining the effect of training on the probability of unemployment at a particular point in time. We merely note that the YCS3 data do not allow us to say much about this issue. For example, individuals undertaking most types of work-related training, such as apprenticeships, are in employment at the time of the survey. By definition, there is no unemployment among those enrolled in many important types of training.

2. As we mentioned above, an important issue is the long-term benefits to training. On an individual level, we would like to discover whether there are clearly defined incentives to undertake training and, if so, to quantify them. For policy purposes, it is important to examine the influence of market conditions on individuals' choices. This requires measures of the long-term returns to various training decisions.

9.3 Modeling the Earnings Effects of Training

In order to evaluate how different kinds of training affect the earnings of workers, we undertake a regression analysis with the aim of explaining the variance in the logarithm of reported hourly earnings of respondents. The individuals in our data undertake different types of training, which we represent with two sets of dummy variables based on T5 and T7. In both cases the reference group is those respondents who have had no training of any sort.

These training variables are supplemented by three further variables that record whether a vocational qualification has been awarded (VOCATQ), whether any training received was undertaken during time paid for by an employer (BLOCK), and whether any on-the-job training was received (OJTEVER).[2] In addition to the training variables, we include a list of independent variables that measure the education and work experience of respondents, together with indicators of their job characteristics, some personal characteristics, and regional labor market conditions. Summary statistics are included in table 9.4.

The educational attainment of respondents is represented by performance on national examinations with standardized point scores (EDUCAT). The higher the value of EDUCAT, the better is overall performance on these exami-

1. For instance, Deakin and Pratten (1987) report that about one-third of the YTS trainees in their sample are either replacing other workers (substitution effect) or taking jobs that would have existed anyway (deadweight effect).

2. All dummy variables take the value one if the named attribute is present.

Table 9.4 **Earnings Equation Estimates and Sample Summary Statistics (standard errors in parentheses)**

	Men		Women	
Variable	Estimate[a]	Mean (Standard Deviation)	Estimate[a]	Mean (Standard Deviation)
Constant	0.687**		0.669**	
	(0.058)		(0.045)	
TRG71	0.054**	0.156	0.022	0.262
	(0.027)	(0.363)	(0.019)	(0.440)
TRG72	0.046	0.051	−0.046*	0.050
	(0.032)	(0.221)	(0.024)	(0.218)
TRG73	0.057**	0.145	0.072**	0.173
	(0.025)	(0.352)	(0.019)	(0.378)
TRG74	0.004	0.206	−0.029	0.251
	(0.025)	(0.404)	(0.019)	(0.434)
TRG75	−0.026	0.170	−0.000	0.065
	(0.023)	(0.376)	(0.023)	(0.247)
TRG76	−0.079	0.157	−0.063**	0.065
	(0.026)	(0.364)	(0.024)	(0.246)
OJTEVER	0.067**	0.921	0.033**	0.857
	(0.022)	(0.271)	(0.014)	(0.351)
HSE	−0.017	0.753	0.014	0.758
	(0.014)	(0.431)	(0.011)	(0.428)
FSIZE1	−0.159**	0.220	−0.180**	0.215
	(0.015)	(0.414)	(0.012)	(0.411)
FSIZE2	−0.098**	0.177	−0.049**	0.175
	(0.015)	(0.382)	(0.012)	(0.380)
MOBIL	0.050**	0.722	0.031**	0.563
	(0.015)	(0.448)	(0.011)	(0.496)
MEOL	−0.002	0.312	−0.004	0.312
	(0.017)	(0.464)	(0.013)	(0.463)
EDUCAT	0.001*	13.545	0.003**	14.629
	(0.001)	(10.386)	(0.001)	(9.971)
TOTEMP	0.004**	16.510	0.003**	15.502
	(0.001)	(9.368)	(0.001)	(9.920)
TUNEMP	0.005**	1.032	−0.003*	0.940
	(0.002)	(2.745)	(0.002)	(2.404)
VOCATQ	0.015	0.396	−0.008	0.474
	(0.013)	(0.489)	(0.012)	(0.499)
EMPLOYS	0.008*	1.480	0.004	1.536
	(0.004)	(1.292)	(0.004)	(1.116)
MARD3	0.050	0.019	0.044**	0.061
	(0.042)	(0.135)	(0.022)	(0.239)
SCHOOL	0.002	0.035	−0.002	0.030
	(0.034)	(0.185)	(0.027)	(0.172)
LITR	−0.032	0.079	−0.019	0.056
	(0.021)	(0.269)	(0.020)	(0.230)
NUM	−0.035	0.038	0.015	0.051
	(0.030)	(0.192)	(0.021)	(0.220)

Table 9.4 (continued)

	Men		Women	
Variable	Estimate[a]	Mean (Standard Deviation)	Estimate[a]	Mean (Standard Deviation)
REG1	−0.039	0.070	−0.002	0.073
	(0.028)	(0.255)	(0.022)	(0.260)
REG3	−0.033	0.113	0.013	0.116
	(0.024)	(0.317)	(0.019)	(0.320)
REG4	−0.026	0.089	−0.006	0.085
	(0.025)	(0.285)	(0.021)	(0.279)
REG5	−0.039*	0.127	−0.005	0.118
	(0.023)	(0.333)	(0.019)	(0.323)
REG6	0.027	0.052	0.084**	0.053
	(0.030)	(0.223)	(0.024)	(0.224)
REG7	0.212**	0.074	0.336**	0.066
	(0.027)	(0.262)	(0.023)	(0.248)
REG8	0.105**	0.241	0.132**	0.228
	(0.022)	(0.428)	(0.017)	(0.419)
REG9	0.022	0.081	0.043**	0.093
	(0.026)	(0.273)	(0.020)	(0.290)
REG10	−0.041	0.057	0.027	0.057
	(0.029)	(0.232)	(0.023)	(0.231)
SOC1	0.010	0.056	0.033	0.039
	(0.027)	(0.231)	(0.024)	(0.194)
SOC2	−0.099	0.032	0.013	0.010
	(0.034)	(0.177)	(0.045)	(0.100)
SOC3	−0.065**	0.063	−0.026	0.064
	(0.025)	(0.243)	(0.021)	(0.247)
SOC5	−0.052**	0.346	−0.052**	0.057
	(0.019)	(0.476)	(0.024)	(0.231)
SOC6	−0.131**	0.047	−0.149**	0.134
	(0.030)	(0.212)	(0.017)	(0.341)
SOC7	−0.038	0.054	−0.028	0.094
	(0.028)	(0.225)	(0.020)	(0.292)
SOC8	−0.002	0.105	−0.011	0.051
	(0.023)	(0.307)	(0.023)	(0.220)
SOC9	−0.073**	0.069	−0.090**	0.026
	(0.026)	(0.253)	(0.030)	(0.159)
SIC1	0.087*	0.014	0.111*	0.006
	(0.049)	(0.116)	(0.057)	(0.079)
SIC2	0.085**	0.029	0.041	0.029
	(0.036)	(0.168)	(0.029)	(0.168)
SIC3	0.008	0.130	0.006	0.062
	(0.022)	(0.336)	(0.021)	(0.241)
SIC4	0.029	0.104	−0.049**	0.109
	(0.023)	(0.306)	(0.019)	(0.311)
SIC5	0.066**	0.135	−0.088**	0.016
	(0.022)	(0.342)	(0.037)	(0.124)

(*continued*)

Table 9.4 (continued)

Variable	Men		Women	
	Estimate[a]	Mean (Standard Deviation)	Estimate[a]	Mean (Standard Deviation)
SIC6	−0.055**	0.230	−0.034**	0.229
	(0.018)	(0.421)	(0.015)	(0.420)
SIC7	0.005	0.047	0.046*	0.037
	(0.029)	(0.211)	(0.025)	(0.189)
SIC9	−0.011	0.098	−0.098**	0.232
	(0.023)	(0.297)	(0.015)	(0.422)
λ	0.014	0.272	0.008	0.310
	(0.054)	(0.200)	(0.033)	(0.248)
LW[b]		0.831		0.774
R^2	0.257		0.421	
N	2,202		2,560	

[a]Specification with T7 and full set of dummies.

[b]LW = Log wage. Figure reported is mean of the dependent variable.

*Significant at the 10 percent level.

**Significant at the 5 percent level.

nations. In addition, we include separately a dummy to indicate that a respondent is qualified to GCE O-level standard in mathematics and English (MEOL),[3] a dummy to indicate that the school the respondent attended was independent rather than state run (SCHOOL), and indicators of reported literacy and numeracy problems (LITR and NUM). Collectively, these variables are intended as indicators of human capital at the time that respondents complete their compulsory education. The variable SCHOOL is included in order to capture labor market advantages that may be conferred by the willingness of parents to pay fees for private education.

We constructed three indicators of work history that are included in some of our specifications. These are the total recorded months in employment (TOTEMP) and total recorded months in unemployment (TUNEMP). These measure work experience and nonwork time since entering the labor market. In addition, we include a variable indicating the number of employers that an individual had during the survey period (EMPLOYS), in order to measure past job mobility.

Controls for characteristics of the respondent's current job are captured by dummies for the major list headings of the Standard Industrial Classification

3. GCE O-level is an examination taken by the more academically gifted of British 16-year-olds.

4. For SIC: 0 = agriculture, forestry, and fishing; 1 = energy and water supply industries; 2 = extraction of minerals and ores other than fuels; manufacture of metals, mineral products, and chemicals; 3 = metal goods, engineering, and vehicle industries; 4 = other manufacturing industries; 5 = construction; 6 = distribution, hotels, and catering; repairs; 7 = transport and communi-

(SICn, $n = 0, \ldots, 9$),[4] dummies for major headings of the 1990 Standard Occupational Classification (SOCn, $n = 1, \ldots, 9$),[5] and two indicators of firm size (FSIZE1, for firms with 1–9 employees, and FSIZE2, for firms with 10–24 employees).

Regional labor market indicators include the mean wage and unemployment rates for the region (REGW and REGU).[6] We sometimes used a simple set of regional dummies.[7]

Finally, we divide the complete sample into two subsets for the separate analysis of men and women, and a variable recording marital status at Sweep 3 (MARD3) is used as a sociodemographic control. We also use a variable recording whether the respondent has access to motorized transport (MOBIL) and an indicator of housing tenure (included as a proxy for family wealth). The variable MOBIL is included in order to capture possible variations in the extent of feasible commuting. The housing tenure variable is called HSE and takes the value one if the housing is owner occupied.

The earnings equation is estimated for all individuals who are recorded in YCS3 as employed at Sweep 3. We deal with the familiar selection problem by estimating a separate selector equation with a dependent dummy variable which records labor-force participation and by correcting the earnings equations estimates using Heckman's two-step method. The sample selection effects were sometimes significant for men but not normally for women. All the estimated earnings equations reported are corrected for sample selection. The richness of this data set enables us to construct a large number of different specifications. This experience and space limitations lead us to discuss here the results from only one specification. This is detailed in table 9.4. Other, more restricted specifications were rejected at conventional significance levels by F-tests. Full details of specifications and tests can be found in work by Dolton et al. (1991).

Staying in school raises earnings but is only statistically significant at the 5 percent level for men. On-the-job training also raises earnings for both sexes. This is clearly consistent with the view that full-time schooling and the on-the-job training variable represent completed training. The role of YTS is widely debated, and the two sides of the argument are represented in our results: YTS lowers earnings for women but, if anything, raises earnings for men. Recall

cation; 8 = banking, finance, insurance, business services, and leasing; and 9 = other services. Our reference group is 8.

5. For SOC: 1 = managers and administrators; 2 = professional occupations; 3 = associate professional and technical occupations; 4 = clerical and secretarial occupations; 5 = craft and related occupations; 6 = personal and protective service occupations; 7 = sales occupations; 8 = plant and machine operatives; and 9 = other occupations. Our reference group is 4.

6. Data on regional wages and unemployment rates were computed from published tables of the New Earnings Survey.

7. For this dummy, REGION: 1 = North; 2 = Yorkshire and Humberside; 3 = North West; 4 = East Midlands; 5 = West Midlands; 6 = East Anglia; 7 = Greater London; 8 = other South East; 9 = South West; 10 = Wales. Scotland is excluded from the scope of the YCS. Our reference group is 2.

that the control group is people with no training whatsoever and that the YTS variable shows whether someone has ever participated in YTS or some other form of government training. Participation in YTS is sometimes interpreted as a negative signal of ability, and indeed, some individuals in this category in our data may actually be in schemes, such as Employment Training (ET), designed for the long-term unemployed. This presumably explains the women's experience of YTS. Official representatives argue strongly that YTS does offer some worthwhile training, and some individuals will have completed this training before Sweep 3, so we might expect a positive effect for the YTS variable. This training effect predominates for men.

The reported results reveal some subtle interactions with YTS. For men, earnings are lower for apprentices with no YTS participation than for the "no training" control group. This effect is insignificant when occupational variables are included among the regressors, suggesting that this apprenticeship effect is linked to occupational choice. Earnings are significantly lower for male apprentices with YTS participation than for the "no training" control group, regardless of the specification. The values of the estimates suggest that apprentices with no YTS participation fare better than apprentices who have had YTS experience. This hypothesis was tested by changing the control group to apprentices with no YTS background, and it is indeed the case that the earnings of male apprentices without YTS participation are significantly higher than male apprentices with YTS participation (the earnings difference is about 5 percent).

For females, the variable signs and lack of significance of the estimates suggest that there is no earnings penalty for being an apprentice as long as there has been no participation in YTS (raising the possibility, if future returns are positive, that female apprentices are overpaid). Female apprentices who have participated in YTS earn significantly less than the "no training" control group and, again by changing the control group, less than non-YTS apprentices. A similar distinction occurs when current off-the-job training is examined, although the differences between the sexes are less marked. For both men and women, current off-the-job training without YTS is associated with a significant increase in earnings, while current off-the-job training with YTS is normally associated with an insignificant decrease in earnings. Again formal tests show that the differences in earnings for off-the-job training with and without past participation in YTS are significant and of the order of 9–10 percent for women and 5–6 percent for men.

For brevity, our discussion of the results for variables other than the training variables concentrates on those which are significant. We estimated several alternative specifications, but the significance and sign of individual estimates appears to be robust, with the exception of total unemployment for both sexes and number of employers for men. The results displayed therefore illustrate the effects found in these data for a variety of specifications. The educational

variables play little part in the determination of earnings, with the exception of the educational performance variable, EDUCAT. We might expect this to be the case if the information in these variables is contained in the training variables or, indeed, in EDUCAT. Educational performance has a small positive impact on earnings for both men and women although it is only significant at the 5 percent level for women. Earnings are modeled as a linear function of work experience, because we found evidence of multicollinearity when a quadratic specification was used, possibly because of the limited variation in the values within this sample. However the estimates appear uncontroversial; the longer an individual has been employed during his or her first 30 months in the labor market, the higher are his or her earnings. More unusual is the finding that earnings increase with total months unemployed for men but fall for women, although for men the t-value of the coefficient on total unemployment is about 1.71 in alternative specifications, and for women the estimate is sometimes insignificant. Taking the estimates at face value, this may suggest that the labor market evaluates unemployment differently for young men and for women. Increases in unemployment may signal lower ability or depreciation of human capital in women but more successful job search for men. Job changes, measured by number of employers, appear to be associated with higher earnings for men but not for women, although the effect is significant at the 5 percent level only in the reported specification.

Normally in British studies, marriage is associated with higher earnings for men and lower earnings for women. In table 9.4, there is no marriage effect for men, but women's earnings are actually higher (although both men and women have a lower probability of working if they are married). Individuals with access to their own transport have higher earnings, but the direction of causation is not established. Earnings are higher in London and the rest of South East England than in Yorkshire and Humberside. In addition, women in East Anglia have higher earnings than their control group, while young men in the West Midlands may have lower earnings. Where the regional wage rates for all men and for all women are used instead of the regional dummies, youth wages are significantly and positively related to the overall average wage. The size of firm has a predictable effect. Earnings are lower in both small and medium-sized firms than they are in large firms, and the magnitude of the estimates suggests an ordering of large firms followed by medium-sized and then small firms. Earnings vary across industries in similar ways for men and for women, although for many industries the effects are significant for one sex and not for the other. The only exception is construction, where earnings are higher for men but lower for women (although the jobs undertaken by each must be rather different). Similarly, the earnings of men and women tend to move in the same direction relative to their respective control groups (male clerks and secretaries and female clerks and secretaries) as occupation is changed. The exceptions are professional occupations, where men experience

a significant fall in earnings, and plant and machinery operatives, where men have higher earnings and woman have lower earnings but the largest t-value for the underlying estimates is only 0.5.

This paper is primarily concerned with the "wage effects" of training and not with the "employment" effects of training. Nonetheless, a participation equation is estimated which includes variables measuring previous training as determinants of the probability of being employed at the time of the survey. As expected, previous training as measured by previous block release and previous on-the-job training has a positive and significant effect on present employment. If the individual has been in a government training scheme, the probability of employment is lower, apparently contradicting Main and Shelley (1990), who found that YTS participation improved the chances of employment for young people. However our equation includes YTS and other training variables as separate dummy variables. Concentrating on the coefficient of the YTS variable alone, therefore, assumes either that YTS graduates have no other training or compares YTS graduates with other individuals who have the same values for the remaining training variables. If we assume all YTS graduates have had some block release, then the net effect of YTS on the probability of employment, compared with individuals who have had no training, is roughly neutral for women and slightly positive for men. Alternatively, if we assume, as is reasonable, that all YTS graduates have had some on-the-job training, then the net effect of YTS on the probability of employment, compared with individuals who have had no training, is positive for both men and women.

The main purpose of this section has been to examine the returns to training for a sample of young Britons who attained the age of 16 in 1985–86. The YCS3 data details their careers up to age 19. Our conclusions can be summarized simply by calculating predicted earnings differences generated by the various types of training. Table 9.5 shows the percentage increase in hourly earnings for each type of training compared with the "no training" control group, for our preferred specification for the earnings equation.

Table 9.5 **Percentage Increase in Hourly Earnings by Type of Training (control group: "no training")**

	Men	Women
Post-16 Full-Time Education	5.5**	2.2
YTS Only	4.7	−4.5*
Current Off-the-Job Training No YTS	5.9**	7.5**
Current Off-the-Job Training YTS	3.7	−2.8
Current Apprentice No YTS	−2.6	−0.0
Current Apprentice YTS	−7.6**	−6.1**
Ever Had On-the-Job Training	6.9**	3.3**

*Significant at the 10 percent level.

**Significant at the 5 percent level.

Table 9.5 illustrates the important differences that exist between different types of training, the impact of government intervention, and the influence of gender. Some types of training are associated with higher hourly earnings, while others are associated with lower hourly earnings, even after adjustment for individual characteristics. In general, further training following a spell in a government training scheme is correlated with lower earnings. Different types of training have different relative effects for men and women, but no general conclusion of the form "men gain more from training" can be drawn.

Several training types have estimates which are mostly or all significant for one sex and insignificant for the other. These include: post-16 Full-Time Education, YTS Only, and Current Apprentice No YTS. We note these but concentrate on the economic interpretation of the point estimates without statistical qualification. Staying in full-time education for one or two years raises earnings by over 5 percent for men and by a somewhat small amount for women, although the effect for women is not significant. The earnings of females whose only training has been in YTS are 4–5 percent lower, but the corresponding earnings of men are, if anything, higher. On-the-job training improves the earnings of men and women, although men gain more than women (6–7 percent vs. 3–4 percent).

The more interesting results concern off-the-job training and apprenticeships, where there are both gender and government training effects. Current off-the-job training with no past involvement in YTS improves hourly earnings for both sexes, with women receiving a larger rise of about 8 percent and men about 5 percent. Both men and women who received off-the-job training following a spell in YTS received lower earnings than those in the control group. This differential was larger for women than for men. The government training effect is significant; males without YTS experience earn 5–6 percent more than men with YTS experience, while this differential is 9–10 percent for women.

In a similar fashion, apprentices with no past history of YTS participation fare better than apprentices with such a history, although both categories of apprentices earn less than the control group at Sweep 3. The earnings difference between males with YTS experience and those without is about 5 percent, and the difference is larger than this for women (6–9 percent). Rather surprisingly there appears to be no significant difference between the earnings of the "no training" women and those of the female apprentices.

These results are of particular interest because they raise the possibility that YTS participation disadvantages young people after they have commenced more traditional types of training. The YTS is sometimes viewed as successful when a YTS graduate obtains a job and especially so when he or she moves into a permanent job that offers training. These results show that earnings continue to be lower even after some individual characteristics are controlled. The lower earnings could represent discrimination, the influence of unmeasured characteristics, or the role of selection criteria (see Main and Shelley 1990).

Finally, we should note that this paper has not examined the familiar selec-

tion problems associated with the evaluation of government training schemes. Our concern has rather been with the subtlety of classifying training types and simple estimates of their possible effects. An evaluation of YTS based on the econometrics of sample selection is undertaken by Dolton, Makepeace, and Treble (1992).

9.4 Conclusion

The main argument of this paper is that evaluation of a large and complex training scheme, such as the YTS, is not as simple as previous studies have suggested. It is, however, well worth the effort, since such schemes absorb a large part of the British government's training budget and affect the lives of many thousands of young Britons.

The growth of government activity in the training market during the 1980s has been spectacular. While this trend started in an attempt to alleviate the problem of youth unemployment, later revisions of government training schemes have attempted to improve the quality of training in a number of ways. Nonetheless, it is still the case that one consequence of the current situation is that it is almost impossible for a 16–18-year-old to be included in the claimant count of unemployment.

It is also true that, while traditional apprenticeships have been in decline, there has been a concentration of YTS training in occupations where, previously, little formal training had been available. Although training in manufacturing industries has declined, the number being trained in service occupations has increased. An interesting research question would be to ask the extent to which these changes are a distortion brought about by the presence of a public subsidy, and the extent to which they are a reflection of the changing industrial structure of Britain over these years.

As far as measuring the relative returns to different kinds of training is concerned, we have been able to make some progress with data that has some serious limitations, particularly with respect to the length of time covered. Our main finding is that the returns to YTS participation are not homogeneous and that future attempts to measure them should take into account gender, occupational choice, and the way in which the training provided is structured.

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