



National Audit Office

**REVIEW**

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**DEPARTMENT FOR EDUCATION**

# Raising the participation age: an assessment of the cost-benefit analysis

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Technical annex

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National Audit Office

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## Technical Annex

**1.1** The National Audit Office's memorandum on *Raising the participation age: an assessment of the cost-benefit analysis* draws out general lessons for the performance of cost-benefit analyses across government, based on an examination of the policy to require young people to continue participating in education or training to age 18. This accompanying technical annex outlines the work carried out by the National Audit Office to assess the reasonableness of the Department's conclusion that the policy will lead to net economic benefits, and forms the basis for the findings, conclusions and recommendations in the memorandum.

## Part One

### Validation of costs

**1.2** We examined the Department's calculations and the reasonableness of its assumptions. The Department calculated annual costs per cohort, based on reaching a steady state and full participation in 2016-17 (the year after participation becomes compulsory). A summary of the costs which make up the total of £774 million and our conclusions are detailed in **Figure 1**.

**Figure 1**  
Summary of conclusions on costs

Area of cost	Paragraph	Present value (£m)	Percentage of total costs	National Audit Office conclusion
Participation costs	1.5	583	75.3	Although not material, we were unable to reconcile the figures used in the Department's calculation to the Learning and Skills Council's accounts, and therefore were unable to confirm that all appropriate costs had been included. However, it is reasonable to assume that these costs were complete.
Special Educational Needs provision	1.18	99	12.8	The Department was unable to provide source data for its calculations, and therefore we were unable to validate.
Local authorities' tracking, engaging and supporting through Connexions	1.22	38	4.9	The Department had underestimated the extra staff requirement, which we recalculated at £142 million using more recent assumptions on average wages that the Department provided.
Capacity building costs, comprising workforce training and further education capital costs.	1.26	16.7	2.2	The Department was unable to provide further detail on the assumptions, and therefore we were unable to validate.
Enforcement costs (issuing Attendance Notices, Fixed Penalty Notices and prosecution)	1.29	12.1	1.6	Assumptions were based on data provided by the Ministry of Justice, and we have not revisited them. We noted the prudent approach taken by the Department to enforcement costs.

**Figure 1**  
Summary of conclusions on costs *continued*

Area of cost	Paragraph	Present value (£m)	Proportion of total costs (%)	National Audit Office conclusion
Employer checking status of young people	1.38	8.4	1.0	The methodology appeared reasonable, though we have not reviewed the assumptions in detail. Following our request for data, the Department found that it was likely to have overstated these costs.
Education Maintenance Allowance administration	1.42	6.4	0.8	The Department was unable to provide further information and we were therefore unable to validate. The Education Maintenance Allowance payments themselves were excluded on the basis that they were transfer payments.
Foregone productivity loss to the economy	1.45	4.3	0.6	We recalculated as £5.2 million using more recent data on average wages (Note 1). The difference is not material, and therefore we conclude that the Department's calculation was reasonable.
Cost of employing older workers	1.45	2.7	0.3	We recalculated as £2.9 million using more recent data on average wages (Note 1). The difference is not material, and therefore we conclude that the Department's calculation was reasonable.
Train to Gain brokerage for young people	1.52	2.0	0.3	The Department was unable to locate further information, and therefore we were unable to validate.
Connexions administration and appeals	1.54	1.2	0.2	The Department was unable to provide further detail on the assumptions, and therefore we were unable to validate.
Proportionate increase in education-related cases started in civil law	1.56	0.5	0.1	The Department was unable to provide further detail on the assumptions, and therefore we were unable to validate.
Child Benefit and Child Tax Credit costs	1.58	0	0	These were excluded on the basis that they were transfer payments, but should have been reported as both a cost and an equivalent benefit.
<b>Department's calculation of Total Present Value</b>		<b>774</b>	<b>100</b>	

**NOTE**

1 The Department based its analysis on Labour Force Survey data. We used data from the 2009 Annual Survey of Hours and Earnings, which may account for the difference.

Source: National Audit Office analysis

**1.3** In order to adjust the costs to present value terms (at 2016-17 prices), the Department used the following percentages and discount factors:

- nominal earnings growth rate of 4.5 per cent per annum applied to all salary costs;
- 2.7 per cent (the GDP deflator) for all other costs; and
- a discount factor of 3.5 per cent was then applied to costs in the second year of participation to convert to present value (reflecting young people required to participate for two years).

We confirmed that the Department used the discount factor recommended by HM Treasury in the Green Book.<sup>1</sup>

**1.4** The Department did not conduct sensitivity analysis on the costs. Participation costs made up 75 per cent of the total estimated costs and were based on unit costs agreed with HM Treasury. The Green Book describes sensitivity analysis as a fundamental aspect of cost-benefit analyses, used to test the vulnerability of key variables to future uncertainty and make clear to decision-makers that there is a range of possible outcomes.

## Participation costs

### Departmental assumption

Additional participation costs on top of the 90 per cent participation at £583 million once steady state is reached.<sup>2</sup>

**1.5** Participation costs cover the ongoing staffing and running costs associated with the learning routes followed by the additional participants. At £583 million per cohort, they are the largest component of costs, representing three-quarters of the total costs associated with the policy.

**1.6** Participation costs were modelled by the Department's operational researchers. Total per cohort costs were calculated by multiplying the projected additional numbers in schools and further education by their respective unit costs. The Department had an existing target to achieve 90 per cent participation among 17-year-olds by 2015. The purpose of the cost-benefit analysis was to assess the difference between the new policy and the existing target, and therefore only the costs of the additional 10 per cent of participants needed to achieve 100 per cent participation were included.

**1.7** The projected additional volume of full-time equivalent students was 82,848 (per financial year), of which 59,804 (72 per cent) were projected to participate in schools and the remainder in further education.

### NAO validation

**1.8** The reasonableness of the Department's calculation depended on three assumptions:

- a achievement of the 90 per cent target for participation among 17-year-olds;
- b reasonableness of the unit costs used to calculate the projections; and
- c reasonableness of the profile of learning destinations modelled by the Department.

### Validation of the existing 90 per cent target

**1.9** In 2005, the then Government announced its ambition that 90 per cent of 17-year-olds would be participating in education or training by 2015.<sup>3</sup> The Department monitors this target by tracking the number of young people in 'Education and Work-Based Learning' annually. At the end of 2009, the participation rate among 17-year-olds was 85.1 per cent, an increase of almost 5 percentage points compared to 2008.<sup>4</sup> The current trajectory of participation indicates that the Department is on track to meet the 90 per cent target (**Figure 2**), though this was less certain in 2007 when the cost-benefit analysis was produced. The rise in 2009 may partly reflect the economic downturn.

1 HM Treasury, *The Green Book: Appraisal and Evaluation in Central Government*, 2003.

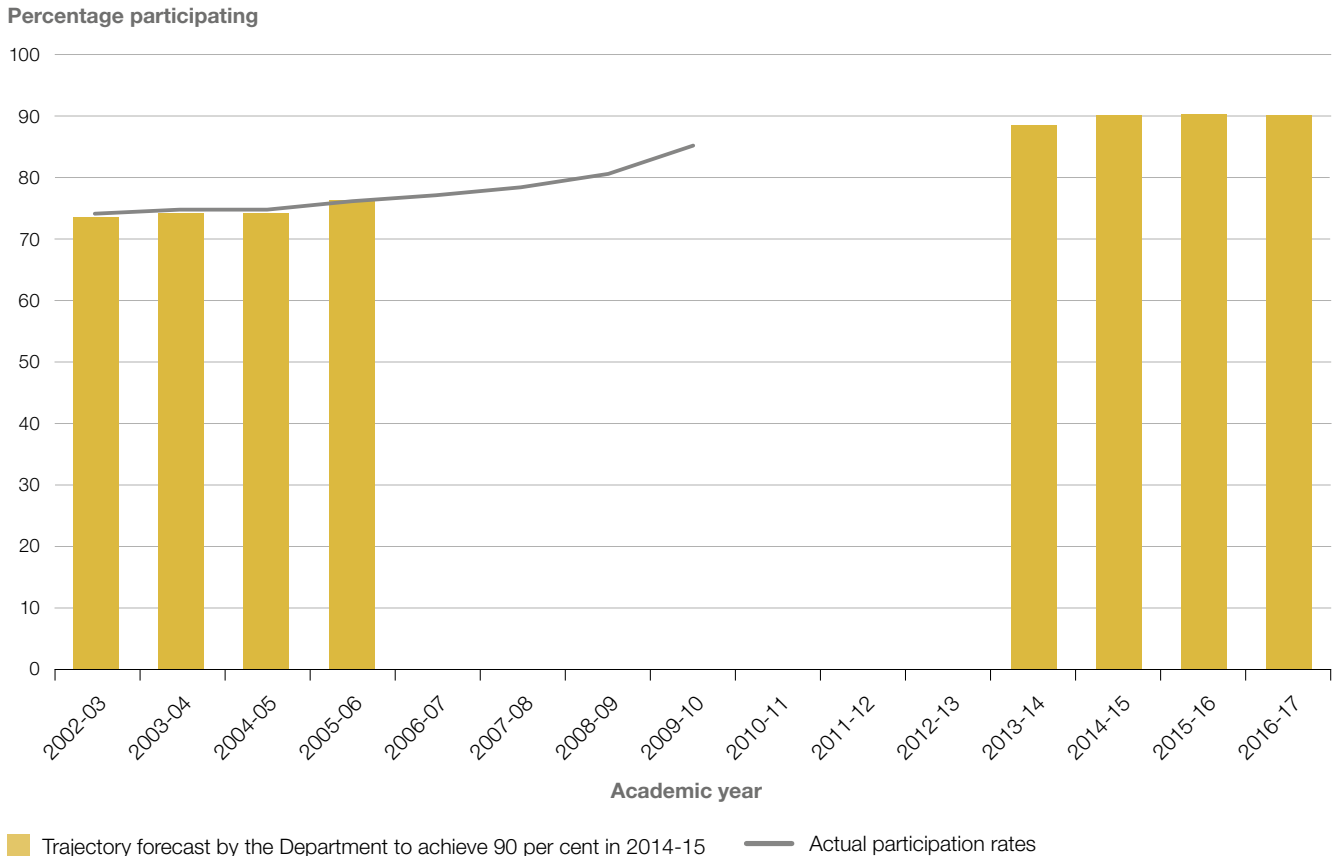
2 The steady state year used for the cost-benefit analysis is 2016-17.

3 Department for Education and Skills, *14-19 Education and Skills: Implementation Plan*, December 2005.

4 Department for Education, *Statistical First Release 18/2010* ([www.education.gov.uk/rsgateway/DB/SFR/s000938/index.shtml](http://www.education.gov.uk/rsgateway/DB/SFR/s000938/index.shtml)).

**Figure 2**

Actual participation rates among 17-year-olds, compared to 90 per cent participation

**NOTES**

- 1 The category 'Education and Work-Based Learning' used by the Department to monitor participation includes both full- and part-time education in schools or further education providers and work-based learning including apprenticeships. It excludes education or training not provided by schools or colleges (e.g. employers or private institutions).
- 2 Projected figures are based on modelling work carried out by the Department.
- 3 2009-10 figures are provisional.

Source: National Audit Office analysis of Departmental data (SFR 18/2010)

**1.10** The definition of participation under the policy differs from that used for tracking the 90 per cent ambition, which includes part-time learners who receive less than seven hours training per week. The Department had intended to produce statistics in summer 2010 which aligned with the definition of participation under the policy. However, this analysis

has not yet been completed. While the 'Education and Work-Based Learning' category illustrated in Figure 2 is currently the best available estimate of participation rates, it is important that the Department develops new statistics to enable it to monitor progress with greater accuracy.

### Validation of unit costs

**1.11** The Department calculated unit costs for school sixth forms at £7,455 per pupil in 2016-17. It used the actual costs of funding school sixth forms in 2005-06 projected forwards using estimated cost increases agreed with HM Treasury, which we have not reviewed.<sup>5</sup> Student volumes used to determine the unit costs were based on modelling carried out by the Department (paragraph 1.16).

**1.12** We confirmed that the figures for sixth-form funding used in the Department's model agree to the expenditure on school sixth forms recorded in the former Learning and Skills Council (LSC) accounts. We also confirmed that these figures include all expenditure related to the provision of education in sixth forms, including:

- programme funding;
- staff costs (including employer pension contributions);
- Additional Learning Support funding;
- provision for pupils with Special Educational Needs; and
- teachers' pay grant.

**1.13** The Department projected unit costs for further education of £7,039 in 2016-17. The Department informed us that this was based on funding for further education as recorded in the Learning and Skills Council's accounts in 2005-06, which includes expenditure on the following:

- provision of 16-18 further education (including staff costs and college overheads);
- Additional Learning Support funding;<sup>6</sup> and
- provision for pupils with learning difficulties and/or disabilities.

**1.14** Unit cost estimates do not include an allowance for additional capital costs; these are addressed separately in the cost-benefit analysis (paragraph 1.26).

**1.15** We were unable to reconcile the figures for further education used in the Department's model to the Learning and Skills Council's accounts, and therefore cannot confirm that each of the above costs has been included in the calculation of unit costs. The difference is not, however, material, and it is reasonable to assume that the costs were included.

### Validation of the profile of learning routes

**1.16** The Department modelled the costs on the assumption that the increase in participation would be in either school sixth forms (24,380 full-time equivalents) or further education colleges (58,829).

**1.17** The Department excluded work-based learning (Apprenticeships and Entry to Employment schemes) from its costing of the policy. It assumed that take-up of such learning routes would stay the same whether participation from 2015 was at the 90 per cent target or 100 per cent. The Department's modelling of 90 per cent participation was based on take-up of apprenticeships being at the maximum employers could supply, though some displacement to new participants was likely.<sup>7</sup> While the unit cost of Entry to Employment schemes is higher than for school and further education provision (£8,955 in 2016-17 prices), the costs of apprenticeships are significantly lower (£5,713 and £4,584 in 2016-17 for Advanced Apprenticeships and Apprenticeships respectively).

## Special Educational Needs provision

### Departmental assumption

Estimated costs of up to £99 million for extending support to the extra numbers of young people with Special Educational Needs.

**1.18** This cost covers the extension of provision for young people with learning difficulties and/or disabilities and pupils with Special Educational Needs. The former relate to the further education sector, while the latter apply to school sixth forms.

5 Estimated cost increases include a basic assumption of 2.7 per cent for GDP, before specific cost pressures including the Minimum Funding Guarantee, take-up of specialised diplomas and increased retention and attainment.

6 Additional Learning Support is any activity that provides direct support for learning to individual learners, over and above that which is normally provided in a standard learning programme that leads to their learning goal.

7 In 2006, the Government announced an entitlement to an Apprenticeship place for all suitably qualified young people from 2013, and therefore its analysis is based on the assumption that this entitlement will be met.



**1.19** The Department based its calculation on a total cost of this provision for Year 11 and Year 12 students of £735 million in 2005, which we have not reviewed. The Department used data on applicable learner numbers to calculate a total cost of £99 million. It assumed a higher rate of incidence among non-voluntary participants compared to learners who participate voluntarily.

**1.20** The Department recognised that at the time of the cost-benefit analysis, a review of school Special Educational Needs provision was due to be carried out by Her Majesty's Chief Inspector of Education, Children's Services and Skills in 2009. The Department stated that it would consider the review's recommendations in the lead-in to implementation. The calculation of £99 million was based on existing provision (in 2006) being extended, and we agree that the assumptions should be revisited to check that they remain relevant.

#### NAO validation

**1.21** While the Department was able to reconstruct the method of calculation for the £99 million estimate, it was unable to provide source data for the figures used and assumptions made. Therefore, we were unable to validate them.

### Role of local authorities

#### Departmental assumption

Estimated costs of £38 million for the additional staff needed to track, support and engage the larger cohort participating at 16 and 17.

**1.22** Under the policy, local authorities will be responsible for ensuring the participation of young people resident in their area. The Department calculated that the additional resources required would cost £38 million after uprating and converting to present value. It used an average salary in 2006 of £25,000 per annum, and was based on a projected increase of 1,000 staff, each taking on an additional caseload of 30 young people.

#### NAO validation

**1.23** When asked to provide additional information on the calculation, the Department commented that more recently it had been using a working assumption of £40,000 per annum salary costs. We were unable to ascertain whether this figure is directly comparable with the £25,000 used in the cost-benefit analysis.

**1.24** The Department based its cost-benefit analysis on the assumption that there would be an additional 83,000<sup>8</sup> participants as a result of the policy. Our calculations suggest that with a caseload of 30, local authorities will need 2,800 staff, rather than the 1,000. We re-performed the calculation on this basis, using salary costs of £40,000 in 2010. After uprating and discounting to present value, we calculated costs of £142 million, £104 million higher than the Department's estimate.

**1.25** While the policy continues to produce a net benefit to the taxpayer after accounting for these additional costs, the increase highlights the importance of revisiting the assumptions at regular intervals before implementation to ensure that they remain valid.

### Capacity building costs

#### Departmental assumptions

Estimated workforce costs per cohort of £3.6 million for schools and £7.8 million for further education in present value terms. Additional further education capital costs of £5.3 million per cohort.

**1.26** Staff salary costs are included in the £583 million participation costs, but the costs of training extra teaching staff are estimated separately. The Department estimated that £51 million would be required to cover additional school workforce costs, and £80 million for further education, equating to per cohort costs of £3.6 million and £7.8 million respectively. This estimate was based on the average length of time the staff contributes, and adjusted to present value.

<sup>8</sup> Comprising 63,000 full-time participants, and part-time participants converted to 20,000 on a full-time equivalent basis. Part-time participants are young people in jobs who also undertake training.

**1.27** The Department calculated that further education colleges would need additional capital to provide extra places. Recognising that the size of the 16-17-year-old cohort would decrease each year from the time that the cost-benefit analysis was produced, the Department calculated that £95 million in capital costs for further education colleges would be necessary. Assuming that investments last for 15-20 years, this produced costs of £5.3 million per cohort after adjusting to present value. The Department assumed that there would be no capital costs relating to schools or Academies, as demand for additional places would be more limited, and would be met through existing surplus school places and the planned expansion of Academies.

#### NAO validation

**1.28** The Department based its calculation on the assumptions it made on the number of additional participants per learning route; the comments we made in paragraphs 1.16 to 1.17 about this aspect of the analysis are also relevant here.

### Enforcement costs

#### Issuing attendance notices

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##### Departmental assumption

Local authority administration costs of up to £8 million relating to issue of Attendance Notices.

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**1.29** The policy envisages local authorities issuing Attendance Notices to young people who fail to participate once appropriate learning provision has been identified and the right support has been offered, as long as there are no extenuating circumstances preventing the young person from participating. The Department estimated that around 10 per cent of the 62,000 young people who would have been NEET (not in education, employment or training) in the absence of the policy would continue to refuse to participate, and 6,000 Attendance Notices would be issued. The Ministry of Justice estimated that each Attendance Notice would cost £415, giving a total cost of £4 million after uprating. Given the uncertainties in the new process, the Department doubled this estimate to arrive at a total of £8 million.

#### NAO validation

**1.30** We have not validated the large number of assumptions behind this calculation given that these costs make up a small proportion of total costs. The prudent approach taken by the Department was sensible given the number of assumptions and high level of uncertainty.

#### Issuing Fixed Penalty Notices

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##### Departmental assumption

Costs of up to £2 million to local authorities relating to issue of Fixed Penalty Notices.

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**1.31** Young people who breach their Attendance Notice without reasonable excuse will be liable for a Fixed Penalty Notice. Of the 6,000 Attendance Notices issued, the Department estimated that 1,500 would be breached. This estimate was based on an Anti-Social Behaviour Order (ASBO) breach rate of 50 per cent for 16-17-year-olds (information provided by the Ministry of Justice), which the Department then halved to apply to Attendance Orders on the basis that adhering to an ASBO was more difficult. The Ministry of Justice estimated the cost of issuing a Fixed Penalty Notice to be £415, giving a total cost of £0.9 million after uprating. Reflecting the prudent approach to the estimation of enforcement costs, this estimate was doubled to £2 million.

**1.32** Revenue collected from the payment of Fixed Penalty Notices will go to the local authority to contribute towards enforcement costs. This revenue was excluded from the cost-benefit analysis as amounts have yet to be agreed.

#### NAO validation

**1.33** Given that issuing Fixed Penalty Notices comprises less than 1 per cent of the total costs, we have not validated the data provided by the Ministry of Justice. The Department's prudent approach to the valuation of enforcement costs was sensible, reflecting the uncertainties and the need to allow for additional administrative costs and appeals. The Department estimated that additional costs of £2.3 million would be incurred if every individual appealed both the Attendance Notice and Fixed Penalty Notice. These costs were not included, but would be covered within the doubling of costs related to issuing the Notices.

## Prosecution after failing to pay the Fixed Penalty Notices

### Departmental assumption

Cost of prosecutions to the Ministry of Justice of up to £2.1 million.

**1.34** Under the policy, if a young person fails to pay the Fixed Penalty Notice, they will be liable to prosecution in a Youth Court, giving rise to a fine which, if unpaid, can be enforced by the courts.<sup>9</sup> The Department based its estimate of costs on data provided by the Ministry of Justice, which reported that 37 per cent of Fixed Penalty Notices issued to 16-17-year-olds for disorder are registered as unpaid. On the basis that the proportion of Notices actually unpaid is lower, and the different context in which they are issued, the Department assumed a default rate of half, estimating that no more than 280 individuals would be called to the Youth Court. On the current default rate of 37 per cent for young people receiving fines in a Youth Court, 110 individuals would continue to the next stage of enforcement.

**1.35** The Department assumed that in a limited number of cases, enforcement action may also be taken against parents. It assumed that 670 parents would receive Parenting Orders, of which 30 would be breached.

**1.36** The Department calculated that enforcement action against young people and parents would cost £2.1 million. This calculation comprises court costs, legal aid, and costs relating to Youth Offending Teams and Youth Default Orders, which were doubled after uprating, reflecting the Department's prudent approach to estimating the costs of enforcement.

### NAO validation

**1.37** The Department again adopted a prudent approach and has stated its intention to keep these costs under review in the lead up to implementation, given the large number of uncertainties. Data supporting the calculation were obtained from the Ministry of Justice and we have not reviewed it, since it underpins a small proportion of total costs.

## Employer checking status of young people

### Departmental assumption

Cost to businesses of £8.4 million to confirm the training status of new employees.

**1.38** To ensure that all young people take part in education or training outside of work, employers who do not provide accredited training to their 16-17-year-old employees will be required to obtain evidence that their employee is receiving training elsewhere. The Department assumed that this check would take ten minutes to complete.

**1.39** The Department calculated that of the total cohort of 16-17-year-olds in 2016-17, 44 per cent (589,400) would be in employment. It estimated that a small number (5,660) working full-time in small firms would be displaced by older workers and their employment terminated. The calculation was therefore based on the 583,740 young people remaining employed. The Department assumed that each young person changed jobs on average 1.5 times per year and the manager performing the check earned £30 per hour (in 2006-07 prices). These assumptions gave rise to an overall cost of £8.4 million in present value terms in 2016-17.<sup>10</sup>

### NAO validation

**1.40** Following our request for further detail on the calculation, the Department found that it had significantly overestimated the costs associated with employer checks. It had based the calculation on all employers of 16-17-year-olds, while the check is only required for those young people who are employed for over twenty hours per week for more than 8 weeks (to exclude seasonal work during school holidays). We do not have data to enable us to recalculate the costs on this basis.

**1.41** The Department obtained its data on the hourly wage of a manager from the Better Regulation Executive. We have not verified or updated these data.

<sup>9</sup> Enforcement powers do not include custody as an option; however, they might include a requirement for the young person to make periodic payments, provision of time to pay, a Money Payment Supervision Order or an Attachment of Earnings Order, depending on the circumstances of the case.

<sup>10</sup> This is after allowing for non-wage labour costs of 25 per cent and nominal earnings growth of 4.5 per cent per annum. The cost is then allocated evenly over the two years that young people are expected to participate, and discounted by 3.5 per cent in Year 2.

## Educational Maintenance Allowances administration costs

### Departmental assumption

Additional administration costs to the Department of up to £6.4 million as a result of the increased number of payments.

**1.42** Educational Maintenance Allowances are means-tested weekly payments made directly to young people aged 16-19 in education or unwaged training. The Department assumed the additional participants would have lower average household incomes (and therefore higher incidence of entitlement). After uprating and converting to present value, the Department estimated additional administration costs of £6.4 million. The Department excluded the cost of the allowances, which it deemed to be transfer payments (paragraph 1.59).

### NAO validation

**1.43** Total expenditure in 2009-10 was £588 million, of which £554 million covered payments to learners, and the remaining £34 million related to administration costs.<sup>11</sup> The Department has been unable to provide details supporting the projected £6.4 million additional administration costs, and therefore we have been unable to validate it.

**1.44** In the 2010 Spending Review, the Government announced that from the 2011 academic year, Education Maintenance Allowances will be replaced by a discretionary learner support fund, to be targeted at the most disadvantaged young people.<sup>12</sup> The impacts of these changes, if any, should become apparent in during 2011-12.

## Foregone productivity losses and costs to employers

### Departmental assumptions

Costs of around £4.3 million relating to the forgone productivity costs of half of small businesses releasing employees for one day a week. Costs of £2.7 million relating to the remaining half of small businesses employing older workers aged 18 or over in place of their 16-17-year-olds, thus avoiding the duty to release.

**1.45** The Department assumed that of the 83,000 additional young people participating under the policy, 12,450 would otherwise have been employed full-time in a job without training. Productivity losses to the economy would arise as these employees would work reduced hours to enable them to participate in training.<sup>13</sup> Employers may also incur costs due to the need to replace these employees with older workers.

**1.46** In order to estimate these costs the Department assumed that:

- Where 16-17-year-old employees in an organisation earn on average above the minimum wage for 18-year-olds, no additional costs would arise when replacing them with 18-year-olds.
- Compared with large firms, smaller organisations would be less able to respond flexibly to the new requirements, for example by providing training directly. They would therefore need to replace their 16-17-year-olds with older workers, or release them for training for one day per week.
- Half of small firms would replace their 16-17-year-olds with older workers and the remainder would choose to release their employees for training.

<sup>11</sup> Learning and Skills Council, *Annual Report and Accounts 2009-10*, July 2010, p. 55.

<sup>12</sup> <http://www.education.gov.uk/aboutdfe/spendingreview/b0065551/what-does-the-spending-review-mean-for-me/16-19-education>.

<sup>13</sup> The Department assumed that no productivity losses would arise as a result of the participation of part-time workers as participation would take place outside of working hours.

**1.47** The Department used Labour Force Survey data to calculate that 27 per cent (3,360) of the full-time 16-17-year-old employees in jobs without training were employed in small firms and earned less than the minimum wage for 18-year-olds. Using an average hourly wage of £3.23 in 2006, the Department calculated productivity losses (foregone earnings) arising from the policy to be £4.3 million. This calculation was based on 1,680 people losing one-fifth of their annual salary (reflecting the proportion of time spent in education or training), after uprating and discounting to present value.<sup>14</sup>

**1.48** Labour Force Survey data were also used to estimate the cost of employing older workers. Based on an average wage gap between full-time 16-17 and 18-year-olds of £2 per hour, the Department calculated that small employers will incur additional costs of £2.7 million. This calculation was based on 1,680 16-17-year-olds being replaced by older workers for one-fifth of their working week, after uprating and discounting to present value.

#### NAO validation

**1.49** We have not revisited the assumptions relating to employee numbers obtained from Labour Force Survey data. However, we re-performed the Department's calculations using more recent data on average wages. Based upon the median gross weekly income for 16-17-year-olds of £178.20 in 2009, we estimated foregone wages of £5.2 million, £0.9 million higher than the Department's calculation.

**1.50** We recalculated the costs to employers of employing older workers as £2.9 million, £0.2 million higher than the Department's estimate, based on a median weekly wage gap of £99.50 between 16-17 and 18-year-olds.

**1.51** The difference in each of these assumptions is not material, and therefore we conclude that the Department's calculation was reasonable. Our analysis was based on data from the Annual Survey of Hours and Earnings, rather than Labour Force Survey data, which may account for the difference.

## Train to Gain brokerage costs

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### Departmental assumption

Costs of around £2 million to extend Train to Gain to an additional 14,000 16-17-year-olds.

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**1.52** Train to Gain was introduced in April 2006 to support employers in improving the skills of their employees and the performance of their business. It includes a skills brokerage service, where a Train to Gain broker advises employers on their training needs and helps to arrange delivery of the training. Although 16-17-year-olds are not excluded, the Department proposed to develop the existing service to help employers to offer appropriate training to their younger employees. The Department estimated total costs relating to the brokerage of training for additional participants to be around £2 million, based on average net costs (at the time of the analysis) of £112 per participant adjusted to net present value.

#### NAO validation

**1.53** The Department was unable to locate further information on the assumptions behind this calculation, and we have been unable to validate them. In the 2010 Spending Review, the Coalition Government announced the abolition of Train to Gain.

## Connexions administration

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### Departmental assumption

Cost of £1.2 million to Connexions to work with local authorities to ensure they have all the necessary information should they wish to issue an Attendance Notice.

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**1.54** The Department estimated that the issue of Attendance Notices would lead to administration costs of £1.2 million, based on an additional 6,900 staff days, uprated by nominal earnings growth and adjusting to present value.

<sup>14</sup> Uprating for 4.5 per cent nominal earnings growth and 25 per cent non-wage labour costs, before spreading evenly over the two-year participation period and applying a discount factor of 3.5 per cent to the second year.

### NAO validation

**1.55** The Department was unable to provide further details of the assumptions behind this calculation and therefore we have been unable to validate it.

### Proportionate increase in education-related cases started in civil law

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#### Departmental assumption

Additional costs of £540,000 to cover advice given and the increases in civil representation.

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**1.56** Given the projected increase in the number of participants, the Department assumed that there may also be a proportionate increase in the number of matters started in the education category of civil law, covering issues such as admissions disputes. The Department assumed a linear rise in costs, and based on data from the Ministry of Justice, calculated additional costs of £382,000 in legal aid and £158,000 in court costs after uprating and adjustment to present value.

### NAO validation

**1.57** The Department was unable to provide further details on this cost and therefore we have not been able to validate the assumptions made.

### Child Benefit and Child Tax Credit costs

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#### Departmental assumption

No additional costs relating to Child Benefit or Child Tax Credit costs on the basis that it is a transfer of money from the taxpayer and then back again. Extra administration costs to be kept under review.

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**1.58** At the time that the cost-benefit analysis was undertaken, parents of young people in full-time education or unwaged training were entitled to receive Child Benefit and Child Tax Credit.<sup>15</sup> The Department's analysis recognised that these support costs would increase as a result of the policy and outlined the difficulties in quantifying them, entitlement being dependent on the course choices of the additional participants<sup>16</sup> and the income distribution of their families.

**1.59** The Department did not include these costs on the basis that they were 'transfer payments' between the taxpayer to government and back again, and their net effect was nil.<sup>17</sup> It recognised that the additional costs of administration should be included as a relevant cost, but expected them to be limited and therefore proposed to keep them under review. The Department also excluded the cost of Educational Maintenance Allowance payments on this basis (paragraph 1.42), including only the related administration costs in its analysis.

### NAO validation

**1.60** Although transfer payments do not give rise to direct economic costs<sup>18</sup>, the Better Regulation Executive advises that 'economic transfers should normally be included in the analysis as a cost to the organisation bearing the cost and as a benefit to those receiving the transfer<sup>19</sup>'. The Department excluded them on the basis that their net effect was nil. Economic transfers do, however, reflect a cost to the organisation making the payment and a benefit to those receiving it. Although the high number of assumptions around entitlement to Child Benefit makes it difficult to estimate the likely additional costs, their existence should therefore be made visible to decision-makers, as well as the impact of any possible difference in timing of costs and benefits.

15 The 2010 Spending Review and June 2010 Budget have subsequently withdrawn Child Benefit from those paying higher rate Income Tax to partly fund above-indexation increases to the Child Tax Credit.

16 Currently, education that qualifies for Child Benefit is 'full-time, non-advanced' education. 'Full time' means an average of 12 hours per week (term time) and 'non-advanced' includes GCSEs, A levels and NVQ/SVQ levels 1-3 among others.

17 As per HM Treasury's Green Book, a transfer payment is one for which no good or service is obtained in return.

18 Green Book, page 21.

19 Better Regulation Executive, *Impact Assessment Toolkit*, April 2010, p. 52.

## Part Two

### Validation of the economic benefits

**2.1** To obtain assurance from experts over the quantification of benefits, the Department worked with the University of Sheffield to estimate the likely economic benefits of raising the participation age to 18. Total annual benefits were estimated at around £2,400 million, covering the additional estimated productivity gains from increased wages and improved employment prospects associated with the higher levels of qualifications and skills obtained by participants. The Department made clear in its published impact assessment that it had not attempted to monetise the wider health and social benefits (paragraph 2.19).

**2.2** To quantify the benefits, the Department modelled the number of additional participants likely to follow each learning route and predicted their attainment. The result was then combined with data on the lifetime productivity gains associated with achieving each qualification. We reviewed the Department's modelling work and re-performed it using more recent data (paragraphs 2.5 to 2.12).

**2.3** In order to ensure that the projected benefits were directly comparable with the estimated costs (which are presented in 2016-17 prices), the Department uprated the lifetime productivity differentials by applying a 2 per cent annual growth rate to reflect real earnings growth and a 3.5 per cent discount rate.

**2.4** The Department had to make many assumptions in order to quantify these benefits, because there are no data on the learning routes that would have been chosen by non-participants. The sensitivity analysis performed by the Department and the selection of £2,400 million as the most likely scenario is examined in paragraph 2.21.

### Pupil numbers

**2.5** The Department used its Youth Model to project the number of additional participants as a result of the policy (**Figure 3**). Given that the policy will increase the leaving age by two years, the Department identified four possible groups of participants within each cohort of additional participants, based on the four possible options which they could have followed in the absence of the policy. The Department estimated that there would be a total of 63,000 additional participants in full-time education<sup>20</sup> as a result of the policy in 2016-17.<sup>21</sup>

**Figure 3**

Participation options and additional student numbers

	Year 12		Year 13	
	Voluntary participation?	Additional numbers (000)	Voluntary participation?	Additional numbers (000)
Group 1	Yes	0	Yes	0
Group 2	Yes	0	No	35
Group 3	No	18	No	18
Group 4	No	10	Yes	0

*Source: Department for Children, Schools and Families and The University of Sheffield, Raising the Participation Age: An Assessment of the Economic Benefits, November 2007 and Department for Children, Schools and Families Youth Model*

<sup>20</sup> The Department excluded the number of additional part-time participants from the benefits calculation, as the Youth Model indicated that these comprised less than 10 per cent of all additional participants and that numbers would decline after 2016-17. The Department included part-time participants (young people in jobs who also undertake training), converted to 20,000 on a full-time equivalent basis, in the costs calculation. Hence the benefits calculation is based on 63,000 participants, and the costs calculation is based on 83,000 participants.

<sup>21</sup> 2016-17 is the basis for the steady state model.

**2.6** The Department used data from the matched administrative dataset<sup>22</sup> to estimate the course choices of these additional participants. Given that data on the course choices of non-participants do not exist, the Department first predicted the prior attainment of the additional participants, and then predicted their likely course choices, based on the choices of current voluntary participants with the same prior attainment. The Department recognised that although this was a best estimate, there are problems inherent in this approach as the behaviour of these two groups may differ as a result of their likely engagement with learning.

## NAO validation

### Re-performance of the Department's model

**2.7** The Department's modelling was based on data from the 2006 matched administrative dataset. We ran the Department's model, first using the original 2006 raw data and then more recent data from 2010. The Department performed the calculation separately for males and females, using an identical model, and therefore our analysis is based on our re-performance of the model for females only.

**2.8** The Department estimated the additional benefits of the policy as £1,018 million for females. Using the productivity differentials calculated by the Department (examined in paragraph 2.13) and its 2006 raw data, we calculated the additional benefits to be £1,071 million. The Department had understated the additional benefits by £53 million due to an error in its calculation.

**2.9** Using matched administrative data for 2010, we recalculated the benefits at £987 million, which is £31 million lower than the original estimate presented in the Department's cost-benefit analysis. While the difference is relatively small, it demonstrates the importance of revisiting the analysis using more recent data, to check that assumptions made remain valid.

### Course choices of additional participants

**2.10** Additional participants are expected to pursue one of the following learning routes:

- academic (GCSEs and A levels); or
- vocational (grouped together under 'Other' Level 2 or Level 3 qualifications given the reform of 14-19 qualifications underway at the time of the Department's analysis).

**2.11** The predicted attainment rates for the additional participants in groups 2, 3 and 4, as modelled by the Department, include 7,749 participants expected to achieve A levels of whom 11 per cent (832 learners) do not have any prior qualifications (**Figure 4**).<sup>23</sup> Similarly, 20 per cent (314 learners) of the participants predicted to achieve a different Level 3 qualification start with no qualifications at the end of Year 11.

**2.12** Since the preference of these groups is not to participate in either one or both years, it seems unlikely that such a large proportion of young people with no prior qualifications will achieve at such a high level after two additional years of compulsory participation. The Department agreed that the prediction seemed counter-intuitive, but was clear that it had confirmed that the data were correct. The Department's investigations suggested that the achievements of the predictor group 1 may partly reflect young people who do not take exams in Year 11 due to health reasons, participants for whom no data were recorded and discrepancies in the matching of data. The Department did not investigate further to obtain assurance that the data were robust and suitable for the purpose they were being used, and therefore that the assumptions were reasonable. Given that the lifetime productivity differentials for A levels and Level 3 qualifications are higher than for GCSEs and Level 2 (paragraph 2.13), there is uncertainty whether the economic benefits will be realised at predicted levels.

22 The Department uses the matched administrative dataset to monitor post-16 attainment. It matches individual learner records from school census data, the Individualised Learner Record and Awarding Body data. It holds records for all learners who were enrolled in a maintained school in England at age 14, and anyone of academic age 16-21 who achieves a qualification in a school, sixth-form college, further education college or work-based learning provider.

23 If learners have at least 1 A\*-C GCSE (including a short course) they are deemed to have achieved 'Below Level 2'.



**Figure 4**

Predicted attainment by age 18 for additional participants<sup>1</sup> by qualification type, prior attainment and gender

Prior attainment at the end of Year 11	Predicted attainment by age 18			
	A levels	Other Level 3	GCSEs	Other Level 2
<b>Males</b>				
No qualifications	428	187	1,019	2,482
Below Level 2	494	333	1,844	1,661
Level 2	2,814	292	–	–
<b>Total</b>	<b>3,736</b>	<b>812</b>	<b>2,863</b>	<b>4,143</b>
<b>Females</b>				
No qualifications	404	127	841	1,739
Below Level 2	491	317	1,759	1,551
Level 2	3,118	290	–	–
<b>Total</b>	<b>4,013</b>	<b>734</b>	<b>2,600</b>	<b>3,290</b>

**NOTES**

- 1 Groups 2, 3 and 4 combined.
- 2 Prior attainment of group 2, 3 and 4 participants is known from the matched administrative dataset. Distribution of participants across courses and predicted attainment are based on data from voluntary (group 1) participants with the same prior attainment. Youth Cohort Study data were used to scale down the actual attainment rates of group 1 participants to reflect the element of compulsion.
- 3 Some of these qualifications would have been obtained in the absence of the policy as group 2 and group 4 participants will voluntarily participate in Year 12 and 13 respectively. The Department removed this element of attainment later in the model.

Source: Department for Children, Schools and Families and The University of Sheffield, *Raising the Participation Age: An Assessment of the Economic Benefits*, November 2007 (combination of tables 8 and 9)

**Productivity differentials**

**2.13** The Department used Labour Force Survey data to calculate the increase in lifetime productivity from achieving various qualifications in 16-19 education, then discounted to calculate the economic benefits of the policy (**Figure 5** overleaf). The Department's analysis was based on Labour Force Survey data from 2004-05.

**NAO validation**

**2.14** We had planned to recreate the Department's model and recalculate the productivity differentials based on more recent data. However, the Department was unable to provide sufficient documentation on the variables used in its regression analysis to enable us to replicate their model, and therefore we have been unable to validate these figures. It is important that the Department retains sufficient information to enable its estimates to be revisited, to make it simpler and less costly to repeat analyses at a later date.

**Figure 5**

Discounted lifetime productivity differentials by prior attainment and gender

Prior attainment level at end of Year 11	A levels (£000)	Other Level 3 (£000)	GCSEs (£000)	Other Level 2 (£000)
<b>Males</b>				
No qualifications	310	70	290	90
Below Level 2	140		160	
Level 2	100		–	–
<b>Females</b>				
No qualifications	260	50	210	50
Below Level 2	130		130	
Level 2	110		–	–

Source: Department for Children, Schools and Families and The University of Sheffield, *Raising the Participation Age: An Assessment of the Economic Benefits*, November 2007 (Table 20)

**2.15** The Department assumed rates of return to academic qualifications (GCSEs and A levels) based on data on current estimates of returns to these qualifications. Although we were unable to re-perform the calculations, the rates of return stated in Figure 5 appear reasonable based on our review of literature that assesses such returns.

**2.16** The Department did not base its rates of return for vocational qualifications (termed ‘Other Level 2’ and ‘Other Level 3’ in Figure 5) on rates of return to existing vocational qualifications, because these are changing and will be different by 2015. Instead, it assumed that half of the young people taking vocational options would follow the new Diplomas, with the remainder following traditional vocational routes. The rate of return for Diplomas was assumed to be the mid-point between existing vocational and academic qualifications, while the return to vocational qualifications was deemed to be that of BTECs and Craft City and Guilds qualifications.

**2.17** The current take-up of Diplomas is much lower than was originally forecast. In 2009-10, 38,000 young people undertook Diplomas, one-quarter of the Department’s original forecast of 150,000. Only 10,000 of these 38,000 young people were aged 16 or above. There is therefore uncertainty that

benefits will be realised at the predicted levels as young people predicted to follow Diplomas opt for alternative vocational or academic qualifications.

**2.18** Furthermore, the Department excluded NVQs from its calculation of the returns to vocational qualifications and Diplomas as it assumed that these would be replaced by Diplomas. While returns to GCSEs and A levels are well evidenced, available evidence indicates that the returns to many vocational qualifications (particularly NVQs) are low, zero, or even negative. This aspect of the cost-benefit analysis has led one educational expert to suggest that, in her opinion, the economic benefits envisaged from the policy are unlikely to be achieved; we have not reviewed in detail the evidence supporting this suggestion.<sup>24</sup>

### Wider benefits

**2.19** The Department was cautious in its approach to the wider benefits expected from the policy, choosing not to quantify these as it did not consider it possible to do so robustly. These benefits could include improved health and reduced likelihood of crime as a result of young people participating for longer. If confirmed as likely, the value of the benefits would be significant, and would have strengthened the case for the policy.

24 Wolf (2007), *Diminished Returns. How raising the leaving age to 18 will harm young people and the economy*. Policy Exchange.

**2.20** The Green Book states that it is important that all costs and benefits associated with a policy are considered, including wider social costs and benefits where this is practicable. While they are often more complex to quantify, they should not be excluded solely on that basis. We acknowledge that the Department was transparent about the exclusion of wider benefits, though we consider that some broad assessment of the scale and value of these benefits, drawing on existing research, would have been useful to decision-makers.

### Sensitivity analysis

**2.21** The Department recognised the high level of sensitivity around the calculation of £2,400 million benefits given the large number of assumptions. The most likely scenario of £2,400 million was based on the following assumptions:

- non-voluntary participants participating under the policy would choose between different course options in the same proportions as current voluntary participants who have the same prior attainment;
- non-voluntary participants would attain qualifications at two-thirds of the rate of voluntary participants;
- returns to non-academic qualifications were weighted at 50 per cent of the returns to existing academic and vocational qualifications<sup>25</sup>;
- non-voluntary participants were assumed to achieve 75 per cent of the lifetime productivity differentials of voluntary participants; and
- no additional participants were expected to progress to higher education.

**2.22** The Department performed sensitivity analysis on this scenario, adjusting each of these assumptions within plausible limits to create 11 estimates of the likely benefits. The worst and best case scenarios led to gross benefits of £285 million and £5,383 million respectively. The Department stated that these

were 'extreme values', representing a 'particular combination of adverse or beneficial factors'. Therefore it concluded that it was most likely that the final benefits figure would be nearer to £2,400 million.

**2.23** The Department recognised that while some of the assumptions were based on data, some were, by necessity, 'best guesses'. It attempted to justify those which had the greatest impact on the benefits, citing data from the matched administrative dataset and evidence from previous changes in the school leaving age to support these assumptions. The scaling down of attainment rates and likely returns to qualifications reflect the Department's cautious approach to the quantification of benefits, however, in our opinion, significant uncertainty over the predicted benefits remains (paragraphs 2.12 and 2.18).

**2.24** Given this risk, although the Department performed a detailed sensitivity analysis, the implications of this work could have been made clearer in the cost-benefit analysis. Taking the sensitivity analysis further, to identify the key variables and the level of variation allowable before the costs would no longer outweigh the benefits, would have made the importance of the Department's assumptions more transparent to decision-makers. The calculation of the economic benefits was published separately<sup>26</sup> from the cost-benefit analysis. As a result, while the cost-benefit analysis presented the upper and lower limits of the likely benefits range, it did not contain sufficient discussion of the assumptions made and the reason why the 'most likely values' chosen were deemed most probable. Given that cost-benefit analyses are used as decision-making tools, it is important that the assumptions used are explicit.

**2.25** It was therefore not made clear that, taking into account the £774 million projected costs, in the worst case scenario the policy could lead to a loss of £489 million per cohort to the taxpayer. The summary of the cost-benefit analysis was further misleading, as the Department inadvertently reported the figures for the gross benefits as net benefits.

<sup>25</sup> At the time of the cost-benefit analysis, the qualifications system was under reform, and therefore the returns to new qualifications under development could not be accurately modelled.

<sup>26</sup> Department for Children, Schools and Families and The University of Sheffield, *Raising the Participation Age: An Assessment of the Economic Benefits*, November 2007.

# Where to find out more

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Design & Production by  
NAO Communications  
DP Ref: 009670-002

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