Raising the Participation Age: An Assessment of the Economic Benefits

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Emily Hunt[2] **and Steven McIntosh**[3]

1.   Summary

In March 2007 the Government published the Green Paper: 'Raising Expectations: Staying in Education and Training Post-16'. This set out the rationale and proposals for Raising the Participation Age (RPA) to 18. This paper proposes a methodology for quantifying the potential economic benefits of RPA and goes on to provide estimates of the expected benefits under different scenarios. Under the central scenario the additional economic benefits are estimated to be around £2.4 billion for each cohort of young people who remain in education or training to age 18. This estimate only captures the additional productivity gains, indicated by increased wages and higher likelihoods of employment, expected as a result of RPA – it does not include any wider benefits which may accrue from more young people participating post-16, such as improved health or reduced likelihood of crime.

2.   Introduction

Since 2005 the Government has had an aspiration for 90% of 17 year olds to participate in education and training by 2014/15. However, the March 2007 Green Paper argues that this does not go far enough and makes the case for compelling everyone to remain in some kind of education or training until age 17 from 2013 and age 18 from 2015. It argues that this contributes to the twin goals of raising economic prosperity and improving social justice.

But just how much could RPA potentially add to economic prosperity? This paper sets out how the economic benefits of RPA can be estimated, compared to a scenario where young people voluntarily participate in-line with the 90% aspiration for 17 year olds. The model is broken down into three distinct stages:

-   modelling the additional participants due to RPA (section 3.1)
-   modelling the attainment among the additional participants (3.2)
-   valuing the economic benefits of the attainment (3.3)

Given the level of uncertainty around many of the underpinning assumptions, section 4 considers how sensitive the central estimate of the economic benefits is to varying key assumptions, to produce a wide range of potential benefits. The paper finishes with its conclusions in section 5.

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[1] Stephen Machin (University College London and Centre for Economic Performance, London School of Economics) provided very helpful comments at numerous stages in the production of this report.
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3.   Central Scenario

3.1   Modelling Additional Participants

The starting point of the modelling is the estimate of how many extra young people will participate in education due to RPA, compared to the number expected to participate if the 90% aspiration is met.   This is estimated internally by the Department for Children, Schools and Families (DCSF).

Given that the proposal is to raise participation in education by two years, there are four possibilities as to what young people could do in the absence of the policy. They could have:

- Voluntarily participated in both Years 12 and 13 (a group whom we have named Group 1);
- Participated in Year 12 but not in Year 13 (Group 2);
- Participated in neither year (Group 3); or
- Left education for a year in Year 12, but participated in Year 13 (Group 4).

So the policy will raise the participation of individuals by 0, 1 or 2 years, depending on to which group they belong[4]. To summarise:

	Voluntarily participate in Year 12	Voluntarily participate in Year 13
Group 1	Yes	Yes
Group 2	Yes	No
Group 3	No	No
Group 4	No	Yes

Years 2015/16 to 2016/17 are the basis of the steady-state model[5], and since it estimates additional participants due to RPA, it focuses on predicting Groups 2 to 4. In this period it is estimated that, as a result of RPA, around an extra 28,000 young people will participate in full-time education[6] in the first year after school i.e. Year 12 when young people are academic age 16. An estimated 18,000 of these are in Group 3, i.e. would not have participated in *either* Year 12 or 13 if they had the choice. The remaining 10,000 are estimated to be in Group 4, i.e. would have voluntarily rejoined education in Year 13.   The model also predicts an additional 53,000 young people participating in education in Year 13 as a result of the RPA policy.   This number comprises the 18,000 predicted in Group 3 above and an additional 35,000 young people who – given the choice - would have participated in Year 12 but not Year 13 (Group 2)[7]. To summarise, the model predicts the

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[4] In reality young people might participate for less than a complete academic year due to either not completing a year or churning in and out of education and training.

[5] 2015/16 is the first academic year when the policy has fully been implemented.

[6] According to the DCSF Youth Model the number of additional participants in part-time provision is fairly small (i.e. under 10% of all additional participants) and declining beyond 2016/17, so it is feasible to exclude part-time provision from the economic benefits model.

[7] The DCSF Youth Model generates the sum of young people in Group 3 and Group 4 in

following additional participants due to RPA:

	Participate in Year 12	Participate in Year 13
Group 2	(already participating)	35,000
Group 3	18,000	18,000
Group 4	10,000	(already participating)

These additional participants are then divided according to the type of education we expect them to participate in, because attainment varies by the type of participation:

- GCSE or A-level provision as opposed to other types of provision; and
- Level 2 or at Level 3.

By definition, information on chosen courses amongst current non-participants does not exist. So the courses that the extra participants choose to follow have to be estimated using data on current participants. In all cases, we first predict the prior attainment of the additional participants, and then predict the type of education they choose, on the basis of the choices of current participants *with the same prior attainment.* Whilst this is the best modelling approach available given the data, it is still potentially problematic because RPA and current participants are separate, self-selected groups who are likely to differ in terms of other (unobservable) characteristics.

3.1.1 Groups 3 and 4

Over half (56%) of the extra participants in Groups 3 and 4 are assumed to be male, based on the male proportion in these combined groups in the DCSF matched administrative dataset (Age 19 in 2006 Cohort).[8]

Groups 3 and 4 are the two groups of young people who would not participate in education in Year 12 in the absence of the policy (though Group 4 individuals would subsequently voluntarily choose to participate in Year 13). Their choice of type of education is therefore modelled using information on current Group 1 participants in Year 12, displayed in Table 1, obtained from the DCSF matched administrative dataset.

2015/16 (28,000) and the sum of young people in Group 2 and Group 3 in 2016/17 (53,000). It cannot break this information down into the individual group sizes, which is what is required for the economic benefits model. Therefore it is assumed that the size of Group 4 as a proportion of the sum of Group 3 and Group 4 (which we know for the age 19 in 2006 cohort from the matched administrative dataset) remains constant at 35%. This means the re-engagement rate for Group 4 stays the same to 2015/16, even though this may become increasingly challenging as voluntary participation rises prior to the RPA introduction. By fixing this proportion it is possible to derive the size of the 4 groups for the age 16 in 2015/16 cohort.

[8] The matched administrative dataset is used by DCSF to monitor post -16 attainment, and contains individual records matched together from the Pupil Level Annual School Census (PLASC), the Learning and Skills Council's Individualised Learner Record (ILR), and Awarding Body data. The dataset 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 institution or Work Based Learning institution.

Table 1: Distribution of current Group 1 participants across different courses, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2	Below Level 2	Total
Men						
No qualifications	9%	3%	14%	20%	54%	100%
Below Level 2	22%	10%	22%	19%	27%	100%
Level 2	83%	7%	1%	3%	5%	100%
Women						
No qualifications	13%	3%	15%	24%	45%	100%
Below Level 2	24%	10%	21%	27%	19%	100%
Level 2	84%	7%	1%	4%	3%	100%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations.

Table 1 shows that the choice of course, for any given level of prior attainment, is fairly similar for men and women. Those who leave school with no qualifications most commonly choose below Level 2 courses e.g. a Key Skills qualification[9]. Those who leave school with some qualifications but fail to reach the full Level 2 threshold most commonly choose other Level 2 qualifications (other than GCSEs), for females, and again below Level 2 for men. These modal groups only account for 27% in each case, so this level of prior attainment is associated with a wider distribution of course choices than the other two levels of prior attainment. For those who achieve Level 2 by the end of Year 11, by far the most popular choice of further study is A-levels, undertaken by over 80% of this group for both males and females.

In order to model the prior attainment of the extra participants from Groups 3 and 4 in the future steady state, it is assumed these young people have the same prior attainment distribution in Year 11 as those currently in Groups 3 and 4 (i.e. those not participating in Year 12), which is known from the DCSF matched administrative dataset[10].

Table 2: Distribution of prior attainment of Groups 3 and 4, by gender

Prior attainment level at end of Year 11	Distribution of male non-participants in Year 12	Distribution of female non-participants in Year 12
No qualifications	63%	58%
Below Level 2	19%	21%
Level 2	17%	22%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations.

Table 2 shows that women not participating in Year 12 tend to be better qualified on average than their male counterparts in terms of their prior attainment. Thus just over 60% of male and just under 60% of female RPA participants from Groups 3 and 4 are assumed to leave school with no qualifications in the absence of the policy. Conversely 17% of male RPA

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[9] It is assumed that the unknown courses are below Level 2, although this assumption is not crucial to the outcome, as it is the level actually attained that drives the economic benefits.
[10] People without Year 11 attainment data within the matched administrative dataset are assumed to have no qualifications for the purposes of this analysis.

participants are assumed to have achieved Level 2 at the end of compulsory schooling, compared to 22% of females. Note that the decision to participate in post-compulsory schooling is closely related to Year 11 attainment, with those achieving higher grades much more likely to stay-on. It therefore follows that the extra RPA participants are assumed to have lower prior attainment on average than those currently participating.

It is possible to allocate the estimated additional RPA participants across course types by combining the outputs from:

- the DCSF Youth Model for the number of extra participants from Groups 3 and 4;
- the matched administrative data on the prior attainment of these groups (Table 2); and
- the matched administrative data on the types of provision current participants undertake according to their prior attainment (Table 1).

The 28,000 additional Group 3 and 4 participants are first distributed by prior attainment according to the proportions in Table 2, and then distributed across types of study according to the proportions in Table 1. The resulting distribution of course types and levels are shown in Table 3.

Table 3: Distribution of Groups 3 and 4 RPA participants across different courses, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2	Below Level 2
Men					
No qualifications	874	335	1405	1924	5279
Below Level 2	671	289	655	583	809
Level 2	2189	198	38	87	135
Total	3,734	821	2,099	2,594	6,224
Women					
No qualifications	872	214	1036	1682	3086
Below Level 2	596	243	512	655	458
Level 2	2197	193	33	101	87
Total	3,665	649	1,580	2,438	3,631

Source: Outputs from DCSF Youth Model, data in Table 1 and Table 2, author's calculations

The 14-19 qualifications system is undergoing much reform between now and 2015. We understand that the Government intends to publish a qualifications strategy shortly, which will set out in detail the range of qualifications it expects to be available to young people by this time. For the purposes of this research, we assume GCSEs and A-levels continue in their current form and so are available to RPA participants who choose to undertake them. Any other existing qualifications or new ones developed by 2015 at Level 2 and Level 3 we group together under the 'Other Level 2' and 'Other Level 3' headings.

3.1.2 Group 2

Young people in Group 2 are modelled separately from Groups 3 and 4, as the former already participate in Year 12. One option would have been to model their course choices in Year 13, having been compelled to participate

by the policy, and add the resulting extra attainment to that estimated for the additional RPA participants in Group 3 and Group 4. However, there is no available information with which to model the Year 13 choices of individuals who would otherwise leave at the end of Year 12. By definition we cannot observe the current course choices in Year 13 of anyone who leaves at the end of Year 12. In addition, if Group 2 individuals had known at the age of 16 that they would have to participate for two more years, they might have made different choices from the start, and may not have chosen one year courses in Year 12.

For these reasons we therefore model the course choices of Group 2 individuals in Year 12, as well as Year 13. This is done in the same way as for Groups 3 and 4 above - on the basis of the Year 12 choices of Group 1 individuals (who participated for the full extra two years) with the same level of prior attainment. Since we are interested only in the extra benefits from Group 2's additional post-RPA participation in Year 13, we then need to remove the estimated attainment benefits from their predicted Year 12 attainment (which we expect to happen without RPA).

Over half (53%) of the extra participants in Group 2 are assumed to be male, based on the male proportion in this group in the DCSF matched administrative dataset (Age 19 in 2006 Cohort). Table 4 shows the prior attainment of current Group 2 young people in the matched data.

Table 4: Distribution of prior attainment of Group 2, by gender

Prior attainment level at end of Year 11	Males	Females
No qualifications	47%	37%
Below Level 2	29%	33%
Level 2	23%	30%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations

It is clear from these figures that young people in Group 2, who voluntarily participate in Year 12, have significantly higher levels of prior attainment than Groups 3 and 4 (Table 2), who choose not to participate in Year 12 when they have the choice.

Distributing the predicted additional Group 2 participants first by prior attainment according to these proportions, and then assigning them to types of study according to the choices of current Group 1 individuals (in Table 1), produces the predicted number of additional participants from Group 2 by type of course, shown in Table 5.

Table 5: Distribution of Group 2 RPA participants across different courses, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2	Below Level 2
Men					
No qualifications	781	299	1257	1720	4721
Below Level 2	1210	521	1181	1051	1458
Level 2	3557	322	62	142	220
Total	5,548	1,141	2,500	2,913	6,399
Women					
No qualifications	780	191	926	1504	2760
Below Level 2	1312	535	1127	1444	1009
Level 2	4181	367	63	192	166
Total	6,273	1,092	2,116	3,140	3,935

Source: Outputs from DCSF Youth Model, data in Table 1 and Table 4, author's calculations

3.2   Modelling Attainment Among Additional Participants

The next step of the modelling is to project how many extra participants might actually attain qualifications by age 18. This is difficult as there is no information on what non-participants would attain if they had remained in education. So data on current participants is used in an appropriate way to model this.

The matched administrative data contains the attainment of recent Group 1 participants, in terms of the proportions achieving Level 2 or Level 3 by end of Year 13 for different course types. Combined attainment rates for males and females are used, as further analysis (not displayed here) indicates that attainment rates are fairly similar across gender, when controlling for prior attainment.

Table 6: Attainment rates of Group 1 participants by age 18 across different courses, by prior attainment

Type of study in Year 12	Prior Attainment at the end of Year 11	Achievement Rate by end of Year 13	
		Level 2	Level 3
A-levels	No qualifications Below Level 2 Level 2	31% 75% (100%)	31% 33% 85%
Other Level 3	No qualifications Below Level 2 Level 2	39% 56% (100%)	24% 42% 67%
GCSEs	No qualifications Below Level 2 Level 2	39% 75% (100%)	5% 7% 48%
Other Level 2	No qualifications Below Level 2 Level 2	40% 56% (100%)	2% 5% 12%
Below Level 2	No qualifications Below Level 2 Level 2	21% 51% (100%)	1% 4% 38%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations

Table 6 shows that there are differences in attainment rates between different types of study. For example, among those already qualified to Level 2 by the end of Year 11, 85% of those who study for A-levels at age 16 have achieved

this two years later, compared to 67% of those who begin studying for other types of Level 3 qualifications. Similarly at Level 2, among those qualified to below Level 2 at the end of Year 11, the percentage attaining Level 2 by the age of 18 is 75% for those engaged in GCSEs and 56% for those engaged in other Level 2 study. Among individuals with no prior qualifications, however, the Level 2 attainment rate is as high for other Level 2 courses as it is for GCSE courses.

The final row of Table 6 shows that among individuals initially registered for below Level 2 qualifications at age 16, some do achieve a Level 2 or Level 3 qualification by age 18. Not surprisingly, the chances of them doing so increase with the level of their prior attainment.

Since the prior attainment distribution of RPA participants has been derived for each course type (Tables 3 and 5), it would be possible to use the data in Table 6 to project forward their attainment by age 18. However, the first choice of RPA participants, by definition, is not to be participating. Therefore it may be unrealistic to assume they would attain as well by age 18 as current voluntary participants. So how much lower might the RPA participants' attainment be relative to voluntary participants? If this could be estimated it could then be used to scale down the attainment rates in Table 6.

Unfortunately there is no direct evidence to inform what value this scalar should take between the two extremes of 0% (where none of the extra participants attain) and 100% (where the extra participants attain as well as voluntary participants). Therefore indirect evidence has been used.

It is possible to use the Youth Cohort Study (YCS) to compare the attainment of those who leave learning at age 16 and then return to participate at 17 for two years ('returners'), with those who continue straight into post-compulsory education at age 16 for two years ('stayers'). Table 7 shows the attainment rates of the 'returners' at age 19 as a proportion of the attainment rates of the 'stayers' at age 18.

Table 7: Attainment rate (by age 19) of those who leave learning in Year 12 and return in Year 13, expressed as a proportion of the attainment rate (by age 18) of those who continue straight from school into Year 12

	Attainment Rate	
Prior Attainment at the end of Year 11	Level 2	Level 3
No qualifications or Below Level 2	66%	66%
Level 2	100%	57%

Source: Youth Cohort Study, Cohorts 10 and 11 combined, author's calculations.

Do these relative attainment rates represent appropriate factor(s) by which to scale down the attainment rates of voluntary participants? This depends on how well the group who leaves learning at age 16 and returns at age 17 proxies the likely attainment of the extra participants due to RPA[11]. In the

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[11] On the one hand the attainment of the voluntary 'returners' might be expected to over-estimate the attainment of the compelled RPA participants because the former might

absence of any other information it seems sensible to use the rates in Table 7 as central estimates of how well RPA participants will attain relative to voluntary participants. For example, RPA participants who leave school without having attained Level 2 are therefore assumed to attain at two-thirds of the rate of voluntary participants who leave school with the same prior qualifications. For RPA participants who leave school with Level 2 qualifications and go on to undertake Level 3 qualifications, the assumed relative attainment rate is slightly lower at 57%.

By scaling down the attainment rate data for voluntary participants in Table 6 by the appropriate factors in Table 7, it is possible to project the attainment of the RPA participants by age 18. It is assumed that the type of qualification that young people attain by age 18 corresponds to that in which they were participating at age 16, though they may achieve at a different level to that originally aimed for[12]. This generates the number of RPA participants attaining qualifications by age 18, by type of qualification, level of prior attainment and gender, as set out in Table 8 and 9, for Group 3+4 and Group 2 respectively. Where young people are predicted to attain qualifications at a level they have already reached, these are excluded from the model because economic benefits are assumed only to accrue where people raise their attainment level.

Table 8: Attainment by age 18 for RPA participants in Groups 3 and 4 combined, by qualification type, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2
Men				
No qualifications	226	99	538	1,310
Below Level 2	176	119	658	593
Level 2	1,072	111	-	-
Total	1,474	329	1,196	1,903
Women				
No qualifications	213	67	444	918
Below Level 2	153	99	549	484
Level 2	1,074	100	-	-
Total	1,440	266	993	1,402

Source: Combined data from Table 3, Table 6 and Table 7, author's calculations.

represent the better motivated learners who are more likely to attain. But on the other hand, the 'returners' might under-estimate the attainment of the compelled RPA participants if they possess negative personal characteristics which means they are less employable and therefore more inclined to return to learning.

[12] For those studying for an 'other' qualification at age 16, and who go on to achieve a Level 2 or Level 3 qualification, this is assumed not to be an A level or GCSE.

Table 9: Attainment by age 18 for RPA participants in Group 2, by qualification type, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2
Men				
No qualifications	202	88	481	1,172
Below Level 2	318	214	1,186	1,068
Level 2	1,742	181	-	-
Total	2,262	483	1,667	2,240
Women				
No qualifications	191	60	397	821
Below Level 2	338	218	1,210	1,067
Level 2	2,044	190	-	-
Total	2,573	468	1,607	1,888

Source: Combined data from Table 5, Table 6 and Table 7, author's calculations.

The qualifications attained in highest numbers by the additional RPA participants are predicted to be (i) other Level 2 qualifications, which are by far the most likely outcome for young people who completed Year 11 with no qualifications, and (ii) A-level qualifications, which are the most likely outcome for those who completed Year 11 with Level 2 qualifications. Comparing the attainment of Groups 3 and 4 in Table 8, to that of Group 2 in Table 9, it is clear that the latter group are predicted to acquire more qualifications of all types, when both are required to participate for two years after the end of Year 11. This is due to (i) more young people predicted to be in Group 2 than in Groups 3 and 4 combined (53,000 versus 28,000), and also (ii) Group 2 individuals having a higher level of prior attainment than young people in Groups 3 and 4 (compare Table 4 to Table 2).

Of course, it is plausible that some of the young people who attain qualifications due to RPA would then progress further beyond age 18, leading to additional productivity gains. However for the central scenario any progression beyond age 18 is assumed to be sufficiently small-scale such that it can be ignored[13].

In summary, so far we have estimated the additional qualifications that will be attained by young people in Groups 2, 3 and 4 in Years 12 and 13 i.e. the additional two year attainment of those who would not have participated for 2 full years after Year 11 in the absence of the policy. However, some of these qualifications would actually have been attained anyway in the absence of the policy, because young people in Group 2 would voluntarily participate in Year 12, and young people in Group 4 would voluntarily participate in Year 13. We therefore need to strip out the attainment that would have happened from the total qualification attainment in Table 8 and Table 9 respectively, by subtracting the estimated voluntary attainment of Group 4 individuals in Year 13 and of Group 2 individuals in Year 12.

The estimation of this voluntary attainment is done in a similar way to the estimated additional attainment under RPA, with one difference. Rather than using the course choices of Group 1 (Table 1) and the scaled-down

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[13] Impact of changing this assumption is tested in one of the sensitivity checks in Section 4.

attainment rates of Group 1 (Tables 6 and 7), we use the actual, current course choices and attainment rates of Group 2 in Year 12 and Group 4 in Year 13. This information is provided in the tables below.

3.2.1 Group 2

Table 10: Distribution of current Group 2 participants in Year 12 across different courses, by prior attainment and by gender

Prior attainment at end Year 11	A-levels	Other Level 3	GCSEs	Other Level 2	Below Level 2	Total
Men						
No qualifications	8%	2%	13%	20%	57%	100%
Below Level 2	22%	8%	23%	22%	26%	100%
Level 2	71%	11%	3%	7%	8%	100%
Women						
No qualifications	13%	2%	15%	23%	47%	100%
Below Level 2	22%	8%	21%	29%	20%	100%
Level 2	69%	11%	3%	10%	8%	100%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations.

The observed prior attainment of young people in Group 2 was presented in Table 4 above. Combining the future number predicted to be in Group 2 in 2016/2017 (53,000) with those prior attainment rates, and then distributing across course types according to the proportions in Table 10, produces the number of Group 2 participants who would voluntarily participate in Year 12 in each type of course, given in Table 11[14]. The current attainment rates of young people in Group 2 are provided in Table 12.

Table 11: Distribution of future Group 2 participants across different courses in the absence of RPA, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2	Below Level 2
Men					
No qualifications	685	196	1169	1765	4963
Below Level 2	1166	426	1243	1183	1403
Level 2	3034	482	134	298	354
Total	4,885	1,104	2,546	3,246	6,721
Women					
No qualifications	779	144	914	1426	2899
Below Level 2	1172	429	1162	1553	1111
Level 2	3410	546	138	475	399
Total	5,360	1,120	2,214	3,454	4,409

Source: Combination of outputs from DCSF Youth Model with data in Table 4 and Table 10, author's calculations

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[14] These numbers differ to those in Table 5, since the course choices of current Group 2 individuals in Year 12 are now being used to distribute across course type, rather than the course choices of current Group 1 individuals in Year 12 as before.

Table 12: Attainment rates of current Group 2 participants in Year 12 across different courses, by prior attainment

Type of study in Year 12	Prior Attainment at the end of Year 11	Achievement Rate by end of Year 13	
		Level 2	Level 3
A-levels	No qualifications	16%	12%
	Below Level 2	34%	1%
	Level 2	(100%)	13%
Other Level 3	No qualifications	6%	1%
	Below Level 2	3%	1%
	Level 2	(100%)	1%
GCSEs	No qualifications	15%	0%
	Below Level 2	42%	0%
	Level 2	(100%)	0%
Other Level 2	No qualifications	8%	0%
	Below Level 2	13%	0%
	Level 2	(100%)	0%
Below Level 2	No qualifications	5%	0%
	Below Level 2	18%	1%
	Level 2	(100%)	4%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations

Not surprisingly, given that young people currently in Group 2 leave education at the end of Year 12, the attainment rate at Level 3 is very small for all types of course, though even the Level 2 attainment rates are considerably lower than those observed for Group 1 individuals above.[15]

Combining these attainment rates (not scaled down in this case as they are the actual attainment rates of the group in question), with the information in Table 11 on the number of Group 2 participants by type of course, produces the number of each type of qualification predicted to be obtained through voluntary participation of Group 2 individuals in Year 12, reported in Table 13.

Table 13: Voluntary attainment in Year 12 by future participants in Group 2 in the absence of RPA, by qualification type, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2
Men				
No qualifications	85	7	282	413
Below Level 2	8	14	920	424
Level 2	387	20	-	-
Total	480	41	1,202	837
Women				
No qualifications	96	4	260	276
Below Level 2	8	12	888	419
Level 2	435	23	-	-
Total	539	39	1,148	695

Source: Combined data from Table 11 and Table 12, author's calculations.

Subtracting this expected voluntary attainment in Year 12 from Group 2's predicted attainment in Years 12 and 13, gives an estimate of the total impact of the policy in terms of the additional attainment of this group.

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[15] This low attainment could of course be one reason why Group 2 individuals leave education at the end of Year 12, when they have the choice.

3.2.2 Group 4

For Group 4 (who are expected to participate in Year 13 anyway), we have to subtract their expected attainment in Year 13 from the total additional attainment predicted for Groups 3 and 4 in Years 12 and 13 above. This is done in the same way, based on the course choices, prior attainment and Year 13 attainment of current voluntary Group 4 participants, as displayed in the tables below. Table 14 shows the distribution of current young people in Group 4 across courses, by prior attainment.

Table 14: Distribution of current Group 4 participants in Year 13 across different courses, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2	Below Level 2	Total
Men						
No qualifications	11%	4%	11%	21%	54%	100%
Below Level 2	5%	12%	6%	42%	35%	100%
Level 2	69%	8%	0%	10%	12%	100%
Women						
No qualifications	17%	4%	14%	18%	48%	100%
Below Level 2	7%	9%	7%	45%	31%	100%
Level 2	70%	7%	1%	10%	12%	100%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations.

The prior attainment of future Group 4 participants is predicted to be the same as current Group 4 participants, in Table 15. The figures show that Group 4 on average has higher levels of prior attainment than Group 3, as we would expect. Compared to Group 2, Group 4 has a more polarised prior attainment distribution, with more young people leaving school with no qualifications but also more leaving with Level 2 qualifications.

Table 15: Distribution of prior attainment of Group 4, by gender

Prior attainment level at end of Year 11	Males	Females
No qualifications	54%	51%
Below Level 2	15%	15%
Level 2	31%	34%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations

The numbers of Group 4 participants on each type of course when they participate voluntarily in Year 13 is estimated by distributing the 10,000 additional Group 4 participants across levels of prior attainment according to the above proportions, and then allocating across the types of course according to the proportions in Table 14. This gives the numbers presented in Table 16 below. Then for predicting how many of these lead to successful qualification attainment we need to use the attainment rates in Table 17.

Table 16: Distribution of future Group 4 participants across different courses in the absence of RPA, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2	Below Level 2
Men					
No qualifications	303	120	306	589	1532
Below Level 2	42	96	46	346	289
Level 2	1131	132	7	163	198
Total	1,476	348	359	1,097	2,018
Women					
No qualifications	363	81	297	403	1036
Below Level 2	46	62	49	294	201
Level 2	1038	99	9	145	184
Total	1,446	241	354	842	1,421

Source: Outputs from DCSF Youth Model, data in Tables 14 and 15, author's calculations

Table 17: Attainment rates of current Group 4 participants in Year 13 across different courses, by prior attainment

		Achievement Rate by end of Year 13	
Type of study in Year 12	Prior Attainment at the end of Year 11	Level 2	Level 3
A-levels	No qualifications	28%	37%
	Below Level 2	51%	23%
	Level 2	(100%)	89%
Other Level 3	No qualifications	10%	6%
	Below Level 2	11%	2%
	Level 2	(100%)	4%
GCSEs	No qualifications	6%	0%
	Below Level 2	33%	1%
	Level 2	(100%)	10%
Other Level 2	No qualifications	18%	0%
	Below Level 2	19%	0%
	Level 2	(100%)	1%
Below Level 2	No qualifications	11%	4%
	Below Level 2	20%	5%
	Level 2	(100%)	42%

Source: Matched administrative dataset, Age 19 in 2006 Cohort, author's calculations

Combining the numbers in Group 4 on each type of course, by prior attainment, with these Year 13 attainment rates produces the number of qualifications of each type and level predicted to be acquired by Group 4 individuals if they voluntarily participate in Year 13 in the absence of the RPA policy. Such figures are reported in Table 18.

Table 18: Voluntary attainment in Year 13 by future participants in Group 4 in the absence of RPA, by qualification type, by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2
Men				
No qualifications	114	68	105	279
Below Level 2	10	15	37	135
Level 2	1,011	89	-	-
Total	1,135	172	142	414
Women				
No qualifications	136	46	121	189
Below Level 2	11	12	40	103
Level 2	928	82	-	-
Total	1,075	140	161	292

Source: Combined data from Table 16 and Table 17, author's calculations.

This voluntary attainment of Group 4 participants that would happen in the absence of the RPA policy must be subtracted from the predicted additional attainment of Groups 3 and 4 in Years 12 and 13 as a result of the policy, as revealed in Table 8.

In summary, the approach adopted in this modelling stage was to first estimate the total additional attainment that will result from young people participating in education for another two years after Year 11, and then subtract the attainment that would expected to have been achieved in the absence of the policy, among young people who would voluntarily participate in one of these two years. The next section values the additional attainment.

3.3   Valuing Economic Benefits of Attainment

Now that the additional attainment of the extra participants has been estimated, net of any attainment they would be expected to have voluntarily achieved, an economic value has to be placed on these extra qualifications obtained. We assume that the benefits of having qualifications persist throughout a young person's working life, so estimates of the lifetime productivity gains from these qualifications are needed. This is done through using wage and employment returns as a proxy for the extent to which qualifications will raise a young person's productivity, and is standard practice in the economic literature.

The qualifications system is undergoing extensive reform between now and RPA implementation, which makes assessment of returns problematic. For the new qualifications being developed at Level 2 and 3, we have no way of directly predicting their future labour market value, nor can we precisely model how the changes to the system will affect people's future choices. Therefore the modelling must take place using information based on current qualifications and current choices. We understand that the Government will publish a qualifications strategy shortly which will set out more fully how the range of qualifications will develop by 2015. As we have assumed that A-level and GCSE qualifications will continue, we have modelled the RPA returns to these qualifications on the returns to current A-level and GCSE holders. For the returns to other level 2 and 3 qualifications, we have assumed a value at the mid-point between the returns to existing vocational qualifications and GCSEs or A-levels[16]. This is summarised in Table 19.

Table 19: Valuing qualifications attained under RPA using existing qualifications

RPA Qualification Type	Existing Qualification used to proxy lifetime productivity gain
A-levels	2 or more A-levels
Other Level 3	Mid-point between traditional vocational qualifications at Level 3 and 2 or more A-levels
GCSEs	5 or more GCSEs A*-C or 5 or more O-level passes
Other Level 2	Mid-point between traditional vocational qualifications at Level 2 and 5 or more GCSEs A*-C or 5 or more O-level passes

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[16] As a consequence of the high degree of uncertainty in this part of the model, we test different scenarios for the value of other level 2 and other level 3 categories as part of the sensitivity tests in section 4.

The actual methodology used to calculate estimates of the lifetime productivity differentials for these qualifications, relative to different prior attainment levels[17], is well-established and set out in the HMT guidance in The Green Book. These estimates (in 2004/05 prices) are set out below, to the nearest £10,000.

Table 20: (Discounted) Lifetime productivity differentials by prior attainment and by gender

Prior attainment level at end of Year 11	A-levels	Other Level 3	GCSEs	Other Level 2
Men				
No qualifications	£310,000	£70,000	£290,000	£90,000
Below Level 2	£140,000		£160,000	
Level 2	£100,000		-	-
Women				
No qualifications	£260,000	£50,000	£210,000	£50,000
Below Level 2	£130,000		£130,000	
Level 2	£110,000		-	-

Source: A-levels and GCSEs based on author's analysis of Labour Force Survey data; Other qualifications based on combination of author's analysis of Labour Force Survey data and analysis undertaken as part of McIntosh, S. [2007] 'A Cost-Benefit Analysis of Apprenticeships and Other Vocational Qualifications'

Productivity differentials are affected by the supply of and demand for qualifications in the labour market. It is assumed that the additional attainers due to RPA are not numerous enough to affect the productivity differentials in Table 20, which are based on the wage and employment returns to existing equivalent qualifications in today's labour market. In other words, it is assumed that there are no supply-side effects because of the small number of additional attainers relative to the size of the labour market as a whole.

The productivity differentials presented above are based on individuals voluntarily acquiring qualifications. If the additional RPA participants have any differing personal characteristics compared to those currently in the labour market with equivalent qualifications (e.g. lower motivation or ambition), then these characteristics may also affect their productivity potential once they enter the labour market. We therefore assume that the additional RPA attainers receive only 75% of the above productivity differentials. This, along with some of the other assumptions, is discussed further in section 4.

Given that the steady-state model is based in 2015/16 to 2016/17, the differentials in Table 20 need to be up-rated by 4.5% per year, to reflect nominal earnings growth over this period[18].

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[17] Estimates of the lifetime productivity gains to A-levels and GCSEs are available by prior qualification level. Gains to existing vocational qualifications at Level 3 are only available relative to Level 2, and estimates for vocational qualifications at Level 2 are only available relative to Level 1 and Level 2 combined. Therefore data limitations prevent separate estimates of the gains to other Level 3 and other Level 2 by prior qualification level being presented in Table 20.
[18] The up-rating of the productivity differentials is simply to enable a more straightforward comparisons with the RPA costs estimates (which are also presented in 2016/17 prices).

It is then possible to multiply the additional numbers of young people attaining qualifications by the corresponding lifetime productivity differentials to calculate the overall economic benefits of RPA. The key results are shown in Table 21, rounded to the nearest £million.

Table 21: Estimated economic benefits of the RPA policy

	Males	Females
Economic benefits of additional attainment amongst Group 2 individuals	£1,308,000,000	£1,045,000,000
Economic benefits of additional attainment amongst Groups 3 and 4 individuals combined	£1,056,000,000	£716,000,000
Net of…. Economic benefits of voluntary attainment of Group 2 in Y12	£612,000,000	£464,000,000
Economic benefits of voluntary attainment of Group 4 in Y13	£345,000,000	£279,000,000
Overall additional economic benefits	£1,408,000,000	£1,018,000,000

Source: Combined data from Tables 8, 9, 13, 18 and 20, author's calculations.

Under the central scenario the overall additional benefits are therefore estimated to be £1,408 million for men and £1,018 million for women. Therefore **the additional productivity benefit to the economy from RPA is estimated to be around £2.4 billion for a single cohort of young people in a steady-state**.

4.   Sensitivity Scenarios

In building up the model a large number of assumptions have to be made. Some of these are well grounded in evidence whilst others are 'best guesses'. The full list of assumptions, their basis and possible impact on the magnitude of the economic benefits is set out in Annex A.

It is important to understand how sensitive the central scenario is to the assumptions that have been made, particularly those which are not well grounded in evidence. The model was therefore re-estimated a number of times, changing the various assumptions within plausible limits. The full list of results is presented in Table 22.

Table 22: Sensitivity tests of the estimated steady state economic benefits of RPA

Scenario	Participation Mix at academic age 16 (i.e. Year 12)	Relative Attainment rates of RPA	Weights Used to Value Other Qualifications	Relative Lifetime productivity gains of RPA	Progression to Higher Qualification Levels beyond Age 18	Steady state benefits
1	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	57%-66% i.e. Table 7	50% GCSEs or A-levels 50% Vocational i.e. Table 19	75%	None	M=£1,408m W=£1,018m **T=£2,425m**
2	L3 RPA participants transferred to L2 provision	57%-66% i.e. Table 7	50% GCSEs or A-levels 50% Vocational i.e. Table 19	75%	None	M=£914m W=£628m **T=£1,541m**
3	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	42%-51% i.e. Table 7 reduced by 15% points	50% GCSEs or A-levels 50% Vocational i.e. Table 19	75%	None	M=£856m W=£601m **T=£1,457m**
4	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	72%-81% i.e. Table 7 increased by 15% points	50% GCSEs or A-levels 50% Vocational i.e. Table 19	75%	None	M=£1,960m W=£1,434m **T=£3,394m**
5	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	57%-66% i.e. Table 7	25% GCSEs or A-levels 75% Vocational	75%	None	M=£1,261m W=£941m **T=£2,202m**
6	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	57%-66% i.e. Table 7	75% GCSEs or A-levels 25% Vocational	75%	None	M=£1,554m W=£1,094m **T=£2,648m**
7	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	57%-66% i.e. Table 7	50% GCSEs or A-levels 50% Vocational i.e. Table 19	50%	None	M=£938m W=£678m **T=£1,617m**
8	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	57%-66% i.e. Table 7	50% GCSEs or A-levels 50% Vocational i.e. Table 19	100%	None	M=£1,877m W=£1,357m **T=£3,234m**
9	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	57%-66% i.e. Table 7	50% GCSEs or A-levels 50% Vocational i.e. Table 19	75%	90% of those with A-levels and 50% of those with other L3 progress to HE. Of these, 75% would attain if had same attainment rates as current HE participants – instead this attainment rate is scaled down by 57%.	M=£1,523m W=£1,145m **T=£2,667m**
10	L3 RPA participants transferred to L2 provision	42%-51% i.e. Table 7 reduced by 15 % points	25% GCSEs or A-levels 75% Vocational	50%	None	M=£173m F=£111m **T=£285m**
11	RPA participants are distributed across course types in same proportions as current voluntary participants with the same prior attainment i.e. Table 1	72%-81% i.e. Table 7 increased by 15 % points	75% GCSEs or A-levels 25% Vocational	100%	90% of those with A-levels and 50% of those with other L3 progress to HE. Of these HE participants, 75% would attain if had same attainment rates as current HE participants – instead this attainment rate is scaled down by 57%.	M=£3,095m W=£2,288m **T=£5,383m**

The central estimate of the steady state additional economic benefits of RPA is presented in row 1 of Table 22, and shows estimated benefits of £2.43 billion. This estimate is based on our analysis of the most plausible assumptions to use in order to derive the estimates. It is therefore assumed that:

- the additional RPA participants will choose between the various types of study in the same proportions as voluntary participants with the same level of prior attainment (as displayed in Table 1);
- the relative attainment rates in post-compulsory education of RPA participants compared to voluntary participants are 57%-66% (as reported in Table 7 based on YCS analysis of 'returners');
- the value of the other qualifications take the mid-point between general and vocational qualifications at the same level;
- the RPA participants' lifetime benefits from acquiring further qualifications will be 75% of those received by voluntary participants; and
- there is no progression beyond age 18.

The above assumptions are best guesses based on the evidence available, and so could turn out to be inaccurate. We therefore tested how sensitive the central estimate is to variations in each of these assumptions. The subsequent rows of Table 22 change one assumption at a time, to evaluate the impact on the estimate of the benefits.

A key assumption in the modelling is that, in the absence of other information, the RPA participants are assumed to choose the same types of study as voluntary participants with the same level of prior attainment, when the former are compelled to participate. A more extreme assumption is that when compelled to participate, none will register for a Level 3 qualification. Row 2 of Table 22 shows what happens to the benefits when all Level 3 RPA participants are moved instead to Level 2 courses. The impact is large, reflecting the importance of the original assumption, with the overall benefits reduced by almost £1 billion to £1.54 billion.

Row 3 considers the assumption about the attainment rates of the RPA participants. In the central scenario, RPA participants are assumed to attain at the same relative rate as individuals who left education at age 16 and then returned after a year. It may be that the RPA participants may not be as successful as the voluntary returners. Row 3 therefore assumes that the relative attainment rates are a further 15 percentage points lower than those presented in Table 7.   The impact is to reduce the benefits by £1 billion, to around £1.46 billion.

Of course, it could be that individuals who are required to continue directly with their education at age 16 could actually have a higher attainment rate than those who spend time out of education before returning after a year away. Row 4 therefore increases the relative attainment rate by 15 percentage points, with the symmetrical outcome of raising benefits by £1 billion, to around £3.39 billion.

Rows 5 and 6 consider the assumption about the value of the other qualifications. Rather than assume the mid-point between existing qualifications at the same level, rows 5 and 6 assume a point closer to vocational returns and closer to GCSE or A-level returns, respectively. The impact on the total benefits is smaller than with any other variation in assumptions in Table 22. In the former case, the benefits fall by around £220 million to £2.20 billion, whilst in the latter case they rise by around £220 million to £2.65 billion.

So far, RPA participants who go on to attain additional qualifications have been assumed to obtain 75% of the lifetime benefits acquired by current voluntary attainers. This downgrading was imposed to allow for potential unobserved characteristics amongst RPA participants that make them refuse to participate in education when given the choice (perhaps low motivation or ability), which might also reduce their future productivity as well. Row 7 assumes RPA participants who go on to attain additional qualifications only obtain 50% of the lifetime benefits acquired by current voluntary attainers. This has a large impact on the estimated benefits of the RPA policy, reducing them by £810 million to around £1.62 billion. On the other hand, if RPA attainers receive the same lifetime benefits as current voluntary attainers, then the benefits of the policy will increase by £810 million to £3.23 billion, as shown in row 8.

Row 9 drops the assumption that no-one progresses beyond age 18 and instead assumes that 90% of RPA participants who achieve A-levels, and 50% of those with other Level 3 qualifications, progress to Higher Education (HE). Among voluntary HE participants, around 75% go on to attain HE qualifications whereas for RPA participants this proportion is scaled-down by 57%. The impact is to raise the estimated benefits of the RPA policy by around £240 million to around £2.67 billion.

The final two rows in Table 9 present the very worst case and best case scenarios respectively. Thus in row 10, it is assumed that no RPA participants study at Level 3, their attainment rates are considerably below those of voluntary returners, that the returns for other qualifications category are closer to vocational returns, that the future benefits of RPA attainers are only 50% of the benefits of voluntary participants, and that there is no progression to HE. Under this scenario, the estimated benefits of the RPA policy are just £285m. Alternatively, if all the assumptions are reversed to present the best case scenario, the estimated benefits of the policy are £5.38 billion. This obviously presents a very wide range within which the additional economic benefits could fall. It should be stressed, however, that we regard these estimates as extreme values, with all conditions either working against or in favour of the policy respectively. The actual benefits of RPA are therefore more likely to be found closer to the central estimate of £2.43 billion, which represents our 'most likely' scenario.

5. Conclusion

The above model has attempted to estimate the additional economic benefits of compelling participation in education until the age of 18, on a single cohort of young people. This involved first estimating how many, and what type, of additional qualifications young people will obtain (which they otherwise would not have acquired), and secondly the lifetime benefit of those additional qualifications in terms of higher productivity. The productivity gains were estimated by the higher wages and increased probability of employment earned by individuals who currently have those qualifications.

This estimation involved making a number of assumptions, given that, by definition, we do not have information on how current non-participants perform in post-compulsory education. These assumptions mean that a large degree of uncertainty is attached to the estimated results. Our central estimate of the additional benefits of the RPA policy is £2.4 billion, with a range between the very worst and best case scenarios being £0.3 billion to £5.4 billion. Although these figures represent a wide range, they represent extreme values, which would require a particular combination of adverse or beneficial factors in order to be achieved, and are therefore less likely to be realised than figures that are closer to the central estimate.

The sensitivity analysis showed that the assumptions that had the largest impact on the estimated benefits were that (i) the distribution of additional RPA participants across types of study will be the same as for voluntary participants with the same level of prior attainment, and (ii) that the relative attainment rate of RPA participants will be 57%-66% of voluntary participants. Variation in these assumptions has a large impact on the estimated benefits, and particularly if these assumptions are over-optimistic the estimated benefits will be over-estimated. How likely is this?

With respect to choice of course, we think in the absence of other information, this assumption is quite reasonable, and preferable to alternative assumptions such as all additional RPA participants choosing to study at Level 2. As Tables 2 and 4 showed, significant numbers of RPA participants are already qualified to Level 2 at the completion of Year 11, and it is unreasonable to expect them all to register for another Level 2 course under RPA.

The other assumption regarding the relative attainment of the additional RPA participants is perhaps more contentious. Some might argue that RPA participants will be so disillusioned with education that their attainment will actually be zero. In order to predict whether this is likely, we can look at evidence related to previous changes in the school leaving age.

Chevalier *et al* (2004)[19] consider the raising of the school leaving age to 16 in the UK in 1973, and show that once young people were compelled to continue in education until the age of 16, the attainment rate in CSEs (qualifications

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[19] Chevalier, A., Harmon, C., Walker, I. and Zhu, Y. (2004) 'Does Education Raise Productivity, or Just Reflect It?' *Economic Journal,* Vol. 114, pp. F499-F517.

taken at the age of 16 in this period) increased. Other studies use changes in school leaving ages to identify exogenous variation in the amount of education received, in order to estimate unbiased returns to education. Essentially, such studies are estimating the additional earnings due to the additional compulsory year of schooling. If such estimated returns are significantly positive, this suggests that the individuals' productivity capability has been enhanced by the extra year in school, and so provides support against the argument that none of the compelled participants will attain. Studies such as Harmon and Walker (1995)[20] and Oreopoulos (2006a)[21] for the increase in the school leaving age from 14 to 15 in the UK in 1947, do find significant economic wage returns to this additional year of compulsory schooling, whilst Oreopoulos (2006b)[22] obtains similar findings for Canada.

Finally, Angrist and Krueger (1991)[23] use month of birth combined with compulsory school laws in the US to argue that individuals born at the start of an academic year are older when they begin school, and so can leave with slightly less total time spent in education upon reaching the fixed school leaving age, while others must spend longer in education. Angrist and Krueger show, as usual, that the extra education forced upon some individuals by virtue of their birth date is associated with higher earnings, in support of additional compulsory schooling increasing attainment.

Thus, we would argue that it is unreasonable to assume that none of the additional RPA participants will attain qualifications, and suggest the additional benefits will be positive, in the range presented above. Using the most plausible values for the underpinning assumptions produces a central estimate of the additional economic benefits of RPA in the order of £2.4 billion.

Finally, note that the estimates presented here focus only on the economic benefits of higher productivity, and exclude potential wider benefits from more young people participating post-16, such as improved health, reduced crime, etc. These types of wider benefits could potentially be hugely beneficial to society but their quantification is beyond the scope of the model.

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[20] Harmon, C. and Walker, I. (1995) 'Estimates of the Economic Return to Schooling for the United Kingdom,' *American Economic Review*, Vol. 85, pp.1278-1286.
[21] Oreopoulos, P. (2006) 'Estimating Average and Local Average Treatment Effects of Education when Compulsory Schooling Laws Really Matter,' *American Economic Review,* Vol. 96, pp. 152-175.
[22] Oreopoulos, P. (2006) 'The Compelling Effects of Compulsory Schooling: Evidence from Canada,' *Canadian Journal of Economics*, Vol. 39, pp. 22-52
[23] Angrist, J. and Krueger, A. (1991) 'Does Compulsory School Attendance Affect Schooling and Earnings?' *Quarterly Journal of Economics*, Vol. 106, pp. 979-1014.

Annex A

Summary of Impact of Central Scenario's Assumptions on Estimated Benefits

Assumption	Source	Impact on Estimated Benefits
In the absence of RPA, young people voluntarily participate in-line with the 90% participation aspiration for 17 year olds	Imposed on model from the Green Paper 'Raising Expectations: Staying in Education and Training Post-16'	If, in the absence of RPA, fewer (more) young people participate than projected by the 90% trajectory, RPA will have a greater (smaller) impact on the number of additional participants causing the benefits to be an under (over) estimate.
The additional benefits from RPA participants in part-time provision are sufficiently small-scale such that they can be excluded	According to the DCSF Youth Model the number of additional participants in part-time provision is small and declining beyond 2016/17 (under 10% of all additional participants) so it is feasible to exclude these people	Under-estimate
All young people participate i.e. there are no exemptions or non-compliants	Imposed on model	Over-estimate
The proportions of RPA participants that are male in Group 2, Group 3 and Group 4 correspond to the male proportions within these groups, for the age 19 in 2006 cohort	Imposed on model based on matched administrative analysis	Unknown
All young people participate to the end of Year 13	Imposed on model	To the extent that young people leave on or soon after their eighteenth birthday, the model will be over-estimating the benefits.
RPA participants are distributed across course types in the same proportions as current voluntary participants with the same prior attainment	Imposed on model based on matched administrative analysis	To the extent that those compelled to participate might be under-motivated, they may opt towards the lower level courses for any given level of prior attainment as compared to current voluntary participants. This may cause the benefits to be an over-estimate.
RPA participants in Group 2, Group 3 and Group 4 have the same attainment distribution in Year 11 as those currently in these groups, for the age 19 in 2006 cohort	Imposed on model based on matched administrative analysis	Unknown
There are no productivity benefits associated with the attainment of qualifications below Level 2	Academic evidence generally finds zero wage returns to qualifications at this level, although there are likely to be employment benefits	Under-estimate
RPA participants are less likely to attain by age 18 than current voluntary participants with the same prior	Imposed on model based on YCS analysis	Unknown

attainment, by a factor of around 57-66%		
Young people attain qualifications according to the type of provision they were participating in, in the previous year	Imposed on model	Unknown
Economic benefits only accrue where RPA participants raise their attainment level	Imposed on model	Under-estimate
Young people do not progress to higher qualification levels after the age of 18	Imposed on model	Under-estimate
The group of people taking 'other L2' and 'other L3' qualifications gain benefits equal to 50% of the value of existing academic qualifications and 50% of the value of existing traditional vocational qualifications	Imposed on model	Unknown
Additional attainers due to RPA are not numerous enough to pull down the estimates of the lifetime productivity differentials	Imposed on model based on the fact that additional attainers only constitute a small proportion of the entire cohort	Over-estimate
For any given qualification type, RPA attainers receive only 75% of the productivity differential of voluntary attainers	Imposed on model	Unknown
Benefits only relate to narrow productivity gains – any wider benefits (such as improved health, attitudes, reduced crime) are excluded	Imposed on model	Under-estimate

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