

- Crick, B. R. (1998). *Education for citizenship and the teaching of democracy in schools*. London: Qualifications & Curriculum Authority (QCA).
- Crick, B. R. (2007). Citizenship: The political and the democratic. *British Journal of Educational Studies*, 55(3), 235–248.
- DfE. (2010). *The Importance of Teaching – The Schools White Paper*. Retrieved from <https://www.gov.uk/government/publications/the-importance-of-teaching-the-schools-white-paper>
- DfE. (2013a). *GCSE subject content and assessment objectives*. Retrieved from <https://www.gov.uk/government/consultations/gcse-subject-content-and-assessment-objectives>
- DfE. (2013b). *National Curriculum in England: citizenship programmes of study for key stages 3 and 4*. Retrieved from <https://www.gov.uk/government/publications/national-curriculum-in-england-citizenship-programmes-of-study/national-curriculum-in-england-citizenship-programmes-of-study-for-key-stages-3-and-4>
- Dimitrov, G., & Boyadjieva, P. (2009). Citizenship education as an instrument for strengthening the state's supremacy: An apparent paradox? *Citizenship Studies*, 13(2), 153–169.
- Florida Virtual School. (2014). *MJ Civics End-of-Course Practice Exam*. Retrieved from <http://www.flvs.net/areas/student-services/EOC/Documents/Civics%20Practice%20Test.pdf>
- Good Governance Learning Network (GGLN). (2013). *Active Citizenship matters: Perspectives from civil society on local governance in South Africa*. Cape Town: Harlen, W. (2007). *Assessment of learning*. London: SAGE Publications Ltd.
- Jones, R.L. & Bray, E. (1986) *Assessment: From principles to action*. London: Macmillan Education Ltd.
- Keating, A., Kerr, D., Lopes, J., Featherstone, G., & Benton, T. (2009). *Embedding citizenship education in secondary schools in England (2002–08)*. London: National Foundation for Educational Research.
- Kennedy, K. J. (2007). Student constructions of 'active citizenship': What does participation mean to students? *British Journal of Educational Studies*, 55, 304–324.
- Kerr, D., Smith, A., & Twine, C. (2008). Citizenship education in the UK. In J. Arthur, I. Davies, & C. Hahn, *The SAGE Handbook of Education for Citizenship and Democracy*. (pp.252–262). London: SAGE Publications Ltd.
- Keser, F.A. (2011). The role of extracurricular activities in active citizenship education. *Journal of Curriculum Studies*, 43(6), 809–837.
- Marshall, T. H. (1950). *Citizenship and social class and other essays*. Cambridge: Cambridge University Press.
- Menezes, I. (2003). Participation experiences and civic concepts, attitudes and engagement: implications for citizenship education projects. *European Educational Research Journal*, 2(3), 430–445.
- Ministerial Council for Employment, Education, Training and Youth Affairs (MCEETYA). (2006). *National Assessment Program- Civics and citizenship Years 6 and 10 report*. Canberra: MCEETYA.
- Ministry of Education. (2014). *Character and citizenship education: secondary*. Singapore: Student Development Curriculum Division.
- Morgan, C. (1996). The teacher as examiner: the case of mathematics coursework. *Assessment in Education: Principles, Policy and Practice*, 3(3), 353–375.
- NAEP. (2010). *NAEP questions tool*. Retrieved from <http://nces.ed.gov/nationsreportcard/ITMRLSX/>
- National Assessment Program (NAP). (2010a). *The tests*. Retrieved from <http://www.nap.edu.au/nap-sample-assessments/napsa-the-tests.html>
- Nelson, J., & Kerr, D. (2006). *Active citizenship in INCA countries: Definitions, policies, practices and outcomes*. QCA.
- Nucci, L. P., & Narvaez, D. (2008). *Handbook of Moral and Character Education*. UK: Routledge.
- OCR (2012). *GCSE 2012 Citizenship Studies Specification*. Retrieved from <http://www.ocr.org.uk/Images/82006-specification.pdf>
- Ofqual. (2013). *GCSE reform consultation June 2013*. Retrieved from <http://www.ofqual.gov.uk/files/2013-06-11-gcse-reform-consultation-june-2013.pdf>
- Ofsted. (2013). *Citizenship consolidated? A survey of citizenship in schools between 2009 and 2012*. London: Office for Standards in Education, Children's Services and Skills.
- Orton, M. (2006). Wealth, citizenship and responsibility: The views of "better off" citizens in the UK. *Citizenship Studies*, 10(2), 251–265.
- Quigley, C. B. (1995). *Issues concerning a national assessment of civics*. National Assessment of Educational Progress. Washington DC: Center for Civic Education.
- Richardson, M. (2010). Assessing the assessment of citizenship. *Research Papers in Education*, 24(4), 457–478.

# An investigation into the numbers and characteristics of candidates with incomplete entries at AS/A level

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## Introduction

AS and A levels are the most popular qualifications taken by students between the age of 16 and 18 in England. A levels are usually spaced out over two years and are made up of two types of units: AS units and A2 units. Since 2000, AS units can be supplemented by A2 units to complete a full A level qualification or they can be a qualification in their own right.

The existing AS qualification has allowed students to study a wide range of subjects and in some instances has meant students have taken

subjects at A level in which they were not previously particularly interested and otherwise might not have pursued. Also, the AS levels in their current form are valued by universities and can encourage pupils from disadvantaged backgrounds to continue their studies (Watson, 2013).

Students normally take four subjects at AS level and then continue to study only three at A level. But, how do they decide which subjects to pursue at a higher level and which one to drop?

Sharp (1996) found that students who drop a subject do so for a

number of reasons and it is difficult to judge which ones are the most influential. These reasons include employment-related ones, organisation and content of the course, liking of the teacher, lack of enjoyment, lack of perceived usefulness or considerations of ability and difficulty. A research study by Pinot de Moira (2002) showed evidence that students who dropped subjects from AS level to A level usually had a bad result in the AS part of the examination.

In a survey of over 6500 AS/A level students carried out in 2006, Vidal Rodeiro (2007) found that Modern Foreign Languages were among the most dropped A level subjects, together with General Studies, Further Mathematics and Applied Information & Communications Technology (ICT). These subjects at AS level were probably used to encourage study in a breadth of areas, with the aim of broadening students' educational experience, or to allow students to study a subject in which they had an interest or skill outside of their core A level subjects ('core' meaning those they would like to pursue further, for example in Higher Education). The least dropped subjects were in the Creative Arts and Humanities fields.

In a study investigating the uptake of AS levels from 2007 to 2013, Sutch (2014) found that most students choose AS subjects from a range of subject domains<sup>1</sup> and that only around 14 per cent of students confine all their AS levels to just one. This recent research also showed that Modern Foreign Languages were still among the most dropped subjects (each dropped by around a third of students) together with Critical Thinking, General Studies and Citizenship. Furthermore, the study revealed that dropping rates have been increasing over time, particularly for Mathematics, Further Mathematics and Science subjects, and that they differed considerably by gender and academic ability.

In 2012, proposals for a reform of AS and A level qualifications were published (Gove, 2012). The proposals arose as a result of the concerns outlined in the Government's Education White Paper *The Importance of Teaching* (Department for Education [DfE], 2010) regarding A levels not being a good preparation for undergraduate study. The proposals were: for universities to be involved in the design and development of A levels; to consider whether the division of A levels into AS and A2 should continue; and to consider whether January re-sits should be allowed.

In 2013, the DfE (Gove, 2013) announced that the AS level would be a standalone qualification, at the same level as the A level, rather than as part of an A level. Separating both qualifications means that students will be able, if they want, to take new A levels without also taking an AS in the subject (if students take an A level after doing the AS, they will be reassessed on the material they have already covered). However, concerns have been raised about this move, as without a direct link to the A levels, the new style AS levels may not be as beneficial. For example, the Independent Schools Council warned that the reform of the AS qualification could reduce participation in harder subjects such as Mathematics and Languages (Stewart, 2013). Furthermore, the University of Cambridge has voiced strong criticism of the changes to AS levels, issuing a statement saying that they will "jeopardise over a decade's progress towards fairer access to the University of Cambridge." (BBC News, 2013). Similarly, an Oxford Admissions Tutor, speaking at a Westminster Education Forum seminar, said that "... the decoupling of AS levels from A levels will make students from disadvantaged backgrounds less likely to progress to university".

With the AS and A level qualifications reform in mind, the main aim of this article is to gain an understanding of the numbers and types of students who start but do not complete their AS and A level qualifications. This could help to anticipate changes in the uptake of the new AS levels.

In particular, this research addresses the following questions:

- After attempting some AS/A2 units, how many candidates drop out before achieving an AS or A level qualification?
- How does the performance of candidates who drop out before certificating at AS or A level compare to the performance of those who continue and certificate in the qualifications?
- Which types of students are more likely to drop out from AS to A level?

AS and A level incomplete entries were investigated in the following three subjects: Biology, Psychology and English Literature. Those subjects have been among the first ones to be reformed and new specifications will be in schools for first teaching in September 2015 (Ofqual, 2014).

The next section provides a description of the data and methods used in the research. The outcomes of the analyses are then presented and the final section brings all the results together and draws some conclusions.

## Data and methods

### Data

Details of awards in the Oxford, Cambridge and RSA (OCR) AS and A level qualifications in the two-year period leading to June 2013 were obtained from OCR's examination processing system. This data comprised student details (gender, date of birth and school) and assessment details (units, sessions, unit marks, unit grades, unit predicted grades and overall grades).

The focus was on 'typical' A level candidates who were at the end of Key Stage 5 (KS5) in the academic year 2012/13. Those candidates would have had to certificate for AS and/or A level qualifications in the typical four sessions up to the end of KS5 (January 2012, June 2012, January 2013, June 2013). Note that unit and overall re-sits were removed from the data (where candidates re-sat an examination, only the highest grade was kept).

This research also used data from the 2011 Key Stage 4 (KS4) and the 2013 KS5 extracts of the National Pupil Database (NPD)<sup>2</sup>. Students' characteristics such as previous performance at GCSE, AS subjects studied and type of school attended, were obtained from the NPD extracts and subsequently matched to the OCR data.

For the analyses carried out in this research, schools were classified as independent, selective, state-maintained (academies and comprehensive schools), sixth form colleges and further education (FE) colleges.

It should be noted that the matching between students who sat units in OCR specifications and students in the NPD was attempted using a Unique Pupil Number (UPN) common in both databases. However, in the OCR data there were students who did not have a UPN assigned to them and therefore a match (if indeed it existed) could not be found. This restricted the numbers of students available in some of the analyses.

1. Arts, English, Languages, Science/Mathematics, Social Science/Humanities.

2. The NPD, which is compiled by the Department for Education, is a longitudinal database for all children in schools in England, linking student characteristics to school and college learning aims and attainment. In particular, it holds student and school characteristics such as age, gender, ethnicity, level of deprivation, attendance and exclusions, matched to student level attainment data (Key Stage 2 to Key Stage 5 assessments). Students who start in a school/college are only recorded on the NPD if they enter for a qualification; those who leave school/college after a short time or do not sit examinations are not present in the data.

## Method

The research questions were mainly addressed using descriptive statistical analyses. However, in order to identify the types of students that were most likely to drop out from AS to A level, multilevel logistic regression models were also employed.

Logistic regression is a type of regression analysis that is used when the dependent variable or outcome is a dichotomous variable (i.e., it takes only two values, which usually represent the occurrence or non-occurrence of some event) and the independent variables are continuous, categorical, or both. It is used to model the probability that the event of interest will occur as a function of the independent variables (see, for example, Hosmer & Lemeshow, 2000). A multilevel model was proposed due to the hierarchical (or multilevel) structure of the data. If we failed to recognise this hierarchical structure, then the standard errors of the regression coefficients would be underestimated, leading to an overstatement of the statistical significance. Detailed discussions of the implementation and outcomes of multilevel logistic regression models can be found in Snijders and Bosker (1999) or Goldstein (2011).

For the purpose of the analyses presented in this article, the dependent variable is 'drop out from AS to A level<sup>3</sup>', and the regression models take the following form:

$$\log\left(\frac{p_{ij}}{1-p_{ij}}\right) = \beta_0 + \beta_1 IV1_{ij} + \beta_2 IV2_{ij} + \dots + \beta_l IVl_{ij} + u_j + e_{ij}$$

where  $p_{ij}$  is the probability of student  $i$  in school  $j$  dropping out,  $IV1$  to  $IVl$  are the independent variables,  $\beta_0$  to  $\beta_l$  are the regression coefficients,  $u_j$  is a random variable at the school level and  $e_{ij}$  is an individual level residual. A detailed breakdown of the dependent and independent variables included in the multilevel logistic models is presented in Table 1.

## Results

The OCR AS/A level Biology specifications (H021/H421) are unitised specifications. Each student must take three AS units, normally in the first year of study, to certificate for an AS level and then three A2 units for certification at A level.

Similarly, the OCR AS/A level Psychology specifications (H168/H568) and the OCR AS/A level English Literature specifications (H071/H471) are also unitised. However, in each of these two subjects, a student must take two AS units, normally in the first year of study, to certificate for an AS level and then two A2 units for certification at A level.

Up to June 2013, students were able to take different units in different sessions (January and June). From 2014, both AS units and A2 units are assessed in June only. A brief description of the units is given in Table 2. Further details about these specifications can be found in OCR (2013a; 2013b; 2013c).

Table 3 shows, for each subject, the numbers and percentages of candidates (among 'typical' ones) who sat at least one unit in the sessions from January 2012 to June 2013 and who certificated for an AS/A level qualification or dropped out after attempting some AS or A2 units.

Around half of the candidates certificated for both an AS and an A level qualification in Biology and Psychology, whilst over 40% certificated for

**Table 1: Description of the variables included in the multilevel logistic regression models**

Name	Description	Range of values
<b>Dependent Variable</b>		
Drop out from AS to A level	Indicator of dropping out from AS to A level (having certificated for an AS level)	Discrete variable: 0 did not drop out; 1 dropped out
<b>Independent Variables</b>		
Gender	Gender of the candidate	Discrete variable: male; female
GCSE subject	Indicator of whether the subject was taken at GCSE or not <sup>a</sup>	Discrete variable: 0 did not take the subject; 1 took the subject
Grade in GCSE subject	Grade achieved in the GCSE subject <sup>b</sup>	Discrete variable: A*, A; B or below <sup>c</sup>
Type of school	Type of institution the candidate obtained the AS/A levels in	Discrete variable: state-maintained; independent; sixth form college; selective; FE college
Average GCSE score	Average grade across all GCSE subjects taken	Continuous variable: real values in the range 0 to 8 (inclusive)
AS level grade	Grade achieved in the AS level qualification	Discrete variable: A; B; C; D; E; U
Number of AS subjects	Number of subjects attempted at AS	Continuous variable: its range depends on the subject

- a. For Biology, it will be the type of Science taken at GCSE (Biology versus Additional Science).  
 b. This variable was only included in the models for Biology, as Science is compulsory at GCSE level. Psychology is not compulsory at GCSE and the majority of the students included in the analyses did not obtain a GCSE in it. English Literature, although not compulsory, is usually taken by around 70 per cent of the cohort.  
 c. There is hardly any progression to A level from candidates with grades below C at GCSE (e.g., Sutch, 2013).

**Table 2: Overview of the OCR AS/A level specifications considered in this research**

Subject	Unit	Type of unit	Type of assessment	Weight	Maximum Uniform Mark Scale (UMS)
<b>Biology</b> (H021/H421)	F211	AS	Written paper	30% (AS) - 15% (A)	90
	F212	AS	Written paper	50% (AS) - 25% (A)	150
	F213	AS	Coursework	20% (AS) - 10% (A)	60
	F214	A2	Written paper	15% (A)	90
	F215	A2	Written paper	25% (A)	150
	F216	A2	Coursework	10% (A)	60
<b>Psychology</b> (H168/H568)	G541	AS	Written paper	30% (AS) - 15% (A)	60
	G542	AS	Written paper	70% (AS) - 35% (A)	140
	G543	A2	Written paper	25% (A)	100
	G544	A2	Written paper	25% (A)	100
<b>English Literature</b> (H071/H471)	F661	AS	Written paper	60% (AS) - 30% (A)	120
	F662	AS	Coursework	40% (AS) - 20% (A)	80
	F663	A2	Written paper	30% (A)	120
	F664	A2	Coursework	20% (A)	80

an AS level only. Less than 1% of the candidates obtained an AS level and attempted some A2 units but dropped the subject before achieving the full A level. In English Literature, over 60% of the candidates certificated for both an AS and an A level qualification, whilst just under 27%

3. Having certificated for an AS level.

**Table 3: Candidates with at least one unit in the period of study, by type of qualification obtained**

Units/Qualifications	Biology		Psychology		English Literature	
	Number of candidates	%	Number of candidates	%	Number of candidates	%
AS units only	1,826	5.49	633	3.85	233	1.69
AS qualification only	13,370	40.23	7,544	45.89	3,705	26.95
AS qualification + A2 units	259	0.78	121	0.74	8	0.06
AS and A level qualifications	16,435	49.45	7,868	47.86	8,524	62.00
Not AS but A level	1,343	4.04	272	1.65	1,279	9.30
<b>Total</b>	<b>33,233</b>		<b>16,438</b>		<b>13,749</b>	

certificated for an AS level only. Only eight candidates obtained an AS level and attempted some A2 units but dropped the subject before achieving the full A level. Finally, around 6% of the candidates in Biology, 4% in Psychology and 2% in English Literature did not achieve any qualification and dropped out after attempting at least one AS unit.

Table 3 also shows that there were some candidates (approximately 4% in Biology, 2% in Psychology and 9% in English Literature) who had an A level result but not an AS result. Some of these candidates might have aggregated for the AS level prior to January 2012 and some of them might have aggregated towards an A level only (although they might have had enough units to certificate for an AS level as well). It should be noted that to obtain an A level, candidates do not need to have been entered for the AS level first (OCR, 2013d).

In Biology, more than half of the students who dropped out before achieving the AS qualification attempted only one unit (60%). However, there was a reasonably large percentage of candidates (35%) who attempted three units, enough for AS certification, but decided not to aggregate. The average Uniform Mark Scale (UMS) percentage in the AS units for these candidates was 49%, which would have led to a grade E at AS<sup>4</sup>. Similarly, over 80% of the candidates who certificated for the AS level in Biology, but did not achieve an A level in the subject, only attempted one A2 unit and just over 8% attempted either two or three units.

A similar pattern emerged in Psychology, where the majority of the candidates who dropped out before achieving the AS qualification attempted only one unit (82%). As above, there was also a reasonable percentage of candidates (18%) who attempted two units, enough for AS certification, but decided not to aggregate. The average UMS percentage in the AS units for these candidates was 44%, which would have led, again, to a grade E at AS. Similarly, only two candidates who certificated for an AS level in Psychology but did not achieve an A level in the subject attempted two A2 units; the remaining 119 candidates attempted just one A2 unit.

Surprisingly, and contrary to the patterns for Biology and Psychology, the majority of the candidates who dropped out before achieving the AS level qualification in English Literature attempted two units (85%),

4. By inter-awarding body agreement, the uniform mark grade boundaries in AS/A level qualifications are always at the following percentages of the maximum uniform mark for the unit or qualification: A – 80%; B – 70%; C – 60%; D – 50%; E – 40%. For more details on the Uniform Mark Scale see, for example, AQA (2013).

enough for AS certification, but decided not to aggregate. The average UMS percentage in the AS units for these candidates was 67%, which would have led to a grade C at AS. Regarding the number of A2 units attempted by candidates who certificated for an AS level in English Literature but did not achieve an A level in the subject, three out of the eight candidates in this group attempted two A2 units; the other five candidates attempted just one A2 unit.

Tables 4 and 5 present the performance (in AS and A2 units, respectively) of candidates who dropped out before certificating at AS or A level and compare that to the performance of those who continued and certificated in the qualifications.

These tables show that the average unit performance, in terms of the UMS percentage achieved, increased with the increasing level of the qualification.

**Table 4: Average UMS percentage in AS units, by type of qualification obtained**

Units/Qualifications	Biology		Psychology		English Literature	
	Average UMS %	Standard Deviation	Average UMS %	Standard Deviation	Average UMS %	Standard Deviation
AS units only	37.08	19.55	38.80	17.36	65.04	16.62
AS qualification only	50.77	16.46	48.23	18.12	63.70	15.08
AS qualification + A2 units	55.60	12.98	52.24	14.96	68.67	9.98
AS and A level qualifications	74.22	11.56	70.64	11.39	75.43	11.94
Not AS but A level	79.34	11.4	74.23	12.35	79.60	11.55

**Table 5: Average UMS percentage in A2 units, by type of qualification obtained**

Units/Qualifications	Biology		Psychology		English Literature	
	Average UMS %	Standard Deviation	Average UMS %	Standard Deviation	Average UMS %	Standard Deviation
AS qualification + A2 units	33.19	16.92	39.42	17.51	55.36	21.38
AS and A level qualifications	67.17	15.90	64.41	15.63	73.12	13.88
Not AS but A level	72.93	15.93	66.26	15.88	77.00	13.74

In the AS units (Table 4), the worst performance in Biology and Psychology was among the candidates who dropped out before certificating for an AS level. Surprisingly, in English Literature the performance of the candidates who did not certificate for the AS level, was slightly better on average than the performance of those who did. In all three subjects the best performance was among those who achieved an A level (last two rows of Table 4). The performance of those who certificated for an AS level and attempted some A2 units was somewhere in between.

Similarly, in the A2 units (Table 5), average unit performance was better among those candidates who certificated for the A level than among those who only attempted some units and did not aggregate to

**Table 6: Percentages of candidates whose performance was worse than predicted (forecast/estimated grades) in the AS level qualification, by type of qualification obtained**

Units/Qualifications	Biology		Psychology		English Literature	
	Number of candidates	% performing lower than forecast	Number of candidates	% performing lower than forecast	Number of candidates	% performing lower than forecast
AS qualification only	13,370	59.68	7,544	61.97	3,705	36.90
AS and A level qualifications	16,435	31.14	7,868	36.34	8,524	23.17
<b>Difference</b>		<b>-28.54</b>		<b>-25.63</b>		<b>-13.73</b>

achieve the full qualification. This pattern was consistent in all three subjects.

It is worth noting that in both AS and A2 units, candidates who did not certificate for an AS level but achieved an A level had the best average performance.

Table 6, which compares the actual and the forecast AS level grade<sup>5</sup> for the candidates who certificated for the AS only and those who also achieved an A level, shows that the percentages of candidates performing worse than predicted were significantly lower among candidates who continued to study the subject and achieved a full A level. This table also shows that in English Literature, the percentage of candidates with an AS only who performed worse than predicted was much lower than in Biology and Psychology.

In Biology and Psychology, a comparison between the performance in the AS subject and the performance in other attempted AS subjects

showed that, for over 70% of the students (75% in Biology and 71% in Psychology) who dropped it at AS level, this subject was the one in which they achieved the lowest grade. On the contrary, the comparison between the performance in AS English Literature and the performance in other attempted AS subjects pointed out that students taking English Literature might not be dropping the subject in which they are performing worst. In fact, for more than half of the students who dropped English Literature at AS level, this was not the subject where they achieved their lowest grade.

As discussed earlier, multilevel logistic regression analyses were carried out to investigate which types of students were more likely to drop out from AS to A level. Table 7 shows the results of the regression analysis for Biology, Psychology and English Literature. The statistically significant predictors (highlighted in bold in the table) are discussed in the next section.

**Table 7: Multilevel logistic regression outcomes, probability of dropping out from AS to A level**

Effect		Biology		Psychology		English Literature	
		Estimate (SE) <sup>a</sup>	Odds ratio	Estimate (SE)	Odds ratio	Estimate (SE)	Odds ratio
Intercept		<b>-1.02 (0.45)</b>	0.36	<b>-0.83 (0.54)</b>	0.44	<b>-1.53 (0.73)</b>	0.22
Gender	Male [Female]	<b>0.15 (0.05)</b>	1.16	<b>0.19 (0.08)</b>	1.21	<b>0.21 (0.09)</b>	1.23
GCSE Science subject	Biology [Additional Science]	<b>-0.26 (0.05)</b>	0.77	-	-	-	-
Subject at GCSE	No [Yes]	-	-	<b>0.55 (0.22)</b>	1.74	-0.05 (0.30)	0.96
Grade in GCSE Science subject	A B or below [A*]	0.05 (0.07)	1.05	-	-	-	-
		<b>0.29 (0.09)</b>	1.33	-	-	-	-
Average GCSE score		<b>0.58 (0.06)</b>	1.78	<b>0.57 (0.07)</b>	1.77	<b>0.62 (0.07)</b>	1.87
Type of schools	State-maintained	0.07 (0.15)	1.07	-0.36 (0.31)	0.70	0.04 (0.21)	1.04
	Independent	<b>1.07 (0.21)</b>	2.90	0.48 (0.42)	1.62	0.37 (0.28)	1.44
	FE college	-0.33 (0.54)	0.72	-0.93 (1.26)	0.40	-	-
	Sixth form college [Selective]	<b>0.70 (0.30)</b>	2.01	0.68 (0.51)	1.97	0.14 (0.53)	1.16
AS level grade	A	<b>-7.74 (0.21)</b>	0.14	<b>-6.49 (0.25)</b>	0.31	<b>-7.06 (0.57)</b>	0.14
	B	<b>-6.61 (0.19)</b>	0.45	<b>-6.05 (0.23)</b>	0.47	<b>-5.89 (0.56)</b>	0.45
	C	<b>-5.81 (0.18)</b>	-	<b>-5.31 (0.21)</b>	-	<b>-5.09 (0.55)</b>	-
	D	<b>-4.95 (0.18)</b>	2.36	<b>-4.63 (0.20)</b>	1.98	<b>-4.09 (0.55)</b>	2.70
	E	<b>-3.63 (0.18)</b>	8.85	<b>-3.18 (0.19)</b>	8.36	<b>-2.90 (0.56)</b>	8.94
	[U]		334.49		201.68		162.15
Number of AS subjects		<b>0.38 (0.03)</b>	1.46	<b>0.25 (0.05)</b>	1.28	<b>0.36 (0.05)</b>	1.43

a. Standard Error. Notes: Estimates that are statistically significant at the 5% level are highlighted in bold. To aid interpretation, Odds ratios for AS level grade are given relative to grade C rather than to grade U.

5. The forecast grades submitted by the centres prior to the examinations taking place were used as the measure of predicted performance. More information about estimated/forecast grades can be found in OCR (2013d).

#### Gender:

In all three subjects, the gender of the student was significantly associated with the probability of dropping out from AS to A level, once the other student and school characteristics were accounted for. In particular, males were more likely to drop out than females.

#### GCSE subject:

In Biology, the Science subject studied at GCSE (Biology versus Additional Science) was a significant predictor of dropping out from AS to A level. In particular, against the baseline of Additional Science, candidates with GCSE Biology were less likely to drop out. In Psychology, having studied the subject at GCSE was a significant predictor of dropping out from AS to A level. In particular, those candidates who did not study for a GCSE in the subject were more likely to drop out from AS level to A level in Psychology than those with the GCSE. However, having studied for a GCSE in English Literature did not display a statistically significant association with continuing to study the subject from AS to A level.

#### Grade in GCSE Science subject:

The performance in Science GCSE (either Biology or Additional Science) was a significant predictor of dropping out from AS to A level. In particular, against the baseline of students who achieved a grade A\*, those who achieved a grade B or below were more likely to drop out. However, students who achieved a grade A were not significantly more or less likely to drop out than students who achieved a grade A\*.

#### Average GCSE score:

For the three subjects considered in the analyses, students with higher average GCSE scores were more likely to drop from AS to A level than students with lower average scores. This could suggest that pupils with higher prior attainment will tend to require higher grades at AS level in order to consider continuing with a subject to be worthwhile. An alternative explanation of this finding could be that students with good grades at GCSE might have taken the AS subject with the aim to broaden their curriculum but they did not consider the subject one of their core A levels.

#### Type of school:

In Biology, against the baseline of selective schools, candidates in independent schools and candidates in sixth form colleges were more likely to drop out from AS to A level, once the other student and school characteristics were accounted for. However, candidates in state-maintained schools or in FE colleges were not significantly more or less likely to drop out than candidates in selective schools. In Psychology and English Literature, the type of school did not display a statistically significant association with continuing to study the subjects from AS to A level.

#### Number of AS subjects:

In Biology, Psychology and English Literature, the number of AS subjects attempted by a student was a significant predictor of dropping out the subject from AS to A level. In particular, the higher the number of AS subjects, the higher the probability of dropping out.

#### AS level grade:

As expected, the performance at AS level was a significant predictor of dropping out from AS to A level. In particular, the lower the AS grade, the higher the probability of dropping out. This pattern was consistent in the three subjects. As an example, Figure 1 shows how the grade at AS changes the probability of dropping Biology from AS to A level for a girl in a state-maintained school, who achieved a grade A in GCSE Biology and had an average GCSE attainment of 6.5 (around average in this sample).

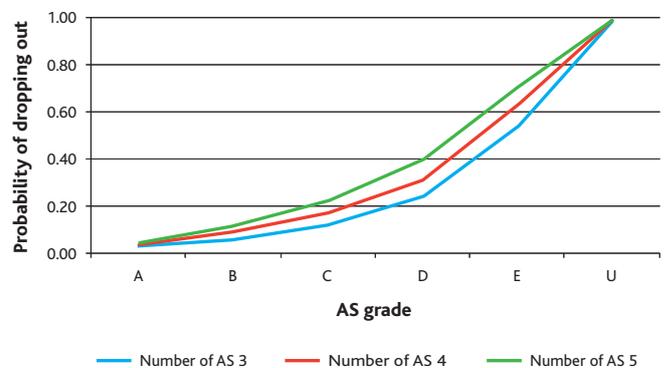


Figure 1: Effect of the AS level grade on the probability of dropping Biology from AS to A level

## Summary of results and conclusions

Until now, students in England have been able to study the AS level as either a standalone qualification or as the first half of an A level. At the end of the AS year (usually Year 12), students had two options: take an AS level only and gain a recognised qualification; or continue for a second year studying the A2 units and go for the full A level.

The main aim of this research was to gain a better understanding of the numbers and types of students who decide not to continue their studies once they had started either an AS or an A level qualification. The focus was on typical AS/A level students who were at the end of KS5 (Year 13) in 2012/13 and had taken at least one AS/A level unit in the following three subjects: Biology, Psychology and English Literature.

Regarding the numbers of candidates dropping out and their performance in the AS/A2 units attempted, the analyses carried out in this article showed that:

- In all three subjects, the majority of the candidates who sat at least one unit certificated in both AS and A level. The percentage of students with both qualifications was highest in English Literature and lowest in Psychology.
- There were reasonably large percentages of candidates who had enough units for AS certification but decided not to aggregate. In most cases, aggregation would have led to a grade E or below. The exception was English Literature, where candidates who did not aggregate would have achieved, on average, a grade C.
- In the AS units, the worst performance was, in general, among those candidates who dropped out before certificating for an AS level and the best performance was among those who achieved an A level.
- In the A2 units, average unit performance was better among those candidates who certificated than among those who did not aggregate to achieve the full A level qualification.

- The percentages of candidates achieving a worse AS level grade than predicted were significantly lower among candidates who continued to study the subject and achieved a full A level than among those who dropped the subject at AS.
- In Biology and Psychology students who dropped the subject at AS level might have done so because the subject was the one in which they achieved their lowest grades. For example, for almost 75% and 71% of the students who dropped Biology and Psychology respectively, the subject was the one in which they performed the worst at AS level. However, for more than half of the students who dropped English Literature at AS level, this was not the subject where they achieved their lowest grade.

Regarding the types of students who were more likely to drop out from AS to A level, the analyses carried out in this article showed that:

- In all three subjects, boys were more likely to drop out from AS to A level than girls, once student and schools characteristics were accounted for.
- In Biology, the Science subject studied at GCSE was a significant predictor of dropping out from AS to A level. In particular, candidates who had studied a GCSE in Biology were less likely to drop out than those who had studied the GCSE in Additional Science. Furthermore, the lower the GCSE grade, the higher the probability of dropping out.
- In Psychology, the candidates who had not studied for a GCSE in the subject were more likely to drop out at AS level than those with the GCSE.
- There was no association between the type of school where the AS/A level was being studied and the likelihood of dropping out in Psychology and English Literature. However, in Biology, candidates in independent schools and in sixth form colleges were more likely to drop out from AS to A level than candidates in selective schools.
- As expected, performance at AS level was a significant predictor of dropping out from AS to A level in all three subjects. In particular, the lower the grade at AS, the higher the probability of dropping out.

Similarly, the number of AS subjects attempted by the student was a significant predictor of dropping the subjects investigated in this study (Biology, Psychology and English Literature). In particular, the higher the number of AS subjects attempted, the higher the probability of dropping out.

In conclusion, and supporting previous research (e.g., Pinot de Moira, 2002), the results presented in this article suggest that students who dropped subjects from AS level to A level usually had a worse result for the AS part of the examination than students who continue to achieve the full A level qualification.

However, the outcomes of this work showed that an influential reason to continue to study a subject to the full A level could be the students' early interest in it (e.g., at GCSE). This research has shown, in fact, that having studied the subject at GCSE increased the likelihood of studying for a full A level rather than for just an AS level only.

Finally, it should be noted that for some Higher Education courses A level qualifications in certain subjects are required (e.g., A level Chemistry is usually a requirement to study Medicine; A level Mathematics is a requirement for Mathematics, Engineering and Physics degrees). Therefore, some subjects might be less likely to be dropped than others independently, for example, of the students' performance or enjoyment.

## References

- AQA (2013). *Guide to the Uniform Mark Scale (UMS)*. Manchester: AQA Education.
- BBC News (2013, January 23). A-level plans challenged by school and university heads. *BBC News – Education & Family*. Retrieved from <http://www.bbc.co.uk/news/education-21156370>
- Department for Education (2010). *The Importance of Teaching: The Schools White Paper 2010*. London: DfE. Retrieved from <https://www.gov.uk/government/publications/the-importance-of-teaching-the-schools-white-paper-2010>
- Goldstein, H. (2011). *Multilevel Statistical Models (4th edition)*. Chichester: John Wiley & Sons.
- Gove, M. (2012). *Reform of GCE A levels*. Letter to Stacey, G. [30th March 2012]. Retrieved from: <http://www2.ofqual.gov.uk/files/2012-03-31-michael-gove-letter-to-glenys-stacey.pdf>
- Gove, M. (2013). *Reform of GCE A levels*. Letter to Stacey, G. [22nd January 2013]. Retrieved from: <http://www.ofqual.gov.uk/files/24-01-2013-ofqual-letter-reform-of-gcse-a-levels.pdf>
- Hosmer, D.W. & Lemeshow, S. (2000). *Applied Logistic Regression*. Chichester: Wiley.
- Ofqual (2014). *An update on the reforms being made to AS qualifications and A levels*. Coventry: The Office of Qualifications and Examinations Regulation.
- OCR (2013a). *OCR AS/A Level GCE Biology H021/H421. Specification Version 4*. Cambridge: Oxford, Cambridge and RSA.
- OCR (2013b). *OCR AS/A Level GCE English Literature H071/H471. Specification Version 4*. Cambridge: Oxford, Cambridge and RSA.
- OCR (2013c). *OCR AS/A Level GCE Psychology H168/H568*. Cambridge: Oxford, Cambridge and RSA.
- OCR (2013d). *Admin Guide and Entry codes: 14–19 qualifications 2013/14*. Cambridge: Oxford, Cambridge and RSA.
- Pinot de Moira, A. (2002). *Preliminary Analysis of the Summer 2002 A Level Results (Internal AQA paper RC/188)*. Guildford: AQA.
- Sharp, C. (1996). *Review of Qualifications for 16–19 Year Olds: completion of A level and GNVQ Courses: a Literature Review*. Slough: NFER.
- Snijders, T. & Bosker, R. (1999). *Multilevel Analysis. An introduction to basic and advance multilevel modeling*. London: SAGE Publications Ltd.
- Stewart, W. (2013, January 25). Clash of qualifications will result in 'big mess'. *TES Magazine*. Retrieved from <https://www.tes.co.uk/article.aspx?storycode=6317702>
- Sutch, T. (2013). Progression from GCSE to AS and A level, 2010. *Statistics Report Series No. 69*. Cambridge: Cambridge Assessment.
- Sutch, T. (2014). Uptake of GCE AS level subjects 2007–2013. *Statistics Report Series No. 75*. Cambridge: Cambridge Assessment.
- Vidal Rodeiro, C.L. (2007). *A level subject choice in England: patterns of uptake and factors affecting subject preferences*. Internal Report. Cambridge: Cambridge Assessment.
- Watson, L. (2013, February 2). Britain's top universities attack Government plan to hive off AS levels as a standalone qualification. *Daily Mail Online*. Retrieved from [http://www.dailymail.co.uk/home/sitemaparchive/day\\_20130202.html](http://www.dailymail.co.uk/home/sitemaparchive/day_20130202.html)