PREDICTING GCSE OUTCOMES BASED ON CANDIDATES' PRIOR ACHIEVED KEY STAGE 2 RESULTS

SUMMARY

AQA's practice of generating GCSE predictions based on candidates' prior Key Stage 3 (KS3) performance has proved very useful in many awarding meetings. For example, cases where there has been a substantial movement of candidates within centres (eg. MFL specifications where weaker candidates have gradually dropped out over the years), the facility to focus at candidate-level has enabled AQA to provide valuable statistical advice to the awarding process. However, following the scrapping of KS3 tests, an alternative model is required. Initial research into models using *centre-level* GCSE prior performance data as a predictor of current GCSE outcomes showed that although these models were partially successful they suffered from not being able to focus on candidate-level performance and that a *candidate-based* predictive model is preferable. This paper investigates the use of candidates' Key Stage 2 (KS2) results to predict GCSE outcomes using data from a wide range of AQA GCSE examinations accounting for approximately 85% of AQA's total GCSE entry. KS2-based predictions are compared against those based on candidates' aggregated concurrent GCSE performance. The assumption is that concurrent GCSE performance is the best available predictor of GCSE outcomes in specific subjects and thus provides a benchmark against which to measure the accuracy of a KS2-based model.

The paper presents two KS2-based models – one based on candidates' average test levels and the other based on candidates' test marks. These provide very similar results although the model based on test marks is preferred as it provides greater discrimination than test levels, and allows for a more refined method for controlling for year-on-year changes to the overall national KS2 performance profile.

One advantage that a KS2-based model has over KS3 is the general increase in the numbers of GCSE candidates who can be matched with their prior Key Stage performance. Although Independent centres are not required to enter candidates for Key Stage tests (and are therefore excluded from KS3-based predictions), KS2 test are taken at age 11 and many of the Independent candidates will have been at different, non-Independent primary schools and can therefore be matched with their KS2 results. However, the paper demonstrates that there is a positive centre type value-added effect on the GCSE results for candidates from this type of centre which is not accounted for by prior KS2 performance. Indeed, for candidates from both the Independent and Selective sectors, the KS2-model substantially under-predicts compared with the concurrent GCSE-based model. This should not be a concern if the year-on-year centre type entry pattern remains the same, however, changes in the entry patterns will impact on the accuracy of the predictions. The paper presents an analysis of how sensitive KS2-based predictions are to changes in centre-type entry patterns. The effect is most pronounced at grade A, which is perhaps to be expected given the calibre of the candidates. However, broadly speaking, fairly large changes in centre type entry patterns are required if they are to have an adverse effect on the accuracy of the predictions. Also, in those instances where there are relatively large year-on-year changes in the centre-

type entry patterns, these centre-type effects can be countered by simply excluding Independent/Selective candidates from the predictions. This will result in some reduction in the numbers of candidates but will give a more stable prediction.

With regard to the KS2 mark-based model, for the 168 grade boundary predictions analysed in this paper (forty-two subjects and four grade boundaries A*, A, C and F), in 149 cases (88.7%) the KS2-based prediction is within +/-1% of that based on concurrent GCSE performance. As is perhaps to be expected, the greatest deviations from the concurrent GCSE-based predictions are at grade C where twelve of the forty-two subjects fail to meet the +/-1% criterion although nine of these are within +/-2% - the remaining three subjects which failed at +/-2% being Applied GCSE Business, Business Studies A and Health & Social Care. Overall, therefore, these results can be considered highly encouraging. Clearly, there will be specifications where KS2-based predictions are not as accurate but this applies with any predictive model. The paper concludes that KS2-based prior achievement data should be used in providing predicted GCSE awarding outcomes, the preferred model being that based on KS2 test *marks* as opposed to KS2 test *levels*.

PREDICTING GCSE OUTCOMES BASED ON CANDIDATES' PRIOR ACHIEVED KEY STAGE 2 RESULTS

1. INTRODUCTION

For a number of years AQA has been using candidates' prior Key Stage 3 (KS3) performance as a predictor for GCSE and Applied GCSE outcomes in selected subjects. KS3-based predictions were also used extensively in the June 2009 examination series by all awarding bodies for predicting and comparing GCSE science outcomes. The method (see Eason, 2006 for a detailed description) uses the GCSE outcome for a reference year (usually the previous year) as a starting point and adjusts this to arrive at a prediction for the current year based on changes in the candidates' prior KS3 performance profiles between the two years. The use of prior performance as a predictor of current examination outcomes has been investigated extensively (see Pinot de Moira, 2008). Although the basic model is not without limitations, the research shows that similar limitations would be present in any alternative models and that predictions based on prior performance are preferable to using raw reference year outcome data as a guide to expected outcomes for the current year.

However, following the scrapping of KS3 tests, an alternative measure of prior performance is required if predictive models are to be maintained. Initial research into models using centre-level GCSE prior performance data as a predictor of current GCSE outcomes showed that although these models were partially successful they suffered from not being able to focus on candidate-level performance (Eason, 2009). Clearly, a candidate-based predictive model is preferable and this paper investigates the use of candidates' Key Stage 2 (KS2) results to predict GCSE outcomes. Using data from AQA GCSE examinations in 2008 and 2009 (the reference and current years respectively) this paper compares KS2-based predictions against those based on candidates' aggregated concurrent GCSE performance. The assumption is that concurrent GCSE performance is the best available predictor of GCSE outcomes in specific subjects and thus provides a benchmark against which to measure the accuracy of KS2-based predictions (clearly, concurrent GCSE performance can only be used retrospectively as at the time of awarding meetings candidates' concurrent GCSE performance is not known). The models are presented in Section 2 of this paper and their results analysed in Section 3. The KS2-based model presented is based on candidates' average KS2 test levels achieved, however, given the discrete nature of the distribution of candidates' average levels and the potential effect this might have on predicted GCSE outcomes, an alternative KS2 model based on candidates' test marks is also investigated. This model is presented separately in Section 4 of this paper.

One advantage of KS2 over KS3 is a general increase in the numbers of GCSE candidates who can be matched with their prior Key Stage performance. Independent centres are not required to enter candidates for Key Stage tests and using KS3-based predictions for GCSE means that 16 year-old candidates from many Independent centres are excluded because their candidates did not sit the Key Stage 3 tests two years previously (when they were aged 14). However, many of the 16 year-old GCSE candidates in Independent centres were probably in different, non-Independent primary schools when they sat their Key Stage 2 tests at age 11. Although this leads to improved match rates, there is a marked centre type value-added effect whereby the KS2-based method for Independent centres under-predicts GCSE outcomes when compared with the concurrent GCSE-based method. This effect is explored in more detail in Section 3 of this paper.

To evaluate the models as fully as possible, predictions for 2009 were generated for a wide range of AQA GCSE specifications as follows:

1	Additional Science (4463)	22	German B (4662)
2	Applied Art and Design (3811)	23	Health & Social Care (3821)
3	Applied Business (3831)	24	History A (3041)
4	Biology (4411)	25	History B (3042)
5	Business & Comm. Studies (3126)	26	Info. & Comm. Tech. A (3521)
6	Business Studies A (3132)	27	Italian (3631)
7	Chemistry (4421)	28	Mathematics A (4306)
8	D&T: Food (3542)	29	Mathematics B (4307)
9	D&T: Res. Materials Tech. (3545)	30	Media Studies (3571)
10	Drama (3241)	31	Music (3271)
11	English A (3702)	32	Physical Education A (3581)
12	English B (3701)	33	Physics (4451)
13	English Literature A (3712)	34	Psychology (3181)
14	English Literature B (3711)	35	Religious Studies A (4061)
15	Expressive Arts (3261)	36	Religious Studies B (3062)
16	French A (3651)	37	Science A (4461)
17	French B (4652)	38	Science B (4462)
18	General Studies (3761)	39	Sociology (3192)
19	Geography A (3031)	40	Spanish A (3691)
20	Geography B (3032)	41	Spanish B (4692)
21	German A (3661)	42	Urdu (3646)

The above specifications account for approximately 85% of the total AQA GCSE full course and Applied GCSE entry in June 2009.

2. MODELS

Both of the models presented in this Section and all subsequent analyses are for 16 year-old GCSE candidates only, these being the 'target' cohort for GCSE. Candidates aged 15 and under or 17 and over are excluded

2.1 KS2-based predictions (based on candidates' average test levels)

The method is similar to that used for KS3-based predictions but has to be tailored slightly to account for the extremely discrete nature of the distribution of candidates' average KS2 test levels. Predictions are only generated for candidates who have valid KS2 test levels in all three subjects (English, Mathematics and Science). The relationship between average KS2 test level and achieved GCSE grade distribution for 16 year old candidates in 2008, for a given subject, is used as a basis for providing a prediction of the expected 2009 GCSE grade distribution for 16 year-old candidates in the same subject. The general predictive model is described in Figure 1 below.

Figure 1   Prediction of GCSE Outcomes on the Basis of Average KS2 Test Levels

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┌─────────────────────────┐                      ┌─────────────────────────┐
│  Mean KS2 test level     │ ─ ─ ─ ─ ─ ─ ─ ─ ─ ► │  Actual 2008 GCSE        │
│  (based on KS2 tests     │                      │  outcomes                │
│  completed in 2003)      │                      │  (16 year old candidates)│
└─────────────────────────┘                      └─────────────────────────┘

┌─────────────────────────┐                      ┌─────────────────────────┐
│  Mean KS2 test level     │ ─ ─ ─ ─ ─ ─ ─ ─ ─ ► │  Predicted 2009 GCSE     │
│  (based on KS2 tests     │                      │  outcomes                │
│  completed in 2004)      │                      │  (16 year old candidates)│
└─────────────────────────┘                      └─────────────────────────┘
```
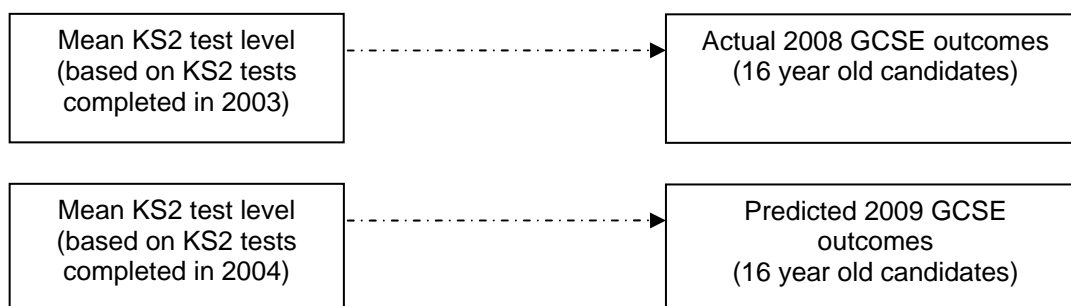
The distributions of average KS2 test levels in 2003 and 2004 are given in Table 1 below. For the average KS2 categories 8 to 2 the actual cumulative percentages of pupils cannot be sub-divided more finely. For example, in 2003 the change from category 8 to 7 (from 16.81% to 31.96%) is achieved by 15.15% of candidates achieving an average KS2 test level of 4.667. Therefore, the average KS2 cut-offs are essentially pre-determined to be every one-third of a level.

Table 1   Distributions of Pupils' Average KS2 Test Levels for 2003 and 2004

Average KS2 Category	Average KS2 Cut-Off	Cum. % of Pupils	
		2003	**2004**
8	>= 4.668	16.81	17.61
7	>= 4.334	31.96	33.29
6	>= 4.001	47.75	49.34
5	>= 3.668	69.08	70.33
4	>= 3.334	81.17	81.64
3	>= 3.001	88.12	88.21
2	>= 2.668	91.96	91.92
1	>= 0.000	100.00	100.00
Total		617087	596577

A detailed description of the process for predicting the expected outcome for a GCSE in 2009 is given below:

a)   The 16 year-old candidates entered for the GCSE subject of interest in 2008 are matched with their average KS2 test levels from 2003 *(only candidates who have completed all three KS2 tests are included).*

b)   Based on their average KS2 test levels, the candidates in a) are assigned to one of the eight KS2 categories shown in Table 1 above.

c)   For each of the eight KS2 categories in step b), the 2008 achieved GCSE grade distribution for the subject of interest is generated for the 16 year-old candidates in that category who have been matched with their KS2 levels. Thus, there are eight distributions of GCSE grades, one for each sub-population of candidates. It is these grade distributions which form the basis of the expected GCSE grade distribution for 2009.

d)   The 16 year-old candidates entered for the GCSE subject of interest in 2009 are matched with their average KS2 test levels from 2004 *(again, just those candidates who have completed all three KS2 tests are included).*

e)   The candidates in d) are assigned to one of the same eight distinct categories as in step b) using the same average KS2 cut-off points. For each category it is assumed that the 2009 GCSE grade distribution will be the same as that achieved by the 2008 GCSE candidates.

f)   An overall expected grade distribution is then calculated for 2009 by weighting the category-by-category expected GCSE grade distributions by the numbers of candidates in each KS2 category.

Table 1 shows that between 2003 and 2004 the distribution of pupils' average KS2 test levels improved. Indeed, there were similar year-on-year improvements up to 2007. Even if these improvements do reflect changes in the ability of candidates, rather than KS2 inflation, it is debatable whether we would expect all this improvement to be passed onto GCSE, and if left unchecked these increases in KS2 performance will result in similarly improved predicted GCSE outcomes. Thus, following Step f) there is one final amendment to the predicted GCSE grade distribution which attempts to counter the effect of improved KS2 performance. Essentially, for the specific GCSE in question, 2008 and 2009 outcomes are predicted for **all pupils** who sat KS2 tests in 2003 and 2004 respectively. That is, using the eight distinct distributions of GCSE grades in step c) above, overall predicted outcomes for all 617087 KS2 pupils in 2003 and all 596577 KS2 pupils in 2004 are generated. As these two predictions are for the entire national KS2 cohort then the expectation is that they should be the same – any increase between the two years is due to the overall improved KS2 performance profile. Thus, at each grade the prediction in step f) above is adjusted by the difference between these two 'all pupils' predictions, resulting in a final 'inflation-proofed' KS2-based prediction.

2.2   Concurrent GCSE-based predictions

This method is very similar to that described in Section 2.1 except that, instead of prior achievement from 2003 and 2004, candidates' concurrent GCSE performance profiles for 2008 and 2009 are used instead. Also, unlike KS2 where candidates only have results in three subjects, a candidate's average GCSE performance is typically based on more subjects and the distribution of average concurrent GCSE grades is much less discrete allowing for ten average GCSE grade categories to be defined (as opposed to the eight KS2 categories). Indeed, the average GCSE grade cut-offs used in this paper are the same as those used for the STAG statistical screening for 2008 (where just those candidates who have completed GCSEs in three or more subjects are included and average grades are calculated such that: $A^* = 8$, $A = 7$, $B = 6$, …, $U = 0$). The average GCSE grade cut-offs for each category are:

Category 10	>= 6.925	Category 5	>= 4.750
Category 9	>= 6.340	Category 4	>= 4.330
Category 8	>= 5.900	Category 3	>= 3.770
Category 7	>= 5.500	Category 2	>= 3.000
Category 6	>= 5.120	Category 1	>= 0.000

In addition, to counter potential GCSE grade inflation between 2008 and 2009, a similar method is employed as described with respect to KS2 in Section 2.1. For each GCSE subject, additional predictions for 2008 and 2009 are generated where it is assumed that the entire national cohort of 16 year-old GCSE candidates in each year are taking the subject in question. Any differences in these two predictions are deemed to be due to GCSE grade inflation and the actual subject-level prediction is adjusted accordingly.

3. ANALYSIS

3.1 KS2-based versus concurrent GCSE-based predictions

In comparing the two models the analysis is based on just those candidates who could be matched with both their KS2 results and their concurrent GCSE results, thus ensuring a like-with-like comparison. Appendix A presents the differences in predictions, for each specification, between the two models, for grades A*, A, C and F. Table 2 below summarises the numbers of cases where the KS2-based prediction is within +/-1% and +/-2% of the concurrent GCSE-based prediction.

**Table 2   Instances Where the KS2-Based Prediction is Within +/-1% and +/-2%
              of the Concurrent GCSE-Based Prediction**
              (Total of 42 Subjects)

		Grade Boundary			
		A*	A	C	F
+/- 1%	Within	39	38	30	41
	Outside	3	4	12	1
+/- 2%	Within	42	41	40	42
	Outside	0	1	2	0

Even at the +/- 1% level the majority of KS2-based predictions are close to those based on concurrent GCSE. As is perhaps to be expected it is at grade C where there are most specifications failing this criterion and these are as follows (ie. the KS2-based prediction minus the concurrent GCSE-based prediction):

Health & Social Care (3821)	-3.07% (matched entry = 2298)
Applied Business (3831)	-2.01% (matched entry = 3899)
Business Studies A (3132)	-1.66% (matched entry = 12463)
Spanish B (4692)	-1.48% (matched entry = 2108)
Psychology (3181)	-1.34% (matched entry = 2094)
German B (4662)	-1.32% (matched entry = 4549)
Applied Art and Design (3811)	-1.31% (matched entry = 1988)
Italian (3631)	-1.27% (matched entry = 1050)
Religious Studies A (4961)	+1.17% (matched entry = 7291)
Physics (4451)	+1.19% (matched entry = 36064)
Chemistry (4421)	+1.29% (matched entry = 36480)
Science B (4462)	+1.41% (matched entry = 24231)

Thus for eight of the above specifications the KS2-based prediction is lower than that based on concurrent GCSE whereas for the other four subjects it is higher. Across all of the specifications investigated, irrespective of the +/- 1% and +/- 2% criteria, there is a general tendency for the KS2-based method to over-predict as follows:

Grade A*   KS2 over-predicts in 28 cases (66.67%)
Grade A   KS2 over-predicts in 24 cases (57.14%)
Grade C   KS2 over-predicts in 23 cases (54.76%)
Grade F   KS2 over-predicts in 33 cases (78.57%)

With regard to correlations between the candidates' actual GCSE grades and their mean performance categories, it is clear that there is a greater level of agreement between concurrent GCSE performance and actual GCSE grade. Based on the 2008 GCSE outcome data the average correlations across all forty-two specifications were:

KS2 category vs Actual GCSE grade   +0.581
Concurrent GCSE category vs Actual GCSE grade   +0.822

3.2   Centre-type value-added effects

In the Introduction it was noted that the match rates for candidates' prior achieved KS2 results were consistently greater than those for prior KS3 results and that this was probably due to candidates from Independent centres being KS2-matched because they sat their KS2 tests in different, non-Independent primary schools. Although the greater match rate can be viewed as an advantage of using KS2-based predictions, the effect on the overall predictions of including these candidates needs to investigated. Indeed, it is not just candidates from Independent schools but also those from Selective centres that need to be considered as there may be positive centre type value-added effects on the GCSE results for candidates from these centre types which will not be accounted for by prior KS2 performance. For this reason a separate analysis of KS2-based and concurrent GCSE-based predictions was conducted on candidates from these two particular centre types. The complete analyses, similar to those presented in Appendix A, are contained in Appendix B (Independent centres) and Appendix C (Selective centres). Given the reduced numbers of matched candidates in these tables some care is required in the interpretation of the data and subjects that have fewer than 500 matched candidates are shaded.

It is quite clear that for candidates from Independent and Selective centres KS2-based predictions substantially under-predict compared with predictions based on concurrent GCSE performance. Only in those subjects which attract the better performing candidates within centres, irrespective of type of centre (eg. the separate sciences) is the degree of under-prediction reduced. This is perhaps to be expected as the centre type value-added effect is eclipsed by the candidate-level effect (ie. these are all generally high-performing candidates at KS2 and GCSE irrespective of the type of centre they sit their GCSEs with).

Although at first hand the under-prediction appears to be a worrying feature of the KS2-based method, the potential effect depends on how the centre type entry pattern alters between the reference and current years. For example, if the proportion of the total entry that comes from the Independent and Selective sectors remains the same between the reference and current years then the degree of under-prediction also remains the same and the prediction is

reasonably reliable (this of course assumes that within these particular centre types the degree of under-prediction between the reference and current years remains constant). How sensitive a prediction is to changes in the proportion of the total entry from these centre types is perhaps more interesting. The approach adopted for the sensitivity analysis is best explained via an example using Additional Science and the prediction for grade C. Table 3 below summarises the differences between the KS2-based and concurrent GCSE-based predictions at grade C for Additional Science.

Table 3 **GCSE Additional Science – Difference in Predicted Outcomes for 2009 Between the KS2-Based and Concurrent GCSE-Based Methods (All Centre Types versus Independent Centres – Grade C Only)**

Difference is KS2-Based minus Concurrent GCSE-Based

Centre Type	Matched Entry	% of All Matched Entries	Difference in Predicted Outcomes
All centre types	126331	100.00	+0.29
Independent centres	6316	5.00	-13.93

Table 3 shows that the KS2-based method for Independent centres under-predicted by 13.93%. Another interpretation of this is that if the entire Additional Science entry in 2009 had come from the Independent sector (ie. there had been a massive change to the centre type entry pattern) then the KS2-based prediction for all candidates in 2009 would have under-predicted by 13.93%. Fortunately, however, the Independent sector accounted for just 5.00% of the total 2009 entry and the KS2-based prediction for all centre types slightly over-predicted (by 0.29%). The above data for 2009 give an indication of the potential sensitivity of the KS2-based prediction to changes in entry from Independent centres. The entire possible range in differences in prediction is +0.29% to -13.93% and this total change can be achieved by the Independent sector's entry changing from 5.00% of the total entry to 100.00%. Therefore, the sensitivity of the 'all-centres' KS2-based prediction to a 1% change in the proportion of the total entry coming from the Independent sector can be calculated as follows:

$$[-13.93 – 0.29] / [100.00 – 5.00] = -14.22 / 95.00 = -0.15\%$$

Thus, if the entry from the Independent sector increases such that it accounts for a further 1% of the total entry, then (on average) the 'all centres' KS2-based method for grade C will under-predict by a further 0.15%.

Using this approach for both Independent and Selective centres, a complete analysis for all specifications is presented in Appendices D, E, F and G (grades A*, A, C and F respectively). Clearly, such an analysis is dependent on the actual numbers of matched candidates from the respective centre types – a small initial entry will provide fairly spurious figures. For this reason the specifications in the appendices that are shaded are those where the actual 2009 entry from either the Independent sector or the Selective sector is less than 100. There are ten subjects where this is the case and it is suggested that the analysis for these be treated with some caution. These are generally the smaller entry subjects and are as follows:

Applied Art & Design (3811)	Italian (3631)
Applied Business (3831)	Psychology (3181)

Expressive Arts (3261)   Sociology (3192)
General Studies (3761)   Spanish B (4692)
Health & Social Care (3821)   Urdu (3646)

For the remaining thirty-two subjects Table 4 below presents a summary of the analyses.

Table 4   **Summary of the Amounts by Which the KS2-Based Method Under-Predicts when the Entry from a Specific Centre Type (Independent or Selective) Accounts for a Further 1% of the Total Entry**

Just those thirty-two specifications where the actual 2009 matched entry from Independent or Selective centres is greater than 100.

	Independent Centres		Selective Centres	
Grade	Range in under-prediction across these specifications (%)	Average under prediction (%)	Range in under-prediction across these specifications (%)	Average under prediction (%)
A*	-0.15 to -0.02	-0.09	-0.11 to -0.01	-0.05
A	-0.26 to -0.04	-0.18	-0.20 to -0.04	-0.11
C	-0.19 to -0.03	-0.12	-0.12 to -0.01	-0.05
F	-0.03 to 0.00	-0.01	-0.01 to +0.01	0.00

The greatest effect appears to be at grade A, which is to be expected given the calibre of the candidates from these specific centre types, and the effect is greater for candidates from the Independent sector.

4.   AN ALTERNATIVE KS2-BASED MODEL USING CANDIDATES' ACTUAL TEST MARKS

As explained earlier in Section 2.1 the discrete nature of the distribution of candidates' average KS2 test levels means that the average KS2 cut-offs are essentially pre-determined to be every one-third of a level. To address this, an alternative model based on candidates' actual test marks was investigated. For candidates who completed all KS2 tests in 2003 and 2004 a total test mark across English, Mathematics and Science was calculated. A summary of the tests and their respective total marks is as follows:

English   Total = 100 (Reading = 50, Writing = 50)
Mathematics   Total = 100 (Paper A = 40, Paper B = 40, Mental Arithmetic = 20)
Science   Total = 80 (Paper A = 40, Paper B = 40)

Thus, a total mark out of 280 was calculated for each candidate who completed all three tests. For those candidates who sat the KS2 tests in 2003 (ie. the reference year candidates who sat GCSE in 2008) ten cut-off points were determined such that each defined, as close as possible, a further 10% of the candidates. Table 5 below summarises these and how the cut-offs map to those candidates who completed the KS2 tests in the following year – it also presents the revised mark cut-offs that would be required for the 2004 candidates if the 10% criterion was to be maintained. An interesting feature of Table 4 is how close the revised

mark cut-offs for 2004 are to those for 2003. Although the cut-offs do not equate to test levels in any particular way, categorising 2008 GCSE candidates using the 2003 cut-offs and 2009 GCSE candidates using the revised 2004 cut-offs provides a mechanism to adjust for overall national changes to the KS2 performance profile between 2003 and 2004.

Table 5   Total KS2-Test-Mark Decile Cut-offs – 2003 and 2004

Total KS2 Test-Mark Category	Cut-Offs Based on 2003 Candidates			Revised 2004 Cut-Offs	
	Mark Cut-Off	2003 Cum. %	2004 Cum. %	Mark Cut-Off	2004 Cum. %
10	232	10.32	8.65	229	10.57
9	218	20.03	18.68	216	20.28
8	205	30.13	29.35	204	30.19
7	192	40.64	40.29	192	40.29
6	180	50.15	80.12	180	50.12
5	166	60.69	60.88	167	60.13
4	152	70.05	70.52	152	70.52
3	133	80.49	81.10	135	80.13
2	108	90.21	90.87	110	90.25
1	0	100.00	100.00	0	100.00

Thus, in generating predictions based on candidates' total KS2 test marks the procedure is much the same as described in Steps a) to f) in Section 2.1 (except that there are now ten categories rather than the original eight based on average KS2-levels). The main difference is in controlling for year-on-year changes to the national overall KS2 performance profile. Rather than follow the procedure described after step f), step e) is altered such that in assigning the 2009 candidates to KS2-total-test-mark categories, the revised 2004 cut-offs shown in Table 4 above are used instead of the 2003 cut-offs.

In comparing these revised KS2-based predictions with those based on concurrent GCSE performance the results are very similar to those presented in Section 3.1 (where the KS2-based predictions are derived from candidates' average KS2 *levels*). Table 6 below summarises the two sets of predictions in terms of how well they agree with those based on concurrent GCSE performance with regards to the +/- 1% and +/- 2% criteria.

Table 6   Instances Where the KS2-Based Prediction is Within +/-1% and +/-2%
of the Concurrent GCSE-Based Prediction *(Total of 42 Subjects)*

Criterion	Type of KS2 Prediction		Grade Boundary			
			A*	A	C	F
+/- 1%	Based on average	Within	39	38	30	41
	KS2 test levels	Outside	3	4	12	1
	Based on aggregated	Within	41	37	30	41
	KS2 test marks	Outside	1	5	12	1
+/- 2%	Based on average	Within	42	41	40	42
	KS2 test levels	Outside	0	1	2	0
	Based on aggregated	Within	42	42	39	42
	KS2 test marks	Outside	0	0	3	0

The two sets of KS2-based predictions produce very similar results and, at first sight, there appears to be no advantage from using the KS2 test mark-based set of predictions in favour of those based on KS2 test levels. With regards to the twelve specifications which fail the +/- 1% criterion at grade C, ten of these are the same for both types of predictions. The only differences are: Religious Studies A and Science B which failed under the KS2 test level-based predictions and Business & Communication Studies and Biology which failed under the KS2 test marks-based predictions. Each of these subjects were marginal failures of the criterion (the largest being Science B which exceeded the +/- 1% criterion by 0.41%).

However, there are perhaps two main advantages for using KS2 predictions based on test marks as opposed to levels which are: a) the less discrete nature of the distribution of candidates' aggregated test marks which allows cut-offs to be altered where necessary (this cannot be done with average test levels), and b) the more refined method for controlling for changes to the overall national KS2 performance profile which is analogous to the method agreed by the awarding bodies for GCE predictions based on candidates' prior achievement at GCSE.

With regard to correlations between the candidates' actual GCSE grades and their KS2 performance categories, there is a marginally greater level of agreement between KS2 test mark-based categories and actual grade achieved. Based on the 2008 GCSE outcome data the average correlations across all forty-two subjects are:

KS2 test level category vs Actual GCSE grade   +0.581
KS2 test mark category vs Actual GCSE grade   +0.588

For the sake of completeness Appendix H summarises the differences in predictions between the KS2 test mark-based model and the model based on concurrent GCSE performance for grades A*, A, C and F.

5.   DISCUSSION

AQA's practice of generating GCSE predictions based on candidates' prior KS3 performance has proved very useful in many awarding meetings. For example, cases where there has been a substantial movement of candidates within centres (eg. MFL specifications where weaker candidates have gradually dropped out over the years), the facility to focus at candidate-level has enabled AQA to provide valuable statistical advice to the awarding process. Currently, with the new unitised GCSE specifications now being taught in schools and colleges, of which the first unit awards will be in January 2010, there is very likely to be significant movements of candidates between specifications and across awarding bodies. Therefore, the requirement for candidate-level-based statistical information to support the awarding process cannot be overstated. With the demise of KS3 tests the only practical and viable alternative measure of candidates' prior achievement is KS2.

In evaluating the accuracy of KS2-based predictions the analysis presented in this paper assumes that a candidate-level concurrent GCSE-based model is the best available predictor of GCSE outcomes and is therefore the best means of evaluating the KS2-based model. However, it has been shown (Pinot de Moira, 2008) that any candidate-based model is not without its limitations and the precision of a concurrent GCSE-based model is dependent on the skew of the candidate entry across mean GCSE grade categories, the size of the entry

and the position of the actual prediction along the percentage scale. Bearing this in mind, there is almost certainly some degree of error in the concurrent GCSE-based model and, therefore, the differences between these predictions and those based on KS2 are not entirely reliable measures of the accuracy of the KS2 model.

Nevertheless, the KS2-based predictions presented in this paper are very encouraging in terms of how close they are to those based on concurrent GCSE performance. Considering the KS2 model based on candidates test marks, of the twelve specifications which failed the +/- 1% criterion at grade C just three of these exceeded +/- 2% (Applied Business, Business Studies A and Health & Social Care).

Of the two KS2-based models presented (test levels and actual test marks) there is little difference between the respective predictions. At first sight this might seem surprising as using actual test marks provides greater discrimination between candidates and their KS2 profiles, which might be expected to lead to more accurate predictions. However, the mark-based model presented is rather crude in that it is based simply on the aggregation of candidates' KS2 test marks in English Mathematics and Science. The model makes no allowance for some tests being relatively less discriminating than others and a less discriminating test will be under-weighted in its contribution to an overall aggregate mark. A refinement to the KS2 test mark-based model might be to normalise candidates' marks, for each test separately, to some 'ideal' distribution and then to aggregate across each of the three tests. Even so, based on the current models the preferred approach is to use the a test mark-based model as it provides greater discrimination than test levels, and allows for a more refined method for controlling for year-on-year changes to the overall national KS2 performance profile.

A concern with KS2-based models is the effect of year-on-year changes in the centre type entry pattern for Independent and Selective centres and how such changes impact on the overall prediction. Essentially, there are two approaches which can be considered which are to: a) exclude candidates from Independent/Selective centres entirely from KS2-based predictions or, b) include these candidates and use the sensitivity analysis presented to gauge the impact that a change in entry pattern might have. There are advantages and disadvantages to both of these approaches dependent on the proportion of the entry emanating from these centre types, the year-on-year changes in these centre type entries and the subjects concerned (ie. the degree to which a KS2-based prediction under-predicts). It should be borne in mind that the analyses presented are based on 16 year-olds only. Occasionally, predictions are also required for candidates aged 17+ where the entry from this age-group is relatively high and in these instances the centre type value-added effect with regard to Sixth Form colleges, Tertiary colleges and Further Education establishments may require investigation.

This paper covers a wide range of specifications accounting for approximately 85% of AQA's total GCSE entry. Across the forty-two subjects and four grade boundaries considered (168 cases) the KS2 test mark based-model delivers predictions within +/- 1% of those based on concurrent GCSE performance in 149 instances (88.7%). This level of accuracy can be considered very promising. Clearly, there will be specifications where KS2-based predictions are not as accurate but this applies with any predictive model. Past experience with both KS3-based predictions and GCSE-based predictions for GCE demonstrates that awarding support personnel are able to identify such instances and respond accordingly. That is, in instances such as these, predictions need not be the only statistical evidence to support the

awarding process but can be employed alongside other measures which together can provide 'weight of evidence' to the awarding process (however, candidate-based evidence is to be preferred over any centre-based measures). In conclusion, it is recommended that KS2-based prior achievement data should be used in providing predicted GCSE awarding outcomes. The preferred model is that based on actual KS2 test marks although some refinement of this approach may be necessary.

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January 2010

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AQA Selected GCSEs June 2009. Summary of Differences in Predictions at Key Grade Boundaries

(KS2 = KS2-based prediction. GCSE = Concurrent GCSE-based prediction)

Code	Title	16 Year-Old Entry	Matched	Match Rate	Diffs in Preds (KS2 minus GCSE) A*	A	C	F
4463*	ADDITIONAL SCIENCE	161400	126331	78.27	0.36	0.71	0.29	0.17
3811*	APPLIED ART AND DESIGN	2558	1988	77.72	0.39	-0.05	-1.31	-0.18
3831*	APPLIED BUSINESS	4839	3899	80.57	0.31	-0.45	-2.01	-0.64
4411*	BIOLOGY	50650	37912	74.85	1.05	1.32	0.96	0.34
3126*	BUSINESS & COMMUNICATION STUDIES	22945	16253	70.83	-0.16	-0.58	-0.77	0.11
3132*	BUSINESS STUDIES A	15564	12463	80.08	-0.24	-0.82	-1.66	-0.16
4421*	CHEMISTRY	48240	36480	75.62	1.29	1.69	1.29	0.40
3542*	D&T: FOOD	46738	38349	82.05	0.18	0.48	0.65	0.10
3545*	D&T: RESISTANT MATERIALS TECH.	44841	35511	79.19	0.03	0.19	0.05	-0.03
3241*	DRAMA	25597	18924	73.93	0.15	0.27	0.71	0.15
3702*	ENGLISH A	372086	288704	77.59	0.07	0.18	0.41	0.04
3701*	ENGLISH B	27252	20118	73.82	0.08	0.19	0.38	0.17
3712*	ENGLISH LITERATURE A	327145	264827	80.95	0.05	0.03	-0.24	0.05
3711*	ENGLISH LITERATURE B	26902	19455	72.32	0.08	0.12	0.24	0.24
3261*	EXPRESSIVE ARTS	3078	2334	75.83	0.25	0.41	0.43	0.58
3651*	FRENCH A	73882	54930	74.35	-0.11	-0.33	-0.30	0.26
4652*	FRENCH B	12445	9851	79.16	0.00	-0.15	-0.19	0.24
3761*	GENERAL STUDIES	5857	4892	83.52	0.08	0.32	0.73	0.18
3031*	GEOGRAPHY A	60566	46076	76.08	0.41	0.68	0.84	0.53
3032*	GEOGRAPHY B	3207	2674	83.38	0.03	0.14	-0.13	-0.04
3661*	GERMAN A	30518	24798	81.26	-0.12	-0.39	0.09	0.50
4662*	GERMAN B	5361	4549	84.85	-0.22	-0.70	-1.32	0.08
3821*	HEALTH & SOCIAL CARE	2975	2298	77.24	0.44	0.06	-3.07	-1.28
3041*	HISTORY A	17113	13904	81.25	0.11	0.02	-0.13	0.48
3042*	HISTORY B	40391	31918	79.02	0.07	-0.08	0.08	0.56

AQA Selected GCSEs June 2009. Summary of Differences in Predictions at Key Grade Boundaries

(KS2 = KS2-based prediction. GCSE = Concurrent GCSE-based prediction)

Code	Title	16 Year-Old Entry	Matched	Match Rate	Diffs in Preds (KS2 minus GCSE) A*	A	C	F
3521*	INFORMATION & COMM. TECH. A	12165	9490	78.01	-0.05	-0.20	0.28	0.36
3631*	ITALIAN	1557	1050	67.44	-0.36	-0.86	-1.27	-0.11
4306*	MATHEMATICS A	42712	31349	73.40	-0.27	-0.64	0.22	0.28
4307*	MATHEMATICS B	135519	105075	77.54	0.01	0.21	0.13	0.15
3571*	MEDIA STUDIES	39611	32305	81.56	0.09	-0.05	-0.16	0.03
3271*	MUSIC	16966	13393	78.94	-0.14	-0.28	-0.01	0.23
3581*	PHYSICAL EDUCATION A	25334	20124	79.43	-0.01	-0.14	-0.09	0.05
4451*	PHYSICS	47452	36064	76.00	1.18	1.51	1.19	0.45
3181*	PSYCHOLOGY	2762	2094	75.81	0.32	0.35	-1.34	-0.68
4061*	RELIGIOUS STUDIES A	16204	7291	45.00	0.11	0.50	1.17	0.53
3062*	RELIGIOUS STUDIES B	25105	19984	79.60	0.03	0.22	0.21	0.43
4461*	SCIENCE A	176566	132361	74.96	0.12	0.38	0.15	0.13
4462*	SCIENCE B	33302	24231	72.76	0.98	2.23	1.41	0.27
3192*	SOCIOLOGY	12099	9743	80.53	-0.01	-0.08	-0.33	0.30
3691*	SPANISH A	30172	22267	73.80	0.36	0.34	0.00	0.38
4692*	SPANISH B	2654	2108	79.43	-0.08	-0.46	-1.48	0.23
3646*	URDU	2055	1254	61.02	-0.20	0.23	0.31	-0.12

APPENDIX B

AQA Selected GCSEs June 2009. Summary of Differences in Predictions at Key Grade Boundaries
(INDEPENDENT CENTRES ONLY)

(KS2 = KS2-based prediction. GCSE = Concurrent GCSE-based prediction)
(subjects with fewer than 500 matched entries are shaded)

Code	Title	16 Year-Old Entry	Matched	Match Rate	Diffs in Preds (KS2 minus GCSE) A*	A	C	F
4463*	ADDITIONAL SCIENCE	11898	6316	53.08	-8.95	-16.86	-13.93	-0.62
3811*	APPLIED ART AND DESIGN	8	6	75.00	-3.73	-15.05	-19.00	-3.08
3831*	APPLIED BUSINESS	44	27	61.36	-5.66	-17.62	-16.70	-4.58
4411*	BIOLOGY	13083	6828	52.19	-9.81	-14.28	-1.93	0.23
3126*	BUSINESS & COMMUNICATION STUDIES	731	328	44.87	-9.43	-18.24	-16.51	-1.80
3132*	BUSINESS STUDIES A	613	261	42.58	-4.82	-15.57	-15.99	-2.44
4421*	CHEMISTRY	12688	6651	52.42	-10.35	-14.22	-1.34	0.33
3542*	D&T: FOOD	650	364	56.00	-7.89	-17.69	-12.31	-1.05
3545*	D&T: RESISTANT MATERIALS TECH.	2173	1144	52.65	-9.06	-23.08	-18.70	-2.22
3241*	DRAMA	4047	2111	52.16	-7.40	-16.24	-8.94	-0.39
3702*	ENGLISH A	17180	8843	51.47	-10.39	-22.69	-10.08	-0.46
3701*	ENGLISH B	4983	2649	53.16	-4.15	-12.32	-10.26	-0.58
3712*	ENGLISH LITERATURE A	16278	8550	52.52	-8.88	-22.39	-9.33	-0.77
3711*	ENGLISH LITERATURE B	5207	2686	51.58	-4.53	-12.03	-9.07	-0.59
3261*	EXPRESSIVE ARTS	76	33	43.42	-1.40	-10.53	-16.59	-4.66
3651*	FRENCH A	11300	5825	51.55	-9.53	-18.02	-12.49	-0.18
4652*	FRENCH B	519	361	69.56	-1.86	-4.10	-2.76	0.40
3761*	GENERAL STUDIES	40	25	62.50	-2.26	-5.92	-13.82	-5.12
3031*	GEOGRAPHY A	9945	5144	51.72	-11.85	-19.44	-11.12	-0.82
3032*	GEOGRAPHY B	560	345	61.61	-10.87	-17.09	-13.02	-2.35
3661*	GERMAN A	3486	2020	57.95	-6.94	-17.01	-10.16	-0.03
4662*	GERMAN B	206	149	72.33	-5.49	-12.33	-13.42	-0.44
3821*	HEALTH & SOCIAL CARE	0	0	0.00	n/a	n/a	n/a	n/a
3041*	HISTORY A	475	243	51.16	-13.33	-25.78	-17.61	-2.22
3042*	HISTORY B	6264	3292	52.55	-8.75	-19.06	-11.82	-1.34

AQA Selected GCSEs June 2009. Summary of Differences in Predictions at Key Grade Boundaries
(INDEPENDENT CENTRES ONLY)

(KS2 = KS2-based prediction. GCSE = Concurrent GCSE-based prediction)
(subjects with fewer than 500 matched entries are shaded)

Code	Title	16 Year-Old Entry	Matched	Match Rate	Diffs in Preds (KS2 minus GCSE) A*	A	C	F
3521*	INFORMATION & COMM. TECH. A	1392	743	53.38	-5.85	-12.36	-11.00	-2.06
3631*	ITALIAN	272	94	34.56	-17.01	-22.90	-6.95	0.18
4306*	MATHEMATICS A	2963	1532	51.70	-5.30	-12.56	-11.65	-1.17
4307*	MATHEMATICS B	3485	1889	54.20	-7.84	-14.48	-13.97	-1.75
3571*	MEDIA STUDIES	472	246	52.12	-2.08	-9.03	-14.89	-2.22
3271*	MUSIC	1467	775	52.83	-7.87	-15.74	-9.03	-1.03
3581*	PHYSICAL EDUCATION A	1823	1012	55.51	-9.59	-17.76	-14.38	-0.10
4451*	PHYSICS	11938	6282	52.62	-10.79	-15.06	-2.10	0.40
3181*	PSYCHOLOGY	72	30	41.67	-2.07	-7.20	-5.48	-1.54
4061*	RELIGIOUS STUDIES A	1536	879	57.23	-9.39	-13.63	-7.66	-0.79
3062*	RELIGIOUS STUDIES B	1937	921	47.55	-13.83	-21.91	-8.22	-0.33
4461*	SCIENCE A	6086	3136	51.53	-3.94	-12.50	-14.88	-0.89
4462*	SCIENCE B	6261	3367	53.78	-5.17	-12.60	-10.13	-0.40
3192*	SOCIOLOGY	288	193	67.01	-1.80	-2.25	-5.13	-0.06
3691*	SPANISH A	5273	2679	50.81	-10.12	-18.39	-12.87	-0.39
4692*	SPANISH B	118	77	65.25	-1.80	-7.67	-10.19	-0.90
3646*	URDU	264	134	50.76	-2.47	-6.02	-10.05	-1.63

AQA Selected GCSEs June 2009. Summary of Differences in Predictions at Key Grade Boundaries
(SELECTIVE CENTRES ONLY)

(KS2 = KS2-based prediction. GCSE = Concurrent GCSE-based prediction)
(subjects with fewer than 500 matched entries are shaded)

Code	Title	16 Year-Old Entry	Matched	Match Rate	Diffs in Preds (KS2 minus GCSE) A*	A	C	F
4463*	ADDITIONAL SCIENCE	5602	4526	80.79	-6.50	-11.32	-5.23	0.08
3811*	APPLIED ART AND DESIGN	28	23	82.14	-5.74	-2.63	1.91	-0.14
3831*	APPLIED BUSINESS	0	0	0.00	n/a	n/a	n/a	n/a
4411*	BIOLOGY	8883	7034	79.18	-2.64	-4.75	0.12	0.34
3126*	BUSINESS & COMMUNICATION STUDIES	478	328	68.62	-3.18	-7.15	-5.19	0.61
3132*	BUSINESS STUDIES A	752	549	73.01	-1.30	-5.57	-6.44	-0.82
4421*	CHEMISTRY	8581	6956	81.06	-2.94	-4.83	0.16	0.39
3542*	D&T: FOOD	1360	1171	86.10	-8.90	-18.42	-7.04	-0.51
3545*	D&T: RESISTANT MATERIALS TECH.	1255	1052	83.82	-8.35	-19.66	-11.87	-1.33
3241*	DRAMA	2388	1771	74.16	-3.80	-9.65	-3.87	0.00
3702*	ENGLISH A	13058	10769	82.47	-5.70	-12.96	-4.08	-0.18
3701*	ENGLISH B	3361	2701	80.36	-2.57	-7.37	-2.09	-0.06
3712*	ENGLISH LITERATURE A	13056	10667	81.70	-5.03	-13.16	-4.20	-0.36
3711*	ENGLISH LITERATURE B	4630	2958	63.89	-3.18	-9.12	-3.06	0.03
3261*	EXPRESSIVE ARTS	113	93	82.30	-5.88	-14.15	-10.38	-1.90
3651*	FRENCH A	7381	4527	61.33	-3.65	-7.87	-5.83	0.15
4652*	FRENCH B	345	282	81.74	-1.28	-5.10	-7.58	-0.09
3761*	GENERAL STUDIES	3	2	66.67	6.37	18.73	14.08	-1.26
3031*	GEOGRAPHY A	4692	3716	79.20	-6.24	-10.53	-5.12	0.22
3032*	GEOGRAPHY B	185	144	77.84	1.34	-4.00	-6.01	-0.34
3661*	GERMAN A	4208	3063	72.79	-2.13	-6.36	-5.51	0.23
4662*	GERMAN B	313	248	79.23	-1.71	-5.20	-8.55	-0.28
3821*	HEALTH & SOCIAL CARE	0	0	0.00	n/a	n/a	n/a	n/a
3041*	HISTORY A	1137	836	73.53	-7.86	-16.20	-8.69	-0.23
3042*	HISTORY B	3842	3050	79.39	-4.29	-11.44	-6.35	-0.09

APPENDIX C (cont)

AQA Selected GCSEs June 2009. Summary of Differences in Predictions at Key Grade Boundaries
(SELECTIVE CENTRES ONLY)
(KS2 = KS2-based prediction. GCSE = Concurrent GCSE-based prediction)
(subjects with fewer than 500 matched entries are shaded)

Code	Title	16 Year-Old Entry	Matched	Match Rate	Diffs in Preds (KS2 minus GCSE) A*	A	C	F
3521*	INFORMATION & COMM. TECH. A	615	462	75.12	-6.37	-13.60	-7.24	-0.71
3631*	ITALIAN	153	105	68.63	-9.70	-14.20	-4.03	0.27
4306*	MATHEMATICS A	3623	2711	74.83	-5.31	-11.09	-4.04	-0.15
4307*	MATHEMATICS B	2029	1171	57.71	-5.63	-9.17	-3.90	0.58
3571*	MEDIA STUDIES	278	159	57.19	-6.18	-10.63	-1.88	0.09
3271*	MUSIC	864	726	84.03	-5.95	-11.90	-5.82	-0.32
3581*	PHYSICAL EDUCATION A	1618	951	58.78	-6.13	-10.44	-5.92	0.07
4451*	PHYSICS	8419	6813	80.92	-2.82	-4.83	-0.07	0.45
3181*	PSYCHOLOGY	157	80	50.96	0.57	0.84	-1.39	-0.35
4061*	RELIGIOUS STUDIES A	3105	327	10.53	-10.48	-16.47	-5.66	0.03
3062*	RELIGIOUS STUDIES B	2532	2161	85.35	-5.28	-10.59	-3.94	0.17
4461*	SCIENCE A	2452	1993	81.28	-2.44	-7.37	-3.73	0.04
4462*	SCIENCE B	2267	1833	80.86	-2.26	-5.25	-2.10	0.22
3192*	SOCIOLOGY	135	83	61.48	-1.01	-4.68	-5.14	0.95
3691*	SPANISH A	3690	2327	63.06	-3.23	-7.67	-6.20	0.10
4692*	SPANISH B	60	52	86.67	0.13	0.10	-2.46	-0.47
3646*	URDU	4	2	50.00	-19.77	-21.93	-15.20	0.15

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APPENDIX D

AQA Selected GCSEs June 2009. Comparing the Differences Between KS2-Based and Concurrent GCSE-Based Predictions. Grade A*

The Effect that a 1% Year-on-Year Change in Proportion of Entry from Independent or Selective Centres will have on the 'All Centres' Differences in Predictions

(KS2-Based predictions for Independent and Selective centres routinely under-predict performance when compared against concurrent-GCSE-based predictions)

For columns (A), (B) and (C), the difference in prediction is calculated as: KS2-Based minus Concurrent GCSE-Based

Shaded subjects are those where the actual matched entry from Independent or Selective centres is less than one-hundred

				INDEPENDENT CENTRES			SELECTIVE CENTRES		
			(A)		(B)	Change in (A) per		(C)	Change in (A) per
		Total	Difference	% of Total	Difference	1% Increase in	% of Total	Difference	1% Increase in
		Matched	in Preds	Matched	in Preds for	Entry from this	Matched	in Preds for	Entry from this
Code	Title	Entry	for All Centres	Entry	this Centre Type	Centre Type	Entry	this Centre Type	Centre Type
4463*	ADDITIONAL SCIENCE	126331	0.36	5.00	-8.95	-0.10	3.58	-6.50	-0.07
3811*	APPLIED ART AND DESIGN	1988	0.39	0.30	-3.73	-0.04	1.16	-5.74	-0.06
3831*	APPLIED BUSINESS	3899	0.31	0.69	-5.66	-0.06	0.00	0.17	0.00
4411*	BIOLOGY	37912	1.05	18.01	-9.81	-0.13	18.55	-2.64	-0.05
3126*	BUSINESS & COMMUNICATION STUDIES	16253	-0.16	2.02	-9.43	-0.09	2.02	-3.18	-0.03
3132*	BUSINESS STUDIES A	12463	-0.24	2.09	-4.82	-0.05	4.41	-1.30	-0.01
4421*	CHEMISTRY	36480	1.29	18.23	-10.35	-0.14	19.07	-2.94	-0.05
3542*	D&T: FOOD	38349	0.18	0.95	-7.89	-0.08	3.05	-8.90	-0.09
3545*	D&T: RESISTANT MATERIALS TECH.	35511	0.03	3.22	-9.06	-0.09	2.96	-8.35	-0.09
3241*	DRAMA	18924	0.15	11.16	-7.40	-0.08	9.36	-3.80	-0.04
3702*	ENGLISH A	288704	0.07	3.06	-10.39	-0.11	3.73	-5.70	-0.06
3701*	ENGLISH B	20118	0.08	13.17	-4.15	-0.05	13.43	-2.57	-0.03
3712*	ENGLISH LITERATURE A	264827	0.05	3.23	-8.88	-0.09	4.03	-5.03	-0.05
3711*	ENGLISH LITERATURE B	19455	0.08	13.81	-4.53	-0.05	15.20	-3.18	-0.04
3261*	EXPRESSIVE ARTS	2334	0.25	1.41	-1.40	-0.02	3.98	-5.88	-0.06
3651*	FRENCH A	54930	-0.11	10.60	-9.53	-0.11	8.24	-3.65	-0.04
4652*	FRENCH B	9851	0.00	3.66	-1.86	-0.02	2.86	-1.28	-0.01

APPENDIX D (cont)

Shaded subjects are those where the actual matched entry from Independent or Selective centres is less than one-hundred

			(A)	INDEPENDENT CENTRES	(B)	Change in (A) per	SELECTIVE CENTRES	(C)	Change in (A) per
		Total	Difference	% of Total	Difference	1% Increase in	% of Total	Difference	1% Increase in
		Matched	in Preds	Matched	in Preds for	Entry from this	Matched	in Preds for	Entry from this
Code	Title	Entry	for All Centres	Entry	this Centre Type	Centre Type	Entry	this Centre Type	Centre Type
3761*	GENERAL STUDIES	4892	0.08	0.51	-2.26	-0.02	0.04	6.37	0.06
3031*	GEOGRAPHY A	46076	0.41	11.16	-11.85	-0.14	8.06	-6.24	-0.07
3032*	GEOGRAPHY B	2674	0.03	12.90	-10.87	-0.13	5.39	1.34	0.01
3661*	GERMAN A	24798	-0.12	8.15	-6.94	-0.07	12.35	-2.13	-0.02
4662*	GERMAN B	4549	-0.22	3.28	-5.49	-0.05	5.45	-1.71	-0.02
3821*	HEALTH & SOCIAL CARE	2298	0.44	0.00	0.25	0.00	0.00	0.25	0.00
3041*	HISTORY A	13904	0.11	1.75	-13.33	-0.14	6.01	-7.86	-0.08
3042*	HISTORY B	31918	0.07	10.31	-8.75	-0.10	9.56	-4.29	-0.05
3521*	INFORMATION & COMM. TECH. A	9490	-0.05	7.83	-5.85	-0.06	4.87	-6.37	-0.07
3631*	ITALIAN	1050	-0.36	8.95	-17.01	-0.18	10.00	-9.70	-0.10
4306*	MATHEMATICS A	31349	-0.27	4.89	-5.30	-0.05	8.65	-5.31	-0.06
4307*	MATHEMATICS B	105075	0.01	1.80	-7.84	-0.08	1.11	-5.63	-0.06
3571*	MEDIA STUDIES	32305	0.09	0.76	-2.08	-0.02	0.49	-6.18	-0.06
3271*	MUSIC	13393	-0.14	5.79	-7.87	-0.08	5.42	-5.95	-0.06
3581*	PHYSICAL EDUCATION A	20124	-0.01	5.03	-9.59	-0.10	4.73	-6.13	-0.06
4451*	PHYSICS	36064	1.18	17.42	-10.79	-0.14	18.89	-2.82	-0.05
3181*	PSYCHOLOGY	2094	0.32	1.43	-2.07	-0.02	3.82	0.57	0.00
4061*	RELIGIOUS STUDIES A	7291	0.11	12.06	-9.39	-0.11	4.48	-10.48	-0.11
3062*	RELIGIOUS STUDIES B	19984	0.03	4.61	-13.83	-0.15	10.81	-5.28	-0.06
4461*	SCIENCE A	132361	0.12	2.37	-3.94	-0.04	1.51	-2.44	-0.03
4462*	SCIENCE B	24231	0.98	13.90	-5.17	-0.07	7.56	-2.26	-0.04
3192*	SOCIOLOGY	9743	-0.01	1.98	-1.80	-0.02	0.85	-1.01	-0.01
3691*	SPANISH A	22267	0.36	12.03	-10.12	-0.12	10.45	-3.23	-0.04
4692*	SPANISH B	2108	-0.08	3.65	-1.80	-0.02	2.47	0.13	0.00
3646*	URDU	1254	-0.20	10.69	-2.47	-0.03	0.16	-19.77	-0.20

APPENDIX E

AQA Selected GCSEs June 2009. Comparing the Differences Between KS2-Based and Concurrent GCSE-Based Predictions. Grade A

The Effect that a 1% Year-on-Year Change in Proportion of Entry from Independent or Selective Centres will have on the 'All Centres' Differences in Predictions

(KS2-Based predictions for Independent and Selective centres routinely under-predict performance when compared against concurrent-GCSE-based predictions)

For columns (A), (B) and (C), the difference in prediction is calculated as: KS2-Based minus Concurrent GCSE-Based

Shaded subjects are those where the actual matched entry from Independent or Selective centres is less than one-hundred

				INDEPENDENT CENTRES			SELECTIVE CENTRES		
			(A)		(B)	Change in (A) per		(C)	Change in (A) per
		Total	Difference	% of Total	Difference	1% Increase in	% of Total	Difference	1% Increase in
		Matched	in Preds	Matched	in Preds for	Entry from this	Matched	in Preds for	Entry from this
Code	Title	Entry	for All Centres	Entry	this Centre Type	Centre Type	Entry	this Centre Type	Centre Type
4463*	ADDITIONAL SCIENCE	126331	0.71	5.00	-16.86	-0.18	3.58	-11.32	-0.12
3811*	APPLIED ART AND DESIGN	1988	-0.05	0.30	-15.05	-0.15	1.16	-2.63	-0.03
3831*	APPLIED BUSINESS	3899	-0.45	0.69	-17.62	-0.17	0.00	0.34	0.01
4411*	BIOLOGY	37912	1.32	18.01	-14.28	-0.19	18.55	-4.75	-0.07
3126*	BUSINESS & COMMUNICATION STUDIES	16253	-0.58	2.02	-18.24	-0.18	2.02	-7.15	-0.07
3132*	BUSINESS STUDIES A	12463	-0.82	2.09	-15.57	-0.15	4.41	-5.57	-0.05
4421*	CHEMISTRY	36480	1.69	18.23	-14.22	-0.19	19.07	-4.83	-0.08
3542*	D&T: FOOD	38349	0.48	0.95	-17.69	-0.18	3.05	-18.42	-0.19
3545*	D&T: RESISTANT MATERIALS TECH.	35511	0.19	3.22	-23.08	-0.24	2.96	-19.66	-0.20
3241*	DRAMA	18924	0.27	11.16	-16.24	-0.19	9.36	-9.65	-0.11
3702*	ENGLISH A	288704	0.18	3.06	-22.69	-0.24	3.73	-12.96	-0.14
3701*	ENGLISH B	20118	0.19	13.17	-12.32	-0.14	13.43	-7.37	-0.09
3712*	ENGLISH LITERATURE A	264827	0.03	3.23	-22.39	-0.23	4.03	-13.16	-0.14
3711*	ENGLISH LITERATURE B	19455	0.12	13.81	-12.03	-0.14	15.20	-9.12	-0.11
3261*	EXPRESSIVE ARTS	2334	0.41	1.41	-10.53	-0.11	3.98	-14.15	-0.15
3651*	FRENCH A	54930	-0.33	10.60	-18.02	-0.20	8.24	-7.87	-0.08
4652*	FRENCH B	9851	-0.15	3.66	-4.10	-0.04	2.86	-5.10	-0.05

Shaded subjects are those where the actual matched entry from Independent or Selective centres is less than one-hundred

			(A)	INDEPENDENT CENTRES	(B)	Change in (A) per	SELECTIVE CENTRES	(C)	Change in (A) per
		Total	Difference	% of Total	Difference	1% Increase in	% of Total	Difference	1% Increase in
		Matched	in Preds	Matched	in Preds for	Entry from this	Matched	in Preds for	Entry from this
Code	Title	Entry	for All Centres	Entry	this Centre Type	Centre Type	Entry	this Centre Type	Centre Type
3761*	GENERAL STUDIES	4892	0.32	0.51	-5.92	-0.06	0.04	18.73	0.18
3031*	GEOGRAPHY A	46076	0.68	11.16	-19.44	-0.23	8.06	-10.53	-0.12
3032*	GEOGRAPHY B	2674	0.14	12.90	-17.09	-0.20	5.39	-4.00	-0.04
3661*	GERMAN A	24798	-0.39	8.15	-17.01	-0.18	12.35	-6.36	-0.07
4662*	GERMAN B	4549	-0.70	3.28	-12.33	-0.12	5.45	-5.20	-0.05
3821*	HEALTH & SOCIAL CARE	2298	0.06	0.00	0.44	0.00	0.00	0.44	0.00
3041*	HISTORY A	13904	0.02	1.75	-25.78	-0.26	6.01	-16.20	-0.17
3042*	HISTORY B	31918	-0.08	10.31	-19.06	-0.21	9.56	-11.44	-0.13
3521*	INFORMATION & COMM. TECH. A	9490	-0.20	7.83	-12.36	-0.13	4.87	-13.60	-0.14
3631*	ITALIAN	1050	-0.86	8.95	-22.90	-0.24	10.00	-14.20	-0.15
4306*	MATHEMATICS A	31349	-0.64	4.89	-12.56	-0.13	8.65	-11.09	-0.11
4307*	MATHEMATICS B	105075	0.21	1.80	-14.48	-0.15	1.11	-9.17	-0.09
3571*	MEDIA STUDIES	32305	-0.05	0.76	-9.03	-0.09	0.49	-10.63	-0.11
3271*	MUSIC	13393	-0.28	5.79	-15.74	-0.16	5.42	-11.90	-0.12
3581*	PHYSICAL EDUCATION A	20124	-0.14	5.03	-17.76	-0.19	4.73	-10.44	-0.11
4451*	PHYSICS	36064	1.51	17.42	-15.06	-0.20	18.89	-4.83	-0.08
3181*	PSYCHOLOGY	2094	0.35	1.43	-7.20	-0.08	3.82	0.84	0.01
4061*	RELIGIOUS STUDIES A	7291	0.50	12.06	-13.63	-0.16	4.48	-16.47	-0.18
3062*	RELIGIOUS STUDIES B	19984	0.22	4.61	-21.91	-0.23	10.81	-10.59	-0.12
4461*	SCIENCE A	132361	0.38	2.37	-12.50	-0.13	1.51	-7.37	-0.08
4462*	SCIENCE B	24231	2.23	13.90	-12.60	-0.17	7.56	-5.25	-0.08
3192*	SOCIOLOGY	9743	-0.08	1.98	-2.25	-0.02	0.85	-4.68	-0.05
3691*	SPANISH A	22267	0.34	12.03	-18.39	-0.21	10.45	-7.67	-0.09
4692*	SPANISH B	2108	-0.46	3.65	-7.67	-0.07	2.47	0.10	0.01
3646*	URDU	1254	0.23	10.69	-6.02	-0.07	0.16	-21.93	-0.22

APPENDIX F

AQA Selected GCSEs June 2009. Comparing the Differences Between KS2-Based and Concurrent GCSE-Based Predictions. Grade C

The Effect that a 1% Year-on-Year Change in Proportion of Entry from Independent or Selective Centres will have on the 'All Centres' Differences in Predictions

(KS2-Based predictions for Independent and Selective centres routinely under-predict performance when compared against concurrent-GCSE-based predictions)

For columns (A), (B) and (C), the difference in prediction is calculated as: KS2-Based minus Concurrent GCSE-Based

Shaded subjects are those where the actual matched entry from Independent or Selective centres is less than one-hundred

				INDEPENDENT CENTRES			SELECTIVE CENTRES		
			(A)		(B)	Change in (A) per		(C)	Change in (A) per
		Total	Difference	% of Total	Difference	1% Increase in	% of Total	Difference	1% Increase in
		Matched	in Preds	Matched	in Preds for	Entry from this	Matched	in Preds for	Entry from this
Code	Title	Entry	for All Centres	Entry	this Centre Type	Centre Type	Entry	this Centre Type	Centre Type
4463*	ADDITIONAL SCIENCE	126331	0.29	5.00	-13.93	-0.15	3.58	-5.23	-0.06
3811*	APPLIED ART AND DESIGN	1988	-1.31	0.30	-19.00	-0.18	1.16	1.91	0.03
3831*	APPLIED BUSINESS	3899	-2.01	0.69	-16.70	-0.15	0.00	1.02	0.03
4411*	BIOLOGY	37912	0.96	18.01	-1.93	-0.04	18.55	0.12	-0.01
3126*	BUSINESS & COMMUNICATION STUDIES	16253	-0.77	2.02	-16.51	-0.16	2.02	-5.19	-0.05
3132*	BUSINESS STUDIES A	12463	-1.66	2.09	-15.99	-0.15	4.41	-6.44	-0.05
4421*	CHEMISTRY	36480	1.29	18.23	-1.34	-0.03	19.07	0.16	-0.01
3542*	D&T: FOOD	38349	0.65	0.95	-12.31	-0.13	3.05	-7.04	-0.08
3545*	D&T: RESISTANT MATERIALS TECH.	35511	0.05	3.22	-18.70	-0.19	2.96	-11.87	-0.12
3241*	DRAMA	18924	0.71	11.16	-8.94	-0.11	9.36	-3.87	-0.05
3702*	ENGLISH A	288704	0.41	3.06	-10.08	-0.11	3.73	-4.08	-0.05
3701*	ENGLISH B	20118	0.38	13.17	-10.26	-0.12	13.43	-2.09	-0.03
3712*	ENGLISH LITERATURE A	264827	-0.24	3.23	-9.33	-0.09	4.03	-4.20	-0.04
3711*	ENGLISH LITERATURE B	19455	0.24	13.81	-9.07	-0.11	15.20	-3.06	-0.04
3261*	EXPRESSIVE ARTS	2334	0.43	1.41	-16.59	-0.17	3.98	-10.38	-0.11
3651*	FRENCH A	54930	-0.30	10.60	-12.49	-0.14	8.24	-5.83	-0.06
4652*	FRENCH B	9851	-0.19	3.66	-2.76	-0.03	2.86	-7.58	-0.08

Shaded subjects are those where the actual matched entry from Independent or Selective centres is less than one-hundred

			(A)	INDEPENDENT CENTRES			SELECTIVE CENTRES		
		Total	Difference	(B)	Change in (A) per		(C)	Change in (A) per
		Matched	in Preds	% of Total	Difference	1% Increase in	% of Total	Difference	1% Increase in
		Entry	for All Centres	Matched	in Preds for	Entry from this	Matched	in Preds for	Entry from this
Code	Title			Entry	this Centre Type	Centre Type	Entry	this Centre Type	Centre Type
3761*	GENERAL STUDIES	4892	0.73	0.51	-13.82	-0.15	0.04	14.08	0.13
3031*	GEOGRAPHY A	46076	0.84	11.16	-11.12	-0.13	8.06	-5.12	-0.06
3032*	GEOGRAPHY B	2674	-0.13	12.90	-13.02	-0.15	5.39	-6.01	-0.06
3661*	GERMAN A	24798	0.09	8.15	-10.16	-0.11	12.35	-5.51	-0.06
4662*	GERMAN B	4549	-1.32	3.28	-13.42	-0.13	5.45	-8.55	-0.08
3821*	HEALTH & SOCIAL CARE	2298	-3.07	0.00	1.06	0.04	0.00	1.06	0.04
3041*	HISTORY A	13904	-0.13	1.75	-17.61	-0.18	6.01	-8.69	-0.09
3042*	HISTORY B	31918	0.08	10.31	-11.82	-0.13	9.56	-6.35	-0.07
3521*	INFORMATION & COMM. TECH. A	9490	0.28	7.83	-11.00	-0.12	4.87	-7.24	-0.08
3631*	ITALIAN	1050	-1.27	8.95	-6.95	-0.06	10.00	-4.03	-0.03
4306*	MATHEMATICS A	31349	0.22	4.89	-11.65	-0.12	8.65	-4.04	-0.05
4307*	MATHEMATICS B	105075	0.13	1.80	-13.97	-0.14	1.11	-3.90	-0.04
3571*	MEDIA STUDIES	32305	-0.16	0.76	-14.89	-0.15	0.49	-1.88	-0.02
3271*	MUSIC	13393	-0.01	5.79	-9.03	-0.10	5.42	-5.82	-0.06
3581*	PHYSICAL EDUCATION A	20124	-0.09	5.03	-14.38	-0.15	4.73	-5.92	-0.06
4451*	PHYSICS	36064	1.19	17.42	-2.10	-0.04	18.89	-0.07	-0.02
3181*	PSYCHOLOGY	2094	-1.34	1.43	-5.48	-0.04	3.82	-1.39	0.00
4061*	RELIGIOUS STUDIES A	7291	1.17	12.06	-7.66	-0.10	4.48	-5.66	-0.07
3062*	RELIGIOUS STUDIES B	19984	0.21	4.61	-8.22	-0.09	10.81	-3.94	-0.05
4461*	SCIENCE A	132361	0.15	2.37	-14.88	-0.15	1.51	-3.73	-0.04
4462*	SCIENCE B	24231	1.41	13.90	-10.13	-0.13	7.56	-2.10	-0.04
3192*	SOCIOLOGY	9743	-0.33	1.98	-5.13	-0.05	0.85	-5.14	-0.05
3691*	SPANISH A	22267	0.00	12.03	-12.87	-0.15	10.45	-6.20	-0.07
4692*	SPANISH B	2108	-1.48	3.65	-10.19	-0.09	2.47	-2.46	-0.01
3646*	URDU	1254	0.31	10.69	-10.05	-0.12	0.16	-15.20	-0.16

AQA Selected GCSEs June 2009. Comparing the Differences Between KS2-Based and Concurrent GCSE-Based Predictions.
Grade F

The Effect that a 1% Year-on-Year Change in Proportion of Entry from
Independent or Selective Centres will have on the 'All Centres' Differences in Predictions

(KS2-Based predictions for Independent and Selective centres routinely under-predict performance when compared against concurrent-GCSE-based predictions)

For columns (A), (B) and (C), the difference in prediction is calculated as: KS2-Based minus Concurrent GCSE-Based

Shaded subjects are those where the actual matched entry from Independent or Selective centres is less than one-hundred

				INDEPENDENT CENTRES			SELECTIVE CENTRES		
			(A)		(B)	Change in (A) per		(C)	Change in (A) per
		Total	Difference	% of Total	Difference	1% Increase in	% of Total	Difference	1% Increase in
		Matched	in Preds	Matched	in Preds for	Entry from this	Matched	in Preds for	Entry from this
Code	Title	Entry	for All Centres	Entry	this Centre Type	Centre Type	Entry	this Centre Type	Centre Type
4463*	ADDITIONAL SCIENCE	126331	0.17	5.00	-0.62	-0.01	3.58	0.08	0.00
3811*	APPLIED ART AND DESIGN	1988	-0.18	0.30	-3.08	-0.03	1.16	-0.14	0.00
3831*	APPLIED BUSINESS	3899	-0.64	0.69	-4.58	-0.04	0.00	0.68	0.01
4411*	BIOLOGY	37912	0.34	18.01	0.23	0.00	18.55	0.34	0.00
3126*	BUSINESS & COMMUNICATION STUDIES	16253	0.11	2.02	-1.80	-0.02	2.02	0.61	0.01
3132*	BUSINESS STUDIES A	12463	-0.16	2.09	-2.44	-0.02	4.41	-0.82	-0.01
4421*	CHEMISTRY	36480	0.40	18.23	0.33	0.00	19.07	0.39	0.00
3542*	D&T: FOOD	38349	0.10	0.95	-1.05	-0.01	3.05	-0.51	-0.01
3545*	D&T: RESISTANT MATERIALS TECH.	35511	-0.03	3.22	-2.22	-0.02	2.96	-1.33	-0.01
3241*	DRAMA	18924	0.15	11.16	-0.39	-0.01	9.36	0.00	0.00
3702*	ENGLISH A	288704	0.04	3.06	-0.46	-0.01	3.73	-0.18	0.00
3701*	ENGLISH B	20118	0.17	13.17	-0.58	-0.01	13.43	-0.06	0.00
3712*	ENGLISH LITERATURE A	264827	0.05	3.23	-0.77	-0.01	4.03	-0.36	0.00
3711*	ENGLISH LITERATURE B	19455	0.24	13.81	-0.59	-0.01	15.20	0.03	0.00
3261*	EXPRESSIVE ARTS	2334	0.58	1.41	-4.66	-0.05	3.98	-1.90	-0.03
3651*	FRENCH A	54930	0.26	10.60	-0.18	0.00	8.24	0.15	0.00
4652*	FRENCH B	9851	0.24	3.66	0.40	0.00	2.86	-0.09	0.00

APPENDIX G (cont)

Shaded subjects are those where the actual matched entry from Independent or Selective centres is less than one-hundred

Code	Title	Total Matched Entry	(A) Difference in Preds for All Centres	INDEPENDENT CENTRES % of Total Matched Entry	(B) Difference in Preds for this Centre Type	Change in (A) per 1% Increase in Entry from this Centre Type	SELECTIVE CENTRES % of Total Matched Entry	(C) Difference in Preds for this Centre Type	Change in (A) per 1% Increase in Entry from this Centre Type
3761*	GENERAL STUDIES	4892	0.18	0.51	-5.12	-0.05	0.04	-1.26	-0.01
3031*	GEOGRAPHY A	46076	0.53	11.16	-0.82	-0.02	8.06	0.22	0.00
3032*	GEOGRAPHY B	2674	-0.04	12.90	-2.35	-0.03	5.39	-0.34	0.00
3661*	GERMAN A	24798	0.50	8.15	-0.03	-0.01	12.35	0.23	0.00
4662*	GERMAN B	4549	0.08	3.28	-0.44	-0.01	5.45	-0.28	0.00
3821*	HEALTH & SOCIAL CARE	2298	-1.28	0.00	0.53	0.02	0.00	0.53	0.02
3041*	HISTORY A	13904	0.48	1.75	-2.22	-0.03	6.01	-0.23	-0.01
3042*	HISTORY B	31918	0.56	10.31	-1.34	-0.02	9.56	-0.09	-0.01
3521*	INFORMATION & COMM. TECH. A	9490	0.36	7.83	-2.06	-0.03	4.87	-0.71	-0.01
3631*	ITALIAN	1050	-0.11	8.95	0.18	0.00	10.00	0.27	0.00
4306*	MATHEMATICS A	31349	0.28	4.89	-1.17	-0.02	8.65	-0.15	0.00
4307*	MATHEMATICS B	105075	0.15	1.80	-1.75	-0.02	1.11	0.58	0.00
3571*	MEDIA STUDIES	32305	0.03	0.76	-2.22	-0.02	0.49	0.09	0.00
3271*	MUSIC	13393	0.23	5.79	-1.03	-0.01	5.42	-0.32	-0.01
3581*	PHYSICAL EDUCATION A	20124	0.05	5.03	-0.10	0.00	4.73	0.07	0.00
4451*	PHYSICS	36064	0.45	17.42	0.40	0.00	18.89	0.45	0.00
3181*	PSYCHOLOGY	2094	-0.68	1.43	-1.54	-0.01	3.82	-0.35	0.00
4061*	RELIGIOUS STUDIES A	7291	0.53	12.06	-0.79	-0.01	4.48	0.03	-0.01
3062*	RELIGIOUS STUDIES B	19984	0.43	4.61	-0.33	-0.01	10.81	0.17	0.00
4461*	SCIENCE A	132361	0.13	2.37	-0.89	-0.01	1.51	0.04	0.00
4462*	SCIENCE B	24231	0.27	13.90	-0.40	-0.01	7.56	0.22	0.00
3192*	SOCIOLOGY	9743	0.30	1.98	-0.06	0.00	0.85	0.95	0.01
3691*	SPANISH A	22267	0.38	12.03	-0.39	-0.01	10.45	0.10	0.00
4692*	SPANISH B	2108	0.23	3.65	-0.90	-0.01	2.47	-0.47	-0.01
3646*	URDU	1254	-0.12	10.69	-1.63	-0.02	0.16	0.15	0.00

AQA Selected GCSEs June 2009. Summary of Differences in Predictions at Key Grade Boundaries

(KS2 = KS2-based prediction. GCSE = Concurrent GCSE-based prediction)
(Note: the KS2-based predictions differ from those in earlier appendices in that they use candidates' total aggregated test marks as a measure of prior performance as opposed to candidates' average test levels)

Code	Title	16 Year-Old Entry	Matched	Match Rate	Diffs in Preds (KS2 minus GCSE)			
					A*	A	C	F
4463*	ADDITIONAL SCIENCE	161400	126331	78.27	0.31	0.53	-0.18	0.05
3811*	APPLIED ART AND DESIGN	2558	1988	77.72	0.31	-0.35	-1.64	-0.23
3831*	APPLIED BUSINESS	4839	3899	80.57	0.28	-0.43	-2.19	-0.94
4411*	BIOLOGY	50650	37912	74.85	0.83	1.08	1.29	0.39
3126*	BUSINESS & COMMUNICATION STUDIES	22945	16253	70.83	-0.15	-0.63	-1.27	-0.16
3132*	BUSINESS STUDIES A	15564	12463	80.08	-0.28	-0.99	-2.04	-0.29
4421*	CHEMISTRY	48240	36480	75.62	1.02	1.39	1.49	0.42
3542*	D&T: FOOD	46738	38349	82.05	0.15	0.28	0.15	0.02
3545*	D&T: RESISTANT MATERIALS TECH.	44841	35511	79.19	0.02	0.12	-0.29	-0.10
3241*	DRAMA	25597	18924	73.93	0.16	0.16	0.38	0.09
3702*	ENGLISH A	372086	288704	77.59	0.10	0.14	-0.15	-0.04
3701*	ENGLISH B	27252	20118	73.82	0.13	0.15	-0.03	0.09
3712*	ENGLISH LITERATURE A	327145	264827	80.95	0.06	-0.07	-0.64	-0.02
3711*	ENGLISH LITERATURE B	26902	19455	72.32	0.12	0.04	-0.10	0.15
3261*	EXPRESSIVE ARTS	3078	2334	75.83	0.45	0.82	0.67	0.69
3651*	FRENCH A	73882	54930	74.35	-0.18	-0.48	-0.52	0.22
4652*	FRENCH B	12445	9851	79.16	-0.04	-0.32	-0.52	0.15
3761*	GENERAL STUDIES	5857	4892	83.52	0.08	0.29	0.27	-0.04
3031*	GEOGRAPHY A	60566	46076	76.08	0.30	0.41	0.47	0.36
3032*	GEOGRAPHY B	3207	2674	83.38	-0.04	-0.14	-0.62	-0.17
3661*	GERMAN A	30518	24798	81.26	-0.09	-0.37	0.03	0.49
4662*	GERMAN B	5361	4549	84.85	-0.09	-0.53	-1.41	0.05
3821*	HEALTH & SOCIAL CARE	2975	2298	77.24	0.27	-0.37	-3.94	-1.70
3041*	HISTORY A	17113	13904	81.25	0.15	0.00	-0.40	0.23
3042*	HISTORY B	40391	31918	79.02	0.02	-0.26	-0.30	0.41

AQA Selected GCSEs June 2009. Summary of Differences in Predictions at Key Grade Boundaries

(KS2 = KS2-based prediction. GCSE = Concurrent GCSE-based prediction)
(Note: the KS2-based predictions differ from those in earlier appendices in that they use candidates' total aggregated test marks as a measure
of prior performance as opposed to candidates' average test levels)

Code	Title	16 Year-Old Entry	Matched	Match Rate	Diffs in Preds (KS2 minus GCSE) A*	A	C	F
3521*	INFORMATION & COMM. TECH. A	12165	9490	78.01	-0.09	-0.41	-0.12	0.23
3631*	ITALIAN	1557	1050	67.44	-0.80	-1.65	-1.19	0.00
4306*	MATHEMATICS A	42712	31349	73.40	-0.22	-0.61	-0.31	0.02
4307*	MATHEMATICS B	135519	105075	77.54	0.05	0.19	-0.38	-0.16
3571*	MEDIA STUDIES	39611	32305	81.56	0.09	-0.17	-0.64	-0.05
3271*	MUSIC	16966	13393	78.94	-0.10	-0.27	-0.13	0.17
3581*	PHYSICAL EDUCATION A	25334	20124	79.43	-0.09	-0.39	-0.51	0.02
4451*	PHYSICS	47452	36064	76.00	0.92	1.23	1.36	0.48
3181*	PSYCHOLOGY	2762	2094	75.81	0.30	0.35	-1.69	-0.87
4061*	RELIGIOUS STUDIES A	16204	7291	45.00	0.19	0.37	0.91	0.42
3062*	RELIGIOUS STUDIES B	25105	19984	79.60	0.00	0.04	0.00	0.37
4461*	SCIENCE A	176566	132361	74.96	0.13	0.31	-0.53	-0.07
4462*	SCIENCE B	33302	24231	72.76	0.77	1.77	0.75	0.12
3192*	SOCIOLOGY	12099	9743	80.53	0.06	-0.05	-0.88	0.08
3691*	SPANISH A	30172	22267	73.80	0.37	0.37	0.04	0.38
4692*	SPANISH B	2654	2108	79.43	0.03	-0.05	-1.16	0.20
3646*	URDU	2055	1254	61.02	0.04	0.55	-0.06	-0.10