The accuracy of forecast grades for OCR A levels in June 2014

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1. Introduction

This report is an update of Statistics Report Series No. 64 (Gill & Chang, 2013) which examined the accuracy of forecast grades in OCR A levels in June 2012, in relation to the final grade. The forecast grades in these reports are those reported by teachers to the exam board prior to the final examination session. As such, they may differ somewhat from the predicted grades sent to UCAS as part of the university application process. The deadline for reporting forecast grades to OCR is May whilst UCAS receive predictions during the applications period which ends in January. Hence, by the time OCR receive the forecasts teachers will have more information about students' potential. However, the removal of the January examination session means that teachers will now have less information from achievement in individual A level units available to them than was the case in 2012.

The data for this report were for students certificating in June 2014 in all OCR A level subjects. The report compares the data with the analysis of 2012 data in terms of accuracy of forecast grades.

2. Overall accuracy of forecast grades

Overall, the forecast grade in 2014 was correct 43.14% of the time (see Table 1). This is a lower level of accuracy than in 2012 (48.29%). Forecasts were, in general, more optimistic than pessimistic.

Table 1: Overall accuracy of forecast grades

% Accurate	43.14
% Optimistic	43.17
% Pessimistic	13.69

Table 2 demonstrates that, in the vast majority of cases (88.89%), the forecast grade was correct or was within one grade. The overall accuracy is a little bit lower than the overall accuracy in 2012, in which 91.89% of the forecast grades were correct or were within one grade.

Table 2: Extent of inaccuracy of forecast grades

	%	N
Within 1 grade	88.10	149152
More than 1 grade out	11.90	20143

Table 3 shows the accuracy of the forecast grades by school type. Independent and grammar schools were the most accurate at forecasting A level grades. Further education (FE) colleges were the least accurate. FE and Tertiary colleges and comprehensive schools were the most optimistic. Independent and grammar schools were the least optimistic.

Table 3: Accuracy of forecast grades by school type

School Type	% Accurate	% Optimistic	% Pessimistic	N
City Academy	42.45	43.90	13.65	51631
Comprehensive	41.25	46.32	12.43	31542
FE College	35.77	52.88	11.35	5443
Grammar	47.02	39.98	13.01	7689
Independent	50.06	35.33	14.61	31043
Sixth Form College	41.12	44.08	14.80	33395
Tertiary College	37.55	48.58	13.87	5422
Total	43.21	43.06	13.73	166165

The figures in Table 3 are all lower than in 2012, but particularly so in FE and Tertiary Colleges (43.07% and 45.67% accurate respectively in 2012).

Table 4: Accuracy of forecast grades by final grade

Final Grade	% Accurate	% Optimistic	% Pessimistic	N
A*	60.28	-	39.72	16459
A	58.13	22.81	19.06	32495
B	47.72	37.73	14.55	42739
C	40.98	50.95	8.08	37953
D	24.83	70.76	4.41	24582
E	17.02	82.31	0.67	11701
U	5.35	94.65	-	3366
Total	43.14	43.17	13.69	169295

Overall, it was easier for teachers to correctly forecast higher grades than lower grades (Table 4). In particular grade A * and A were by far the easiest to forecast. This pattern is the most likely reason for the better accuracy in independent and grammar schools, where students achieve higher grades on average. It is also interesting to note that the percentage of optimistic forecasts was higher at lower grades.

The level of accuracy in Table 4 was slightly lower than in 2012 at all grades. The largest difference in accuracy was at grade E where the difference was more than 9 percentage points (26.94% for grade E in 2012). For the other grades it was around 5 percentage points lower.

3. Accuracy of A level combinations

3.1 All students

In this section the accuracy of the forecast of the *combination* of A levels taken by individual students is investigated. For this, grades were converted into points as per the UCAS tariff (A*=140, A = 120, B = 100, C = 80 etc) for students taking three A levels (most university offers are for three A level grades). The overall points score based on the forecast grades for each student (*forecast points score)* was then compared with the actual overall points score (*final points score)*.

When considering the accuracy of the forecasts across a combination of subjects there are two possible calculations: actual difference and absolute difference. The *actual difference* (which is more useful when university offers are made in points, due to compensation) is the difference between the forecast points score and the final points score (e.g. forecast points score = 120 + 120 + 100 = 340; final points score = 120 + 80 + 120 = 320; actual difference = 320 - 340 = -20). However, using this measure may hide some inaccuracies if, for instance, an optimistic forecast by one grade in a subject is cancelled out by a pessimistic forecast by one grade in another. An alternative measure is the *absolute difference* (more useful when offers specify grades in particular subjects). This is the (absolute) sum of the differences between each forecast and final grade (e.g. absolute difference 1 = 120 - 120 = 0; absolute difference 2 = 80 - 120 = 40; absolute difference 3 = 120 - 100 = 20; overall absolute difference = 0 + 40 + 20 = 60).

Analysis was undertaken using both these measures. Please note that the analysis is only for students taking three OCR A levels. This reduced the number of students significantly.

On average, the forecasts for combinations of A level subjects were optimistic, with forecast points score slightly above final points score (see Table 5). However, Table 6 shows that most of the differences were very small; 23.2% of overall forecast points scores were exactly right, and 58% were exactly right or within 20 points - equivalent to an increase/decrease of one A level grade.

Table 5: Mean accuracy of A level forecast points score

Variable	Mean
Forecast points score	325.08
Final points score	305.68
Actual difference	-19.40
Absolute difference	39.52

Table 6: Distribution of actual difference between final and forecast points score

Actual Difference	Frequency	Percent
-220	1	0.02
-200	3	0.05
-180	4	0.06
-160	18	0.28
-140	27	0.42
-120	48	0.74
-100	168	2.58
-80	302	4.64
-60	609	9.37
-40	1097	16.87
-20	1430	21.99
0	1509	23.21
20	833	12.81
40	337	5.18
60	88	1.35
80	23	0.35
100	4	0.06
120	0	0.00
140	1	0.02

The level of accuracy in Table 6 for actual difference was lower than in 2012. Only 23.21% of overall forecast points scores were exactly right, compared to 27.62% in 2012, and 58% were exactly right or within 20 points, compared to 66% in 2012.

In terms of absolute differences, Table 7 shows that the level of accuracy for absolute difference was also lower than in 2012. Only 13.21% of forecasts were exactly accurate in this report, compared to 17.90% in 2012. In this report, 41.14% of forecasts were within 20 points, compared to 50.97% in 2012.

Table 7: Distribution of absolute difference between final and forecast points score

Absolute Difference	Frequency	Percent
0	859	13.21
20	1816	27.93
40	1890	29.07
60	1088	16.73
80	498	7.66
100	219	3.37
120	67	1.03
140	36	0.55
160	20	0.31
180	4	0.06
200	3	0.05
220	2	0.03

Table 8 shows the A level points score forecasts by school type. For all school types the average forecast was optimistic. As with the individual grades the most accurate forecasts were made by independent and grammar schools. They were also the forecasts that were least optimistic. However, this may be due to the nature of the

students attending these schools. They are likely to be very able students, and therefore it may be easier to forecast their grades correctly.

Table 8: Mean accuracy of A level forecast points score by school type

School Type	N	Mean Forecast	Mean Final	Actual Difference	Absolute Difference
City Academy	2122	319.60	299.84	-19.76	41.08
Comprehensive	883	308.40	285.80	-22.60	42.22
FE College	135	293.78	262.22	-31.56	51.11
Grammar	361	342.83	326.81	-16.01	34.63
Independent	1683	352.98	338.68	-14.30	31.86
Sixth Form College	1108	304.93	282.85	-22.08	45.04
Tertiary College	125	312.96	280.00	-32.96	52.16

It is also true for the results in 2012 that the most accurate forecasts were made by independent and grammar school and their forecasts were least optimistic.

3.2 Students with a forecast points score of 240 or above (equivalent to three grade Cs or above)

The forecast grades analysed in section 3.1 were for all A level candidates, not just those who were planning to go to university. Thus, this included students of a larger ability range than those for whom a predicted grade is sent to UCAS.

In this section we analyse data for students with both a forecast and final points score of at least 240 (the equivalent of three grade Cs). The accuracy of the forecast points score was slightly better for this group of students. The average forecast was optimistic, by around 18 points (Table 9).

Table 9: Mean accuracy of A level forecast points score (candidate with 3 grade Cs or above)

Variable	Mean
Forecast points score	335.55
Final points score	317.09
Actual difference	-18.46
Absolute difference	38.19

Table 10 shows that the level of accuracy was lower than in 2012. Only 23.77% of the students had final points score equal to the forecast, with 59.19% within 20 points. In contrast, in 2012, 28.64% of students had final points score equal to the forecast with 67.87% within 20 points.

Table 10: Distribution of actual difference between final and forecast points score (candidate with 3 grade Cs or above)

Actual Difference	Frequency	Percent
-220	1	0.02
-200	3	0.05
-180	1	0.02
-160	11	0.18
-140	25	0.42
-120	33	0.55
-100	144	2.40
-80	249	4.15
-60	558	9.30
-40	1011	16.85
-20	1348	22.47
0	1426	23.77
20	777	12.95
40	308	5.13
60	82	1.37
80	21	0.35
100	2	0.03

In terms of absolute differences (see Table 11), only 13.87% of forecasts were exactly accurate and 42.59% were within 20 points. In contrast, in 2012 18.94% were accurate and 53.11% were within 20 points.

Table 11: Distribution of absolute difference between final and forecast points score (candidate with 3 grades Cs or above)

Absolute Difference	Frequency	Percent
0	832	13.87
20	1723	28.72
40	1750	29.17
60	997	16.62
80	419	6.98
100	186	3.10
120	45	0.75
140	29	0.48
160	13	0.22
180	1	0.02
200	3	0.05
220	2	0.03

Table 12 shows the A level points score forecasts by school type. For all school types the average forecast was optimistic. The least optimistic forecasts were made by independent and grammar schools, with an average difference of around 14 points and 16 points respectively. In 2012 the forecasts for independent and

grammar schools were also the least optimistic, although with an average difference of only 10 points and 11 points respectively.

Table 12: Mean accuracy of A level forecast points score by school type (candidate with 3 grade Cs or above)

School Type	N	Mean Forecast	Mean Final	Actual Difference	Absolute Difference
City Academy	1957	329.36	310.46	-18.90	39.95
Comprehensive	785	322.47	300.36	-22.11	40.82
FE College	118	307.63	276.44	-31.19	47.80
Grammar	350	346.91	331.03	-15.89	34.63
Independent	1631	358.09	344.29	-13.80	31.26
Sixth Form College	971	319.77	299.44	-20.33	43.23
Tertiary College	110	327.27	293.82	-33.45	50.55

3.3 Students with a forecast points score of 360 (equivalent to three grade As or above)

The accuracy of the forecasts for the very highest achieving students was also analysed. For this, only students who were forecast three grade As or above (360 UCAS points or above) were selected. For this group the average forecast was optimistic, by around 14 points (Table 13).

Table 13: Mean accuracy of A level forecast points score (3 grade A or above candidates only)

Variable	Mean
Forecast points score	386.11
Final points score	372.54
Actual difference	-13.58

Results from 2012 show that for this group the average forecast was slightly less optimistic - by around 11 points.

Table 14 shows that 29.27% of the forecasts were accurate and 70.22% were no more than one grade out (within 20 points). This means the forecasts were less accurate than in 2012, which showed that 35.44% of the forecasts were accurate and 76.36% were no more than one grade out.

Table 14: Distribution of actual difference between final and forecast points score (3 grade A or above candidates only)

Actual Difference	Frequency	Percent
-180	1	0.04
-160	0	0.00
-140	4	0.16
-120	5	0.20
-100	20	0.78
-80	59	2.31
-60	174	6.80
-40	384	15.01
-20	668	26.10
0	749	29.27
20	380	14.85
40	101	3.95
60	14	0.55

Table 15: Mean accuracy of A level forecast points score by school type (3 grade A or above candidates only)

School Type	N	Mean Forecast	Mean Final	Actual Difference
City Academy	742	382.10	367.84	-14.26
Comprehensive	256	382.19	364.38	-17.81
FE College	23	380.00	356.52	-23.48
Grammar	175	385.83	375.54	-10.29
Independent	996	391.35	379.74	-11.61
Sixth Form College	284	381.55	365.92	-15.63
Tertiary College	38	387.89	368.42	-19.47

Table 15 shows that for the group of students with 3 grade As or above, the average forecast was optimistic for all school types. The least optimistic forecasts were made by city academy, independent and grammar schools with an average difference of around 14, 12 and 10 points respectively. In 2012, the least optimistic forecasts were made by the same three school types with average differences of 9, 10 and 11 points respectively.

4. Conclusion

For all students, nearly 88% of the forecast grades were correct or within one grade. However, across all of the different ways of measuring the accuracy of forecast grades, accuracy has decreased slightly since 2012. This may well relate to the reduction in the amount of information from individual units available to teachers since the removal of the January examination session.

References

Gill T. and Chang Y. (2013). *The accuracy of forecast grades for OCR A levels in June 2012. Statistics Report Series No.64.* Cambridge Assessment.