

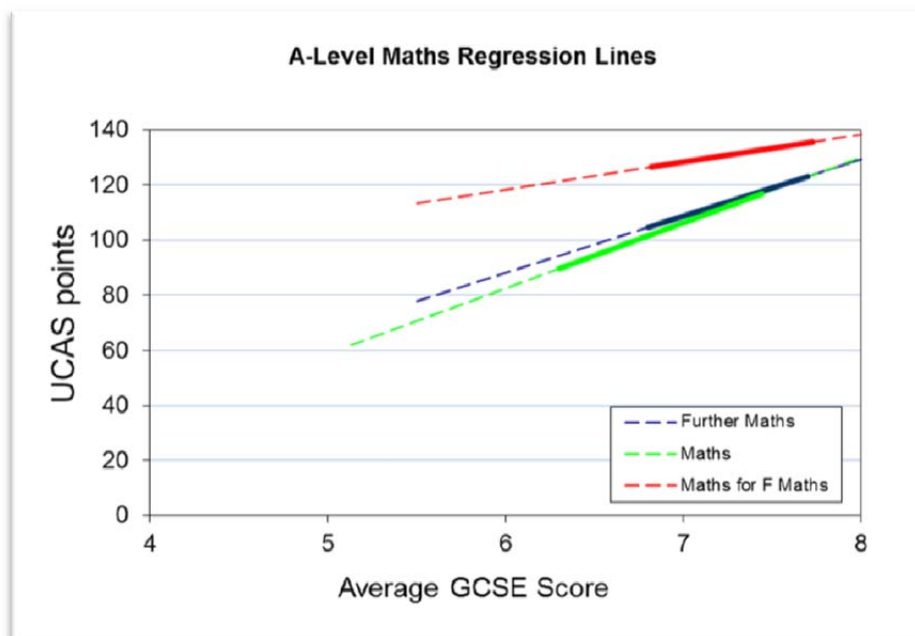
Predicting and evaluating grades in A level Mathematics and Further Mathematics

Alis makes 'predictions' of A level grades based on the average grade that has been achieved in the past by students with the same baseline scores. In general, we take all students who have taken that subject as the comparison group. However, in the case of Mathematics and Further Mathematics there is an anomaly:

Students who take both Mathematics and Further Mathematics achieve substantially higher grades in their maths than comparable students who take maths alone.

The graph shows the regression lines for these groups:

(Dotted line shows 95% interval; thick line is inter-quartile range)



For most students, if we know that they are taking Further Mathematics as well as Mathematics this adds between half a grade and one A level grade to our expectation for maths. For those at the lower end of prior performance, the difference is even bigger.

There are likely to be a number of factors involved, all of which may contribute to this effect:

- Studying more maths makes you better at it. Taking the extra modules means more time spent on maths, maths skills developed to a higher level and students becoming more motivated in maths, boosting performance on maths A level.
- Selection effects. Those who choose (or are offered the chance) to take Further Mathematics may be more motivated. They may also be more organised or advantaged in other ways, which might mean they do better than 'expected' in all their subjects.
- The aggregation/certification process. Some Mathematics/Further Mathematics modules are interchangeable and the certification process automatically combines them to get the best grade in maths. This can 'inflate' the grade awarded in Mathematics for those who take Further Mathematics.

Whatever the explanation, it seems to make sense to base our expectations of what students who take Further Mathematics will achieve in Mathematics on the higher red line (i.e. between half a grade and one whole grade above the standard Alis prediction for Mathematics A level).