Frequently Asked Questions for the *GRE*® Comparison Tool for Business Schools 2017 Update

Why use the *GRE*® Comparison Tool for Business Schools?

Many business schools and institutions accept both the *Graduate Record Examinations*® (*GRE*®) General Test and the Graduate Management Admission Test® (GMAT®) exam as part of the admissions process. The purpose of the Comparison Tool is to provide a way for institutions to appropriately compare results from the two exams.

The GRE Comparison Tool allows score users to predict GMAT Total, Verbal and Quantitative scores using a test taker's GRE Verbal Reasoning and Quantitative Reasoning scores from the GRE General Test (130–170 scale).

How is the new GRE Comparison Tool different from the prior version?

The ability to predict GMAT scores based on the prior GRE General Test scores (200–800 score scale) is no longer included in the tool. GRE scores are reportable for five years; therefore, scores from the prior GRE General Test are no longer reportable.

Why use a prediction model?

The GMAT exam and the GRE General Test have a high correlation with each other, so it is reasonable to use the actual scores on one measure to predict the likely score range on the other for a given applicant. However, for several reasons, it was not appropriate to produce concordance tables stating that a total score on one measure is directly equivalent to a total score on the other, and vice versa.

One reason is that the programs governing the tests make different recommendations for score use. The GRE program recommends keeping the GRE Verbal Reasoning and Quantitative Reasoning scores separate when making admissions decisions and, therefore, does not provide a total score. On the contrary, a total score, which is based on both Verbal and Quantitative section results, is provided for the GMAT exam. Additionally, the GMAT Total score is commonly used for admissions decisions.

A second reason is that while the exams use many similar question types and cover similar domains, each uses a unique framework that specifies the sub-domains covered in the test content as well as the difficulty level and proportion of question types used on the test.

Finally, the populations from which the tests have been normed are also different, so comparing percentiles is not appropriate.

While the scores from one test are not perfectly interchangeable with the other, a prediction model permits a GMAT Total score to be predicted from separate GRE Verbal Reasoning and Quantitative Reasoning scores. Therefore, they can be compared using the prediction procedures found in the GRE Comparison Tool for Business Schools.

How are the predicted GMAT scores calculated?

The predicted GMAT scores were calculated using statistical analyses of the actual test scores for those who took both the GRE General Test and the GMAT exam under actual operational, high-stakes conditions. The Comparison Tool's prediction model is based on empirical data collected from 472 test takers who took both the GRE General Test and the GMAT exam within a one-year period.

Using the statistical procedure of multiple linear regression, the participants' GRE Verbal Reasoning and Quantitative Reasoning scores were used to predict their GMAT Total scores. Then, the resulting prediction equation, which essentially summarizes the empirical relationship of the GRE and GMAT scores into a simple algebraic equation, was used to create predicted GMAT Total scores for all combinations of GRE Verbal Reasoning and Quantitative Reasoning scores. The regression analysis indicates that GRE Verbal Reasoning and Quantitative Reasoning scores are significantly able to predict GMAT Total scores. Not surprisingly, given the similar nature of the two tests, the correlation between the GRE scores and the GMAT score is quite high at .92. Correlations of about .85 are often reported when predicting how well a test taker will do if they repeat a test.

The prediction for the GMAT Verbal and Quantitative scores uses the same data as was used for the GMAT Total score prediction. In this instance, the GRE Verbal Reasoning score is used to predict the GMAT Verbal score and the GRE Quantitative Reasoning score is used to predict the GMAT Quantitative score. The correlation between the GRE scores and the GMAT scores are high, but not as high as seen for the GMAT Total score prediction. The correlation for the Verbal Reasoning section is .79 and the correlation for the Quantitative Reasoning section is .88.

The data used in the analyses came from actual GRE and GMAT score reports provided by GRE test takers who took both tests under standard operational conditions. Since neither the GRE nor GMAT scores were obtained via an experimental setting, many of the issues that may impact comparisons of test results were minimized, such as unreliable scores due to self-reporting or errors due to lack of effort, motivation or unfamiliarity with the tests.

It is important to note that while the scales for GMAT Verbal and Quantitative sections are officially 0–60, scores below 6 and above 50 are uncommon. The GRE Quantitative Reasoning measure allows for differentiation among top performers; consequently, the GRE Quantitative Reasoning scores will, at the top of the scale, predict GMAT Quantitative scores above 50 that may, in practice, not be obtainable on the GMAT exam.

What do the standard error and confidence intervals mean?

Standard error is the technical term for the lack of precision found with an individual test score. There are different types of standard error. The standard error of the estimate is reported when using the score of one test to predict the score on a different test. This standard error is calculated using the correlation of the scores from the two tests in place of the internal reliability. This correlation is generally lower than single test (internal) reliability because the error associated with each of the tests individually is compounded. For the GMAT Total score, the standard error reported in the Comparison Tool is calculated using the correlation between the GRE Verbal Reasoning and Quantitative Reasoning scores and the GMAT Total score. For each of the two sections, the reported standard error is calculated using the correlation between the GRE Verbal

Reasoning score and the GMAT Verbal score, and the GRE Quantitative Reasoning score and the GMAT Quantitative score.

Confidence intervals use the standard error as the starting point to create a range of values around the estimated score that indicates how confident we can be that the score estimate is accurate. The magnitude of that range is based on the size of the standard error and the level of "confidence" desired. The level of confidence is stated as the percent of the time the actual score would fall within the specified range, and is based on a normal curve distribution. The confidence intervals reported in the Comparison Tool represent one standard error above or below the predicted score. One standard error represents a confidence interval of approximately 68 percent, which is evenly distributed as 34 percent above and 34 percent below the estimated score.

What is the formula for predicting GMAT Total scores from the GRE General Test scores?

The predicted GMAT Total scores were calculated from a multiple linear regression equation. GRE Verbal Reasoning and Quantitative Reasoning scores were used as the predictor (independent) variables and the GMAT Total score was used as the predicted (dependent) variable.

The regression equation:

*GMAT Total score = -2080.75 + 6.38*GRE Verbal Reasoning score + 10.62*GRE Quantitative Reasoning score*

The correlation of the GRE Verbal and Quantitative Reasoning scores with the GMAT Total score based on the above regression equation is .916.

The standard error (SE) of the predicted GMAT Total score is 54.8. The formula used to calculate the SE is $\sigma_{GMAT}\sqrt{1-r^2}$ or $136.8\sqrt{1-(.916)^2}$

The magnitude of the standard error of the estimate is driven by the correlation between the measures and is not impacted by sample size.

The predicted GMAT Total scores are rounded to 10-point increments reflecting the scale of the test. Scores predicted to be below 200 were changed to 200 to reflect the actual base of the scale, and scores predicted to be above 800 were changed to 800. The highest predicted GMAT Total score was 810. The highest observed GMAT Total score for the sample was 780.

What is the formula for predicting GMAT Verbal and Quantitative scores from the GRE Verbal Reasoning and Quantitative Reasoning scores?

The predicted GMAT Verbal and Quantitative scores were calculated from a linear regression equation. Either the GRE Verbal Reasoning or Quantitative Reasoning score (130–170 scale) was used as the predictor (independent) variable, and the corresponding GMAT Verbal or Quantitative score was used as the predicted (dependent) variable.

The regression equations:

*GMAT Verbal score = -109.49 + 0.912*GRE Verbal Reasoning score*

*GMAT Quantitative score = -158.42 + 1.243*GRE Quantitative Reasoning score*

The correlation of the GRE Verbal Reasoning scores with the GMAT Verbal scores based on the above regression equation is .787. The correlation of the GRE Quantitative Reasoning scores with the GMAT Quantitative scores based on the above regression equation is .882.

The standard error of the predicted GMAT Verbal score is 5.93 ($9.617\sqrt{1-(.787)^2}$).

The standard error of the predicted GMAT Quantitative score is 5.73 ($12.170\sqrt{1-(.882)^2}$).

The predicted GMAT Verbal and Quantitative scores are rounded to 1-point increments reflecting the scale of the test. The highest predicted GMAT Verbal score was 46. The highest observed GMAT Verbal score for the sample was 50. The highest predicted GMAT Quantitative score was 53. The highest observed GMAT Quantitative score for the sample was 51.

The sample used in the analysis includes the test scores of 472 examinees who took the GRE General Test between August 2011 and December 2012 and took the GMAT within one year of their GRE test date.