

# **KOPPELMAN SCHOOL OF BUSINESS**

## **Assessment of Undergraduate Quantitative Reasoning**

Sub-Committee

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## BACKGROUND

During fall 2014 and spring 2015, the Quantitative Reasoning Sub Committee developed and refined conceptual and operational definitions, assessment tools, and assessment procedures. The sub-committee consisted of Herve Queneau, Viju Raghupathy, and Chun Wang. The Quantitative Reasoning Plan was submitted to the faculty at large in fall 2014 (Appendix A). After deliberation, the Subcommittee decided to use examples from the GMAT assessment model to assess student quantitative reasoning and constructed an in-house tool for assessment.

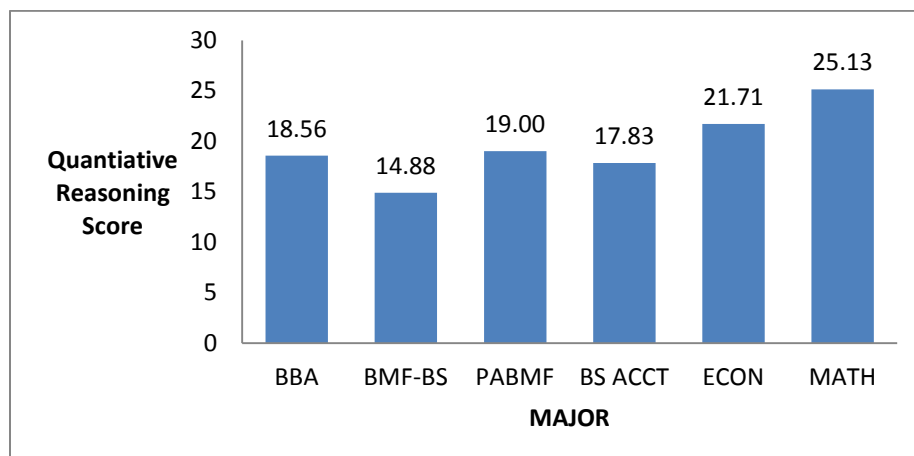
The QR measure (QR) consists of 30 questions divided into sections of 10 questions each. Each section tests a different level of quantitative literacy: 1) quantitative comparison; (QC); 2) DI (DI); and 3) problem-solving (PS). The instrument is attached in Appendix B. In December, 2015 the test was administered to 100 students. Twenty-two of the students came from one section of ECON 4400W, and 78 students came from 3 sections of BUSN 4200W. All students were seniors, and their majors were as follows:

BBA	45
BMF-BS	16
PABMF-BS	12
BA ECON	7
MATH	8
ACCT BS	6
OTHER	6*

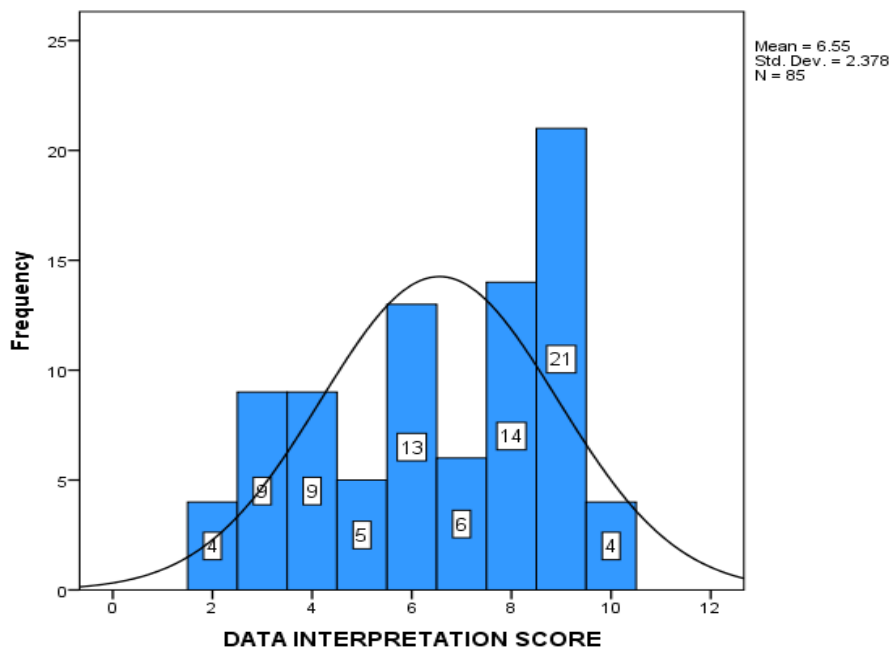
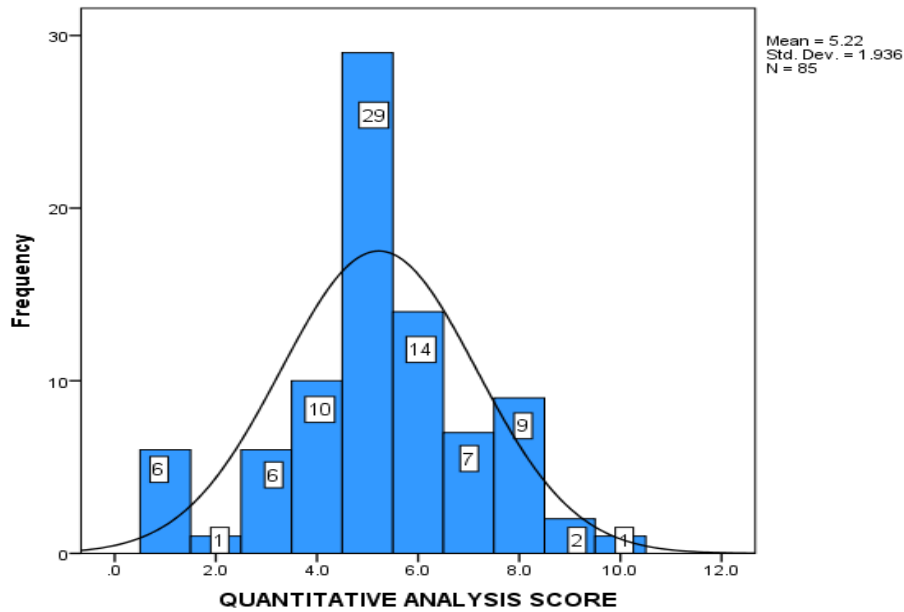
*\*The students in the other category were from other schools, on ePermit, or non-degree. They are not used in the analyses.*

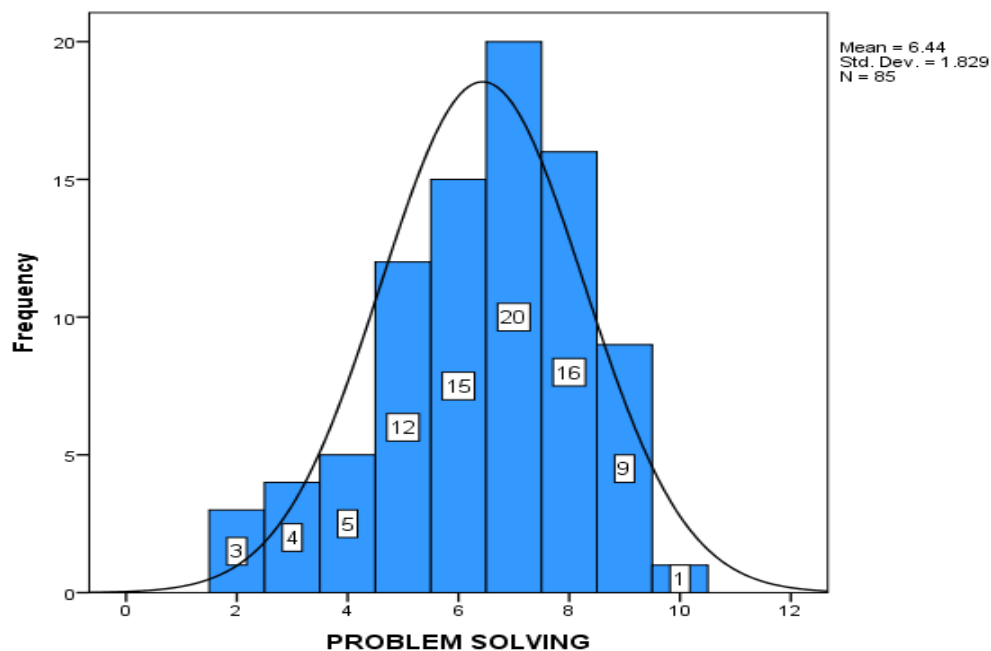
## RESULTS

The mean score on the 30-item QR measure for the sample (n = 94) was 18.74 out of a total possible score of 30. The mean score varied significantly by major. Not surprisingly, the mean score for mathematics students was significantly higher than for any other major. The mean score for economics students was significantly higher than that for the BMF-BS. The mean score for BMF-BS students was significantly lower than for any other major, although not significant. The Math score was not used for further analysis.

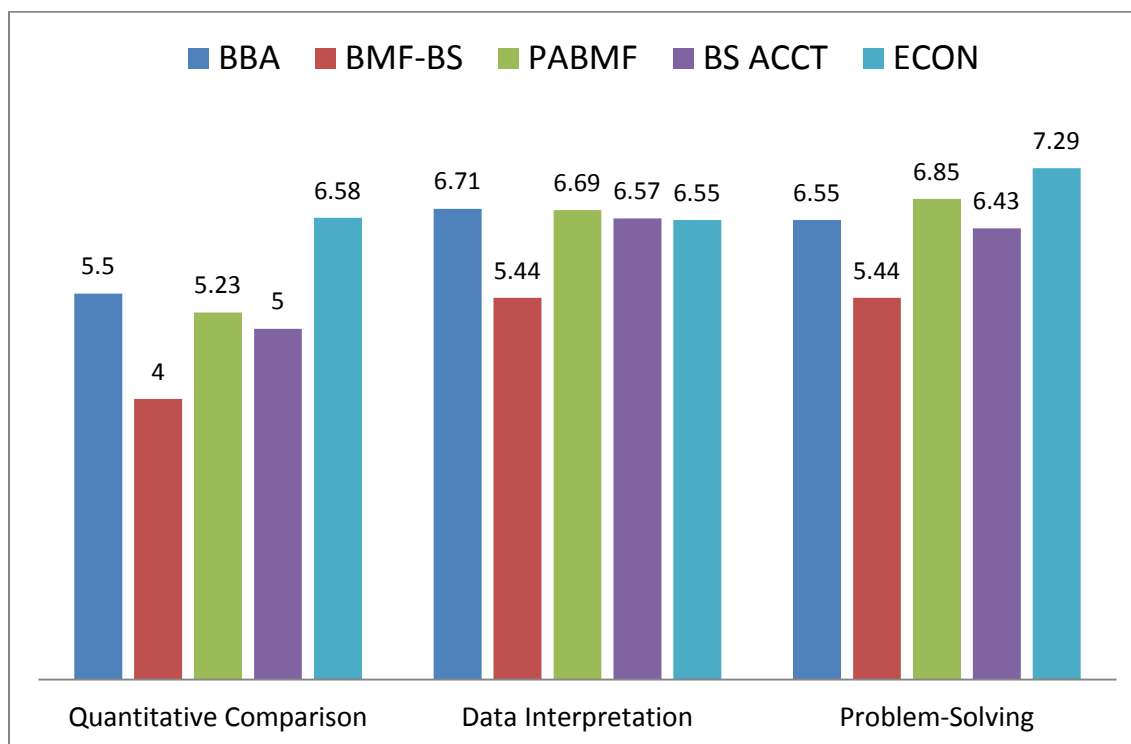


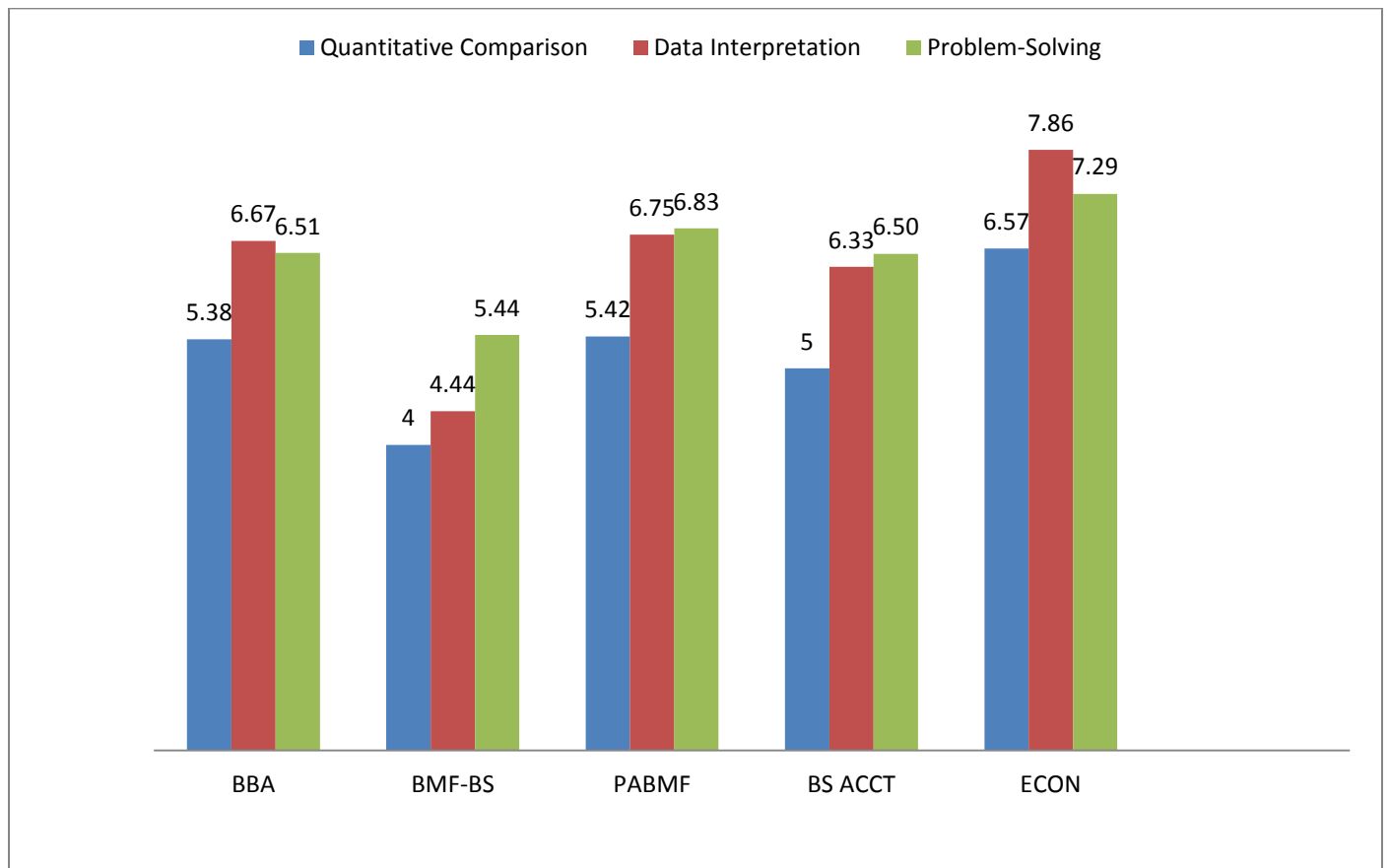
The scores for the subscales, QC, DI, and PS, were 5.46, 6.70, and 6.57, respectively. Overall, students' mean scores on QC were lower than their performances on DI and on PS. The frequencies are shown below. However, the differences were not significant.





Students from all 5 majors had the lowest score on QC. But this difference was only significant in one case – the QC score for the BMF-BS students was significantly lower than was the QC score for BBA and economics majors. The other BMF-BS differences on the subscales, although lower than scores for the other majors, were not significant.





Additional analysis was conducted to see if the mean of the student's scores on the total measure and on each of the subscales were related to their cumulative GPA at the beginning of the semester, student grade in the BUSN/ECON 3400 course, and student grade in the BUSN/ECON 3410 course. The correlation coefficients between the QR Score and the Cum GPA, the QC score, the DI Score, and the PS score were .191, .358, .216, and .316, respectively. All coefficients were significant. But when the CUM GPA, statistics grade, and mathematics grade were regressed on the QC, DI, and PS scores in a multivariate regression, the result was not significant.

Unfortunately, the data did not permit any further analysis of potential correlates with the final scores.