AN EMPIRICAL INVESTIGATION OF MPA STUDENT PERFORMANCE AND ADMISSIONS CRITERIA

Srinivasan Ragothaman*
Jon Carpenter
Thomas Davies
School of Business
University of South Dakota

The quality of a Master of Professional Accountancy (MPA) program, similar to other undergraduate and graduate programs in business and other disciplines, is typically directly related to the quality of its students. While there is a considerable published scholarly work on MBA student performance, there is very little research to predict student success in MPA programs and this study fills this important gap. In this article, the authors investigate the association between undergraduate GPAs, GMAT scores, age, and a few other independent variables and MPA student performance as measured by graduate GPA (GGPA). Correlation analysis indicates that junior-senior year grade point average (2UGPA) is most highly correlated with GGPA. The regression results indicate that 2UGPA and quantitative GMAT score are significant predictors of GGPA at 0.01 levels. Age was also a significant predictor of graduate GPA at the 10 percent level.

The quality of a Master of Professional Accountancy (MPA) program, similar to other undergraduate and graduate programs in business and other disciplines, is typically directly related to the quality of its students. According to the Association to Advance Collegiate Schools of Business International (AACSB), "schools must demonstrate that the combination of indicators used in making admission decisions yields results consistent with the objective of producing high-quality graduates." (AACSB, 1981) Hence, identifying a parsimonious set of predictors of MPA student success is of interest to graduate program directors and deans as they seek to raise the standards and reputation of their programs. Program administrators frequently consider a number of different factors when making graduate admission decisions, including one or more of the following: overall undergraduate grade point average (GPA), junior-senior GPA, undergraduate major, Graduate Management Admissions Test (GMAT) scores, recommendations, goal statements, interviews, work experience, and writing samples.

In the past, academic researchers have devel¬oped several statistical models (e.g., discrimin¬ant analysis, multiple regression, stepwise regression) to predict an applicant's success in the Master of Business Administration (MBA) program

*Please address your correspondence to Srini Ragothaman at the University of South Dakota. The authors wish to thank the conference participants at the ASBBS meeting in Las Vegas and the MPMC meeting in Kearney, NE for their helpful comments.

(Pharr et. al., 1993; Wright and Palmer, 1997). However, there is very little research to predict student success in MPA programs specifically. The specialized accounting coursework required of MPA students may mean that undergraduate GPAs are better or worse predictors of graduate performance than GMAT scores. In addition, MPA programs generally prepare graduate students for the CPA examination, and since MBA classes likely have different desired learning outcomes, alternative admission criteria may be relevant. Hence, in this research, the authors investigate the association between undergraduate GPAs, GMAT scores, and several other explanatory variables, and MPA student performance as measured by graduate GPA (GGPA).

In subsequent sections of this paper, admission standards of a number of graduate business programs will be discussed. It is evident that institutions use different criteria and different combinations of factors when making admission decisions. Previously reported research studies which have employed a variety of statistical models to predict graduate school success have not always arrived at consistent results. This study seeks to contribute to the body of research that explores appropriate admission criteria for perhaps a less common but more specialized graduate program in accounting, in hopes that other schools may benefit from these findings. However, as Braunstein (2002) points out, prior authors of studies suggest that graduate business programs conduct their own investigations into appropriate admission criteria, in light of differences that exist among institutions (location, majors, student gender distribution, etc.)

Prior Research

There is ongoing debate as to what criteria should be considered in graduate school admission decisions. Much of the discussion focuses on the predictive value of the GMAT either as a stand-alone determinant or as one of several factors combined in various ways. AACSB International, the premier accrediting body for business schools internationally, has recommended the GMAT as a primary screening factor for admission to graduate business programs. This recommendation is generally supported by multiple prior research studies that have investigated the power of the GMAT in predicting academic performance in MBA programs (Deckro and Woundenberg, 1977, Fisher and Resnick, 1990, Ragothaman et al., 1998, Fitzgerald et al., 1966, Graham, 1991, Paolillo, 1982, Youngblood and Martin, 1982, Braunstein, 2002). Other research has concentrated on the predictive power of Graduate Records Examination (GRE) scores, with similar results (Hansen, 1971, and Lannholm, 1968).

Much of this prior research has suggested the importance of using additional factors as screening devices in order to improve predictability of academic performance. Perhaps the most commonly used measure of past academic performance (and thus, potential for graduate school success) is the undergraduate grade point average (UGPA). Hansen (1971) demonstrated an inverse relationship between "school quality" and UGPA, and recommends consideration of some mechanism for standardization of the UGPA

given the diversity of grading standards between schools. Instead of merely imposing a subjective implicit correction factor, he proposes an index based upon the intellectualism of students (a composite of variables including SAT scores, average high school grades, percent of Merit Scholars enrolled, etc.) and selectivity of college admissions.

Qualitative assessments of a student's potential (e.g., writing samples, interviews, and recommendation letters) are also often cited as important to the admission decision. Sobol (1984) has demonstrated that in addition to the UGPA and GMAT, a composite qualitative "scale" factor (including such things as recommendations, undergraduate activities, and work experience) is significant in forecasting graduate success in the MBA program. Graham (1991) found an unimpressive relationship between GMAT and GGPA, and recommends additional factors for assessing student potential, such as writing samples, interviews, and work experience. Deckro and Woundenberg (1977) also criticized use of the GMAT and suggest using a variety of qualitative measures. They studied nine variables as possible predictors of academic success among Kent State MBA students. Even though the regression coefficient was statistically insignificant, the authors reported that part-time students earned lower grades than did the full-time students. Adams (2000) has found that the number of years of work experience between the bachelor's degree and admittance to the MBA is a potential predictor of success in the graduate program.

Adams (2000) focused on work experience as a predictor of MBA success, using years between the completion of a bachelor's degree and the first semester in the MBA as a proxy. The author, using a sample of 269 MBA graduates, categorized the level of work experience into one of three groups: none or one year; two or three years, and four or more years. He found that students who fell within the first category had the lowest graduate GPAs, and likewise, those with the most experience outperformed the middle group; in addition, the effect of work experience was found to be more significant for males. He also found that while GMAT score and undergraduate GPA were significantly correlated to graduate school performance, they were less so than work experience.

Gayle and Jones (1973) reported a significant positive relationship between GRE scores and graduate grade point average in MBA students enrolled at a large state university. They also found a significant correlation between student age and GGPA which is positive up to age 29, and then turns negative. Paolillo (1982) who used step-wise regression methodology in his study found that the applicant's junior and senior undergraduate grade point average was the first variable to enter into the equation. Schwan (1988) took an opposite approach and sought to predict student pre-admission credentials on the basis of their GGPA. GGPA was found to be significantly correlated with GMAT score, undergraduate grade point average, and junior/senior grade point average among Murray State University MBA students. Wright and Palmer (1994) also used a different approach when they examined variations in academic performance

between subgroups of MBA students with "similar within-group but dissimilar between-group GMAT scores and undergraduate grade point averages".

Data and Results

In this study, data was collected for 196 graduates of the MPA program of a medium-sized Midwestern university over a period of ten years. Due to some missing variable information, the final sample was reduced to 163 records. Based on prior research, the following six explanatory variables were used: junior-senior year grade point average (2UGPA), verbal GMAT score, quantitative GMAT score, age of the student (AGE), undergraduate institution (UG school, coded as 1 if graduated from the University offering the MPA program and 0, otherwise), and campus location (LOCATION, coded as 1 if main campus and 0, if off-campus). The descriptive statistics for graduate GPA and the independent variables for the present study are given in Table 1.

Table 1: Descriptive Statistics

Variables	Mean	Std Deviation	N
Graduate GPA	3.5273	0.33018	163
2-year UGPA	3.4198	0.44056	163
GMAT – Verbal score	30.01	5.704	163
GMAT - Quantitative	32.18	6.180	163
Age	26.7423	6.14997	163
UG school	0.8098	0.39366	163
Campus Location	0.9325	0.25163	163

While the mean verbal GMAT score for this sample is 30.01, the average quantitative GMAT score is slightly higher at 32.18. The average age (which is used as a proxy for maturity and work experience) of the MPA graduates in this sample is 26.74 years. A correlation analysis of the six explanatory variables with the Graduate GPA (GGPA) was also performed. The results are reported in Table 2.

Table 2: Pearson Correlation with Graduate GPA

Variables	GGPA
Graduate GPA	1.000
2-year UGPA	0.606**
GMAT – Verbal score	0.292**
GMAT - Quantitative	0.426**
Age	0.118
UG school	-0.141*
Campus Location	0.050

** - correlation is significant at the 0.001 level (1-tailed)
* - correlation is significant at the 0.05 level (1-tailed)

The statistical results indicate that junior-senior year grade point average (2UGPA) is highly correlated with GGPA and is positive. Thus, the higher the 2UGPA, the higher is the graduate GPA. Other independent variables which have highly significant correlations with GGPA are quantitative GMAT scores and verbal GMAT scores. The undergraduate school where candidates obtained their bachelors degree is negatively correlated with graduate GPA. Also examined were correlations among the explanatory variables to assess the impact of multicollinearity, if present. Judge et al. (1985) argue that a serious multicollinearity problem arises only when correlations among the explanatory variables are higher than 0.8. In our dataset, the highest correlation is between age and UG school at -0.436. Hence, the degree of collinearity present appears to be too small to invalidate estimation results. The authors also performed a multiple regression analysis using two regression models. Based on prior MBA research, the first model included 2UGPA, GMAT quantitative and verbal scores, and age as explanatory variables. As a robust-

ness test, two additional variables – UG school and campus location were added to these four in the second regression model. The regression results for both models are reported in Table 3.

The adjusted r-squared for models I and II are 0.443 and 0.441, respectively and are fairly robust. (see Table 3). The F-statistic (an indicator of the model fit) is highly significant for both models. When the results for model I are examined, quantitative GMAT score and 2-year undergraduate grade point average are both statistically significant at 0.001 levels. The sign for both coefficients is positive, as expected. This result suggests that junior-senior undergraduate GPAs and the quantitative GMAT scores are highly predictive of graduate GPAs in the MPA program. The specialized accounting coursework (such as income tax, auditing, intermediate I and II, cost accounting etc.) required of MPA students indicates that undergraduate GPAs in the junior and senior years are better predictors of MPA performance. Basing admission decisions on junior-senior undergraduate GPAs and quantitative GMAT scores appears to be a sanguine procedure to identify high quality students. The regression results also suggest that age is weakly significant at the 10 percent level and the coefficient sign is positive. Age is used as a proxy for motivation and work experience. One would expect higher the age, higher is the motivation to come back and get a masters degree. A robustness check was performed in model II, by including undergraduate institution and campus location as additional independent variables. As shown in the last column of Table 3, the same three variables (2UGPA, quantitative GMAT and age) are still significant.

TABLE 3: MULTIPLE REGRESSION RESULTS

Variables	Model I	Model II
Constant	1.489 (7.885)**	1.464 (6.258)**
2-year UGPA	0.399 (8.480)**	0.398 (8.434)**
GMAT – Verbal score	0.003 (.751)	0.002 (.586)
GMAT - quantitative score	0.013 (3.906)**	0.013 (3.824)**
Age	0.006 (1.879)*	0.006 (1.680)*
Undergraduate school		-0.043 (-.768)
Campus location		0.088 (1.043)
Adj. R-squared	0.443	0.441
F-statistic	33.184**	22.297**
Sample size	163	163

The dependent variable is the graduate (MPA) GPA. T-statistics are in parentheses.
** - indicates significance at the 0.001 level
* - indicates significance at the 0.10 level

Summary

While there are a lot of published research on MBA student performance, there is very little research to predict student success in MPA programs. This research study examines MPA student performance and its association with junior-senior year grade point average (2UGPA), verbal GMAT score, quantitative GMAT score, age of the student (AGE), undergraduate institution (COLLEGE), and campus location (LOCATION) and MPA student performance as measured by graduate GPA (GGPA). Data was collected for 163 graduates of the MPA program of a medium-sized Midwestern university. Correlation analysis results indicate that junior-senior year grade point average (2UGPA) is most highly correlated with GGPA. Other independent variables which have significant correlations with GGPA include: quantitative GMAT score and verbal GMAT score. The regression results indicated that the junior-senior year grade point average (2UGPA) and quantitative GMAT score were found to be significant predictors of graduate GPA at 0.01 levels. Age was also a significant predictor of MPA GPA at the 10 percent level. There are a few limitations to this study. The sample was drawn exclusively from students who had successfully completed the MPA program. This study does not make any inference about the possible academic performance of students who were denied admission to the MPA program based on low GMAT scores and those who dropped out of the MPA program before completion. Moreover, the data used in this study came from an AACSB accredited, rural school in the Midwest. Accordingly, generalization of the results should be attempted with sufficient caution and the results may or may not hold for large urban schools.

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