PATTERNS IN MPA ADMISSION

DECISION-MAKING: AN APPLICATION
OF SOCIAL JUDGMENT THEORY

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INTRODUCTION

What to teach and to whom are important issues in public administration. Indeed, after program accreditation became a reality in the 1980s, a task force questioned whether Master of Public Administration (MPA) degree requirements adequately served the needs of government (National Association of Schools of Public Affairs and Administration, 1987:13).

An essential part of this concern is the formulation of standards that relate to the abilities and accomplishments of program graduates. Several studies suggest that there is but a modest correlation between student selection criteria and academic, much less professional, success (Harneit and Willingham, 1979; Milner, McNeil, and King, 1984). Unless or until the outcome assessment movement (e.g., NASPAA, 1987; American Assembly of Collegiate Schools of Business, 1987; Poister and Ingraham, 1991) can establish a credible linkage between entrance requirements and program goals—reliable knowledge on the predictive validities of selection criteria—admission decisions will become increasingly controversial.

Facing legal scrutiny, official procedures should, at a minimum, accurately reflect requirements needed to gain acceptance in order to dispel suspicions of capricious actions and veiled motives. This empirical investigation estimates the relative importance of the

selection criteria employed by individual MPA programs across the country.

The study addresses four questions relevant to admission decision-making. First, which selection criteria are most important to persons charged with making judgments regarding prospective students? Second, what is the form of the utility function for individual decision-makers with respect to each admission decision criterion? Third, do different program officials fall into discrete subgroups according to dependence on certain admission factors? Fourth, do decision-makers use different criteria and utility functions when predicting success than when making admission decisions; if so, how do these differ?

Such knowledge, along with the practices used to integrate application data, should be valuable to students and faculty alike. After the Literature Review and Methods sections, findings from a national survey on admissions decision-making patterns will be presented. The analysis concludes with a discussion of the implications of the data for MPA program standards.

LITERATURE REVIEW

Information about program rules is currently collected (e.g., NASPAA self-studies) but is not easily aggregated to permit a comprehensive perspective on MPA admissions standards. There are several published reports of specific schools, but small sample sizes and differential requirements limit their scope and generality (Klitgaard, 1985:19-23; Guyot and Wiedmann, 1982; Thompson and Kobrak, 1983). One national survey examined attitudes toward admission procedures and selection standards, but the subtleties involved in decision-making were not explored (Bowman, 1988).

Another national study (Bowman and Mangelsdorf, 1989), however, examined how selection criteria are combined by program officials when rendering judgments on applicants. In searching for an overall universal model of admission policies, the analysis concluded that "[w]hile it may be that in individual departments vigorous affirmative action policies in graduate admissions are pursued, no such policy favoring women and minorities exists in MPA programs across the nation (ibid., 156).

The present research examines the same data set to describe decision models used by individual MPA programs. The focus is not on the validity of and attitudes toward selection criteria, but rather
on understanding how complex decisions are made. Following Bowman and Mangelsof (1989), analysis of hypothetical, skeletal cases illuminate the way that entrance requirements are combined by program officials when making judgments.

METHODS

Research Design

NASPAA principal representatives from 210 institutions throughout the United States were mailed a survey booklet, plus follow-ups, in 1988. While usable responses were received from 57% of the schools, requirements of the present research design reduced the response rate to 40%. Each program official was asked to make decisions on 28 hypothetical applicants based on credential information (grade point average, Graduate Record Examination score, and recommendation letters classified by degree of support), affirmative action data (sex and race). The applicants are assumed to be graduates of a moderately-sized university with a social science major and five years of work experience.

Grades, GRE scores, recommendation letters, sex, and race were employed as independent variables. The prediction of the candidate's success in the program and the resulting selection decision served as dependent variables. For the first dependent variable, the respondents were asked to predict how successful each candidate would be in graduate work using an 11-point scale, with 11 as the highest ranking. The second dependent variable, the admission decision, was categorical: reject, accept provisionally, or accept.

The expectation was that the higher the ratings (based on GPA, GRE, and letters), the more likely the applicant would receive greater predictions of success and therefore be admitted. Further, it was hypothesized that, while female and non-white candidates would receive comparable forecasts of success, they would be more likely to gain admission than their male and white counterparts with identical ratings—i.e., they would be beneficiaries of affirmative action policies.

Social judgment theory (a multi-attribute decision analysis technique) can be used for improving the judgment processes (Watson and Buede, 1987). By identifying correlations between policy alternatives and judgments made, statistical models are created to describe decision rules for individual policy-makers. In order to carry out the techniques, officials are given profiles of decision alternatives and asked to rate the alternatives. Regression equations are then fitted to the profile data and the ratings to establish decision models (Grizzle, 1985). Information provided in the profiles is referred to as "cues"; functional relationships between cues and judgments are "utility functions." Percentages of variability in judgments explained by the cues are represented as percentage "weights" placed upon the cues by the individual decision-makers.

In the present study, prediction of success and admission judgments made on the applicants are based upon the following five cues:

1. GPA (low, medium or high)
2. GRE (low, medium or high)
3. Supportiveness of recommendation letters (none, moderately or very supportive)
4. Race (white or non-white)
5. Sex (male or female).

A computer software product, Policy PC: Judgment Analysis Software (1988) is employed here for rendering the social judgment theory statistical analysis. The package uses the ordinary least squares approach to calculate correlations among the cues as well as between the cues and judgments. Further, it creates a statistical regression model for each decision-maker. The procedure includes (Willoughby, 1988:11):

1) multiple regression analysis, which produces a mathematical model of the decision making orientations of each official;
2) multiple correlation coefficients, which indicate the comparability of the predicted judgments with actual decisions for each program representative; and
3) graphic representations of individual function forms, which represent the utilities of various levels of decision criteria.

These individual decision-maker models are then subjected to a cluster analysis using SPSS/PC+ (1986). Principal representatives are, accordingly, placed into subgroups sharing similar decision criteria weights and function forms and differences across groups are analyzed.

Sample Case
### Table 1: Mathematical Presentation of Sample Decision Model

<table>
<thead>
<tr>
<th>Regression Statistics</th>
<th>B</th>
<th>Standard Error</th>
<th>T-Ratio</th>
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<tbody>
<tr>
<td>Constant</td>
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<td>.657</td>
<td>10.000</td>
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<tr>
<td>GPA</td>
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<td>5.825</td>
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<tr>
<td>GRE</td>
<td>.375</td>
<td>.150</td>
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<tr>
<td>Letters</td>
<td>.125</td>
<td>.150</td>
<td>.832</td>
</tr>
<tr>
<td>Race</td>
<td>-.000</td>
<td>.160</td>
<td>-.000</td>
</tr>
<tr>
<td>Sex</td>
<td>.285</td>
<td>.160</td>
<td>1.779</td>
</tr>
<tr>
<td>GPA Quadratic</td>
<td>-.625</td>
<td>.260</td>
<td>-2.402</td>
</tr>
<tr>
<td>GRE Quadratic</td>
<td>-.125</td>
<td>.260</td>
<td>-.480</td>
</tr>
<tr>
<td>Letters Quadratic</td>
<td>-.125</td>
<td>.260</td>
<td>-.480</td>
</tr>
</tbody>
</table>

R² = .736  R² = .858  ADJR² = .625

### Figure 1: Graphical Presentation of Sample Decision Model

- **Cue 1: GPA**
  - Utility vs. GPA: Non-Supportive\(\Rightarrow\)Supportive
  - Utility vs. GPA: Low\(\Rightarrow\)High

- **Cue 2: GRE Score**
  - Utility vs. GRE: Non-Supportive\(\Rightarrow\)Supportive
  - Utility vs. GRE: Low\(\Rightarrow\)High

- **Cue 3: Recommendation Letter**
  - Utility vs. Letter: Non-Supportive\(\Rightarrow\)Supportive
  - Utility vs. Letter: Male\(\Rightarrow\)Female

- **Cue 4: Sex**
  - Utility vs. Sex: Non-Supportive\(\Rightarrow\)Supportive
  - Utility vs. Sex: Female\(\Rightarrow\)Male

- **Cue 5: Race**
  - Utility vs. Race: Non-Supportive\(\Rightarrow\)Supportive
  - Utility vs. Race: White\(\Rightarrow\)Non-White

Model Predictability: 0.86
TABLE 2
ACTUAL SUCCESS PREDICTIONS VERSUS
ESTIMATIONS MADE BY THE DECISION MODEL

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Actual Judgment</th>
<th>Predicted Judgment</th>
<th>Residual Judgment</th>
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<td>2</td>
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<td>28</td>
<td>10</td>
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A sample Policy PC output on the success prediction is illustrated in Figure 1 and Tables 1 and 2 to demonstrate the graphical and numerical results obtained in this research design (the same approach is also used to generate findings on the actual admission decision). The decision model in Figure 1 displays the utility functions and weights for one program official. In his/her predictions of future success for the 28 hypothetical applicants, this official regards GPA as the primary decision factor (58% of the total weight is placed on this cue), the GRE score is second (24% weight), and recommendation letters and sex are equally important, each with a 9% weight. Race (with 0% weight) is not a factor considered in the success prediction made by this respondent.⁶

The line graph for each of the decision factors suggests the manner in which the program official takes each criterion into consideration when predicting a candidate's success. In this sample case, the "utility functions" are more nearly a straight line for GPA and GRE cues than for the recommendation letter cue. That is, the respondent feels that the higher the grades and GRE scores, the greater the likelihood of success; the downward curvature for the recommendation letter cue, however, indicates that the greater satisfaction (utility) to the decision-maker occurs when the letter shows moderate support. Utility decreases after that point.

A close comparison of the GPA and GRE displays indicates that the slope of the utility function for GPA approaches zero for the highest grades while the slope of the function for GRE is more nearly constant across all performance levels. The respondent alters his/her success prediction more when the change in GPA is from low to medium than when it is from medium to high. By contrast, when GRE scores increase, there is a tendency to increase the success prediction at the same rate.

The higher utility value for male candidates suggests that, with everything else held equal, the respondent rates male candidates higher than female. The overall predictability (multiple correlation coefficient) of this decision model is .86 (a model with greater than .90 correlation has high predictability; one below .80 does not [Policy PC, 1988]).

Table 1 illustrates the utility functions and weights in numerical format. The coefficients for the model are listed along with significance-testing results; indicators of model predictability (R2, R. and adjusted R2) are also shown. For each applicant the statistical output lists the actual judgments of the respondent, the predicted
judgments calculated by the model, and the differences between the two, i.e., residuals (Table 2).

After individual decision models similar to the one illustrated in Figure 1 and Tables 1 and 2 were derived for each of the program officials, the models were analyzed and subjected to cluster analysis using SPSS/PC+ (1986). Two separate cluster analyses were performed on the models, one for success predictions and one for admission decisions.

While rendering varied success predictions, nine out of the 86 schools admitted all 28 candidates. Statistical judgment models cannot be produced for these admission decisions. In addition, five social judgment decision models for success predictions and three for admission decisions have predictability below .80. These cases were excluded from the final cluster analyses. In total, this study evaluates 81 models of success prediction and 74 of admission decision.

For both model types, the cluster analysis result shows multiple (about ten) major groups of decision-makers with a few individual outliers. The diverse patterns are determined by where and how much the weights are placed upon each criterion by the individual program representative.

**FINDINGS**

*Prediction of Success*

As shown in Table 3, 32 of the 81 (39.5%) program representatives use GPA as the most important criterion, 28 (34.6%) regard GRE as the most important, and 16 (19.8%) favor recommendation letters. Four (4.9%) respondents use GPA and GRE equally and one (1.2%) regards GPA equally with letters as the key criterion. Neither sex nor is used by the officials as the most important prediction factor.

Sixteen of the 81 (19.8%) professors place 5% or higher weight on the race variable and nine (11.1%) put 5% or higher weight on sex (Table 4). The greatest weight placed on race is 15%, with 13% the highest weight placed on sex. Among the 16 respondents who placed 5% or higher weight on race, the utility functions suggest eight non-white applicants are favored. That is, when applicants have similar credentials, eight program officials think non-white candidates have a greater chance to succeed in their schools. Conversely,
the remaining eight representatives predict that white candidates will have a better chance of success. For the nine (10.5%) representatives who placed 5% or higher weight upon applicant sex, four of them favor male candidates while five favor female. No correlation was found between the respondents who place weight on race and the ones who place weight on sex.

**Admission Decisions**

As shown in Table 3, GPA is considered by 33 (44.6%) program officials as the most important admission criterion. GRE is next, being most significant to 14 (18.9%) of the professors. GPA and GRE are equally weighted and considered as key by 12 (16.2%) of the decision-makers. Seven (9.5%) respondents use recommendation letters as the most important criterion. The three credential criteria—GPA, GRE, and letters—are regarded as equally important by 6 officials (8.1%). One (1.4%) respondent uses GPA and letters equally and one other (1.4%) regards GRE equally with letters as key factors. Again, neither sex nor race is used as the most important admission factor.

Interestingly, for admission decisions, 40 of the 74 (54.0%) program directors rely exclusively on one or two of the credential criteria and ignore the other(s) (Table 5). When only one criterion is considered, GPA is the most frequently used; GRE is next, and recommendation letters last. When respondents rely on two factors, the combinations GPA and GRE or GPA and letters are the most common.

When admitting applicants, 23 (31.0%) of the decision-makers place a 5% or higher weight on race (Table 4). The highest of these weights, 8%, however, is lower than that found in success prediction. Among these respondents, 16 endorse non-white and seven favor white candidates. With respect to the sex of the applicant, 16 (21.6%) program officials place a 5% or higher weight on this cue. It is interesting to observe that 13 of these same respondents also place more than a 5% weight on the race variable. The highest weight placed on sex is 11%. Among these representatives, 11 support female while five favor male candidates.

Overall, the results show that program officials focus on different criteria when judging applicant success than when making admission decisions. That is, when success is predicted, weights are more evenly divided among GPA, GRE, and letters. However, when
<table>
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<th>Criterion</th>
<th>Respondent</th>
<th>n</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>GPA as the Sole Criterion</td>
<td>13</td>
<td>17.6</td>
<td></td>
</tr>
<tr>
<td>GRE as the Sole Criterion</td>
<td>3</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Recommendation Letters as the Sole Criterion</td>
<td>2</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>GPA and GRE as Combined Criteria*</td>
<td>15</td>
<td>20.3</td>
<td></td>
</tr>
<tr>
<td>GPA and Recommendation Letters as Combined Criteria</td>
<td>6</td>
<td>8.1</td>
<td></td>
</tr>
<tr>
<td>GRE and Recommendation Letters as Combined Criteria</td>
<td>1</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>54.1</td>
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</table>

* Zero weight is placed upon the other criterion (in this case, recommendation letter).

making admission decisions, nearly half of the respondents rely exclusively on one or two of these factors and ignore the other(s). Further, when forecasting success, more officials have linear utility functions than when making admission decisions. In the latter case, many utility functions are non-linear and peak between the medium and high scores. Tending to discount the value of unusually high GPAs and test scores, the respondents in these cases search for students with moderate performance levels. Finally, the sex and race variables are considered by more respondents when admission decisions are made than when chances of success are assessed. Female and non-white candidates, however, are not always favored.

This study affirms that there is no one universal model in MPA admission decision-making. Using social judgment theory and Policy PC software allows one to examine MPA admission decision patterns at the individual program level. The analysis suggests that different judgmental rules are used when forecasting success predictions than when making admission decisions. That is to say, program officials make varied selection judgments on applicants holding the same rank on success prediction; oddly they may even prefer those with lower success predictions. Several key findings stand out.

First, when making admission decisions, more program representatives have curve (non-linear) utility functions on the credential criteria than when predicting success. The better the credentials, not surprisingly, the greater the chance for future success. When making the admission decisions, however, these officials inexplicably select not necessarily the top-ranking candidates, but rather the qualified ones who satisfy the admission standards.

Second, when success is judged, weights are more evenly divided among GPA, GRE, and recommendation letters than when admission decisions are made. Nearly half of the officials rely solely on one or two of the three factors in admission decisions and ignore the other(s). In other words, acceptances are determined on a less comprehensive and less inclusive basis than when chances of success are predicted. GPA stands out (as it did in Bowman and Mangelsdorff, 1989) as a most prominent criterion in both judgments.

The third finding concerns the role race and sex play in both judgments. Unlike what was hypothesized, these two factors are weighted by program officials in success predicting as well as admission decisions. From one-tenth to one-third of the representatives take them into consideration. Minorities and women receive favorable success predictions in one-half of the cases. Race and sex are
considered, nevertheless, by more officials in admission decisions than in success prediction. In admission decisions, such candidates are favored at a nearly two-to-one margin. Thus, while Bowman and Mangelsdorf (1989) may have been correct in suggesting that no general affirmative action policy exists throughout the country, this analysis demonstrates that some individual programs are committed to preferential treatment for minorities and women. Although unexpectedly, “reverse affirmative actions” are also observed.

On paper, many MPA programs may have similar credential requirements focus on in-service adults, and support affirmative action policies. The survey data, however, document the reality and complexity of admission decisions. Thus, among schools with varied admission standards, some (nine) admit all candidates while others are more selective. GPA and GRE, for example, are weighted more heavily by many schools than recommendation letters which can be a key credential for in-service candidates. Although some programs are found to favor female and minority candidates, MPA programs in general have room to improve if they are serious about affirmative action in admission decisions.

To aid in the interpretation of these findings, it would be desirable in future research to examine actual admission decisions made in an MPA program. Such an approach, utilizing techniques in this study, would overcome the problem of external validity arising when decision-makers are asked to report judgments based upon hypothetical decision cues.

NOTES

1. Multiple regression analysis and Chi-Square tests were used to analyze a data set of 3,360 cases (120 respondents evaluated 28 hypothetical applications) to identify universal models.

2. In the original data set, 34 of the 120 cases contained missing data on either respondent prediction of success for the applicant or the final admission decision. Data of this kind are not problematic for a universal decision model, but do invalidate a design based on individual models; only cases with complete information (n=86), therefore are analyzed here.

3. The two variables certainly are related as the potential for success is the fundamental NASPAA (1986:6) admission standard and the decision to accept is based upon a variety of factors including the independent variables discussed earlier. Yet, the two judgments may not be identical in some cases. A candidate whose potential is difficult to assess accurately, for example, may be admitted to offer

him or her a chance—and to maintain enrollments. Or, an applicant may have reasonable potential but nonetheless may be denied admission because of a highly competitive applicant pool and/or space limitations.

4. For further discussion of the technique, see Adelman, Stewart, and Hammond, 1975; Arkes and Hammond, 1986; Grizzle, 1985; Hammond and Stewart, 1975; Lane, Murphy, and Marques, 1982.

5. The GPA cue was categorized as low (2.5 on the cumulative overall grade and 2.8 on the cumulative social science grade), medium (3.0 overall GPA and 3.3 social science GPA) and high (3.5 overall GPA and 3.8 social science GPA). The GRE cue was categorized as low (400 on both verbal and quantitative scores, medium (500 on both), and high (600 on both). The profile of 28 applicants is an experimental design of four treatments (of various racial and sex combinations) for seven types (blocks) of credential information (of GPA, GRE, and letters).

6. POLICY PC does not show utility functions for decision criteria with weights less than 5%.

7. Based upon the correlations, the predicted values are calculated according to the following functional relationship:

\[
Y = \beta_0 + \beta_1(GPA) + \beta_2(GRE) + \beta_3(\text{recommendation letters}) + \beta_4(\text{race}) + \beta_5(\text{sex}) + \beta_6(GPA)^2 + \beta_7(GRE)^2 + \beta_8(\text{recommendation letters})^2
\]

8. Recognize that, in this interpretive scheme, if three credential criteria (GPA, GRE, and letters) are weighted, for example, 29%, 30%, and 17%, respectively, then the GRE would be reported as most important.

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