

AN ANALYSIS OF THE RELATIONSHIPS BETWEEN  
BAR EXAMINATION SCORES AND AN APPLICANT'S  
LAW SCHOOL, ADMISSIONS TEST SCORES, GRADES,  
SEX, AND RACIAL/ETHNIC GROUP

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INTRODUCTION

The percent of racial/ethnic minority group members who pass California's State Bar Examination has consistently been below the percent of Anglo applicants who pass. Previous research efforts have indicated that this differential was not a function of certain questions being particularly more difficult for one group than for another group relative to these groups' respective performance levels on other questions (Klein, 1976). This research also found that the differences in passing rates between groups were not related to the racial/ethnic background of the persons who graded the essay portion of the examination. Moreover, controlling for various characteristics of the applicants (such as their use of bar review courses) did not diminish the disparities between the performance levels of each group.

The foregoing situation led to the hypothesis that the differential in passing rates may have been due to differences between the groups in their respective levels of legal skills and knowledge and/or some general characteristic of the examination that may have differentially affected their performance on it. A pilot study was mounted to explore this issue with the July, 1976 examination. The results of this investigation indicated that controlling for an applicant's grades in law school removed some but not all of the observed differences between groups. The pilot study results also suggested that the multiple-choice portion of the examination was giving women applicants somewhat lower scores than would have been expected on the basis of their law school grades.

One major shortcoming of the pilot study stemmed from its obtaining information about an applicant's racial/ethnic and sex group from a questionnaire that was mailed shortly after the examination was administered. Since only about two-thirds of the applicants completed the questionnaire, it was not known whether the pilot study's findings were due to general trends or to the unique characteristics of those who chose to respond. A second consequence of the return-rate problem was that the number of minority applicants identified by the questionnaire was so low as to raise concern about the reliability of the results obtained. Finally, the outcomes of the statistical procedures used in the pilot study may have been biased, directly or indirectly, by marked differences in enrollment patterns between groups; e.g., minority applicants

were more likely to attend American Bar Association (ABA) approved law schools than were Anglo applicants.\*

#### PURPOSE

The present study was designed to replicate the research done on the 1976 examination, but with a larger and more representative sample of applicants. Thus, like the pilot study, its goal was to assess whether the discrepancies in passing rates between various sex and racial/ethnic groups were solely a function of differences in the relative academic achievement levels of the applicants in these groups.

The present research also expanded upon the pilot study by examining whether any differences between applicants that still remained after controlling for their academic achievement levels were related to the law schools the applicants attended. The reason for investigating this issue was that if some law schools did a better job than others in preparing their students to take the bar examination, and if certain groups had an unusually high or low enrollment at these schools, then any differences between groups in their passing rates may have been due to the schools they attended rather than to some characteristic of the group itself.

#### OUTCOME MEASURES

The California State Bar Examination consists of two subtests, Multistate Bar Examination and Essay. An applicant can pass the examination by passing each of these subtests separately (with a score of 70 percent or greater of the maximum score on each subtest) or by receiving a combined total score of 70 percent or more of the maximum total score.

##### Multistate Bar Examination (MBE)

The MBE is developed by the National Conference of Bar Examiners and is administered and scored by the Educational Testing Service (ETS). The test is composed of 200 multiple choice questions from the following six content areas: Constitutional Law, Contracts, Criminal Law, Evidence, Real Property, and Torts. Scores on the MBE are scaled by ETS across administrations of the test so that the maximum possible score in California equals 514 points. A score of 360 points is considered passing on the MBE.

##### Essay

The Essay portion of the 1977 examination was administered in three test sessions. In each session, applicants were instructed to answer any four of the five questions presented; i.e., each applicant was supposed to answer 12 questions. An applicant could earn up to 100 points per question, so that the maximum Essay score was 1200 points. A score of 840 was considered passing on this subtest.

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 \*A copy of the pilot study and a more detailed discussion of its limitations are on file at the offices of The Committee of Bar Examiners in San Francisco, California.

### Total Score and final pass/fail status

An applicant could pass the 1977 examination by receiving a Total Score, i.e., Essay plus MBE, of 1200 or more points. Applicants with Total Scores in the 1170 to 1199 range had their Essay answers reappraised. On the basis of this reevaluation, a final pass/fail decision was made. Previous research (Klein, 1977) indicated that the net effect of this reread process was to essentially move the pass/fail cutoff score from 1200 to 1190 points.

## PREDICTORS OF SUCCESS ON THE BAR EXAMINATION

### Law School Grade Point Average (LGPA)

Of the 38 schools represented in this research, 15 used a four-point grading system and 22 used a 100-point system. The remaining school used a letter category system which was converted to a 4.0 system in a way that reflected the number of credits earned within each letter grade. The grades assigned by this conversion and Total bar scores correlated with one another at this school to about the same degree ( $r = .61$ ) as they correlated with each other at the other schools in this study.

If a school did not provide an LGPA for a student, then it was estimated on the basis of that student's LSAT score and the relationship between LSAT scores and LGPA's at that student's school. A total of 68 applicants had LGPA's assigned by this method. All of these applicants graduated from ABA schools (see Appendix A).

Since a common scoring system across law schools was needed for the planned analyses, the grades within each school were rescaled to a mean (average) of 50 points and a standard deviation of 10 points. This scaling preserved the relative standings of the students within each school, as well as the shape of the distribution of these grades (i.e., whether the students tended to bunch or spread out in some fashion across the possible score range).

### Law School Admissions Test (LSAT)

The Law School Admissions Test (LSAT) is a multiple choice test that is developed, administered, and scored by the Educational Testing Service of Princeton, New Jersey. The Law School Admissions Test Council, which is an independent organization, oversees these activities.

LSAT scores are used in the admissions process at most accredited law schools across the country because of the generally moderate correlation ( $r = .33$ ) between these scores and first year LGPA (Pitcher, Schrader, and Winterbottom, 1973). In a seven-state study, Carlson and Werts (1976) also found that performance on the LSAT correlated with bar examination scores (median  $r$ 's were .36, .51, and .51 with Essay, MBE, and Total, respectively).

If a law school did not provide an LSAT score for an applicant, one of two procedures was used to estimate that score. The first procedure involved predicting the LSAT score from the applicant's LGPA and the relationship between LSAT scores and LGPA's at the applicant's law school. This method was used with applicants who graduated from the 32 law schools which reported LSAT scores for most of their students. A total of 230 applicants had their LSAT scores estimated in this fashion.

The second procedure that was used to estimate missing LSAT scores was limited to one California (but not ABA) accredited and five unaccredited law schools that did not report these scores for their graduates. The steps involved in this estimation process were as follows:

- o The equation for predicting a school's average LSAT score from the percent passing at that school was computed for the 32 schools which did report LSAT scores for the majority of their students.\*
- o This equation and the percent passing at each of the six remaining schools was used to estimate their respective average LSAT scores.
- o All the students at these six schools were assigned their school's average LSAT score.

A total of 136 applicants had their LSAT scores estimated by this second method.

#### APPLICANTS AND SCHOOLS

##### Sampling

In order to control for a variety of extraneous factors, the present study was limited to applicants with the following characteristics:

- o In the fall of 1977, they took the examination for the first time.
- o They took the complete examination; i.e., they answered 12 essay questions and had a score on the multiple choice portion of the test.
- o They graduated from a California law school which had 10 or more of its recent graduates taking the examination.
- o Their law school provided the author with their grade point average and/or their score on the Law School Admission Test.

The foregoing procedures resulted in a total sample of 4,414 applicants. The 38 schools represented by these applicants were distributed across school type categories as follows: ABA approved (16), other California accredited (8), and unaccredited (14). This sample also represented 95 percent of the 4,637 applicants who were taking the test for the first time and who were graduates of a California law school.

##### Sex and Racial/Ethnic Group Affiliations

Self-reported sex and racial/ethnic group affiliation data were obtained from a form the students completed at the time they applied to take the examination. An analysis of these data indicated that there were four racial/ethnic groups with enough applicants

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\*A correlation of .74 was obtained between percent passing and average LSAT score at these 32 schools.

Table 1

SUMMARY DESCRIPTIVE STATISTICS FOR EACH  
SCHOOL TYPE AND FOR ALL SCHOOLS COMBINED

Descriptive Statistic	Variable	ABA Approved	Other Calif. Accredited	Unaccredited	All Schools Combined
Average Score	Total	1237.3	1187.6	1176.2	1222.3
	Essay	853.0	825.9	811.7	844.1
	MBE	384.3	361.7	364.5	378.2
	LGPA	50.0	50.0	50.0	50.0
	LSAT	607.3	513.9	516.8	581.1
Standard Deviation	Total	78.0	75.4	77.2	81.1
	Essay	53.3	50.7	52.9	54.7
	MBE	32.7	32.3	31.9	34.0
	LGPA	10.0	10.0	9.9	10.0
	LSAT	77.5	70.9	62.0	85.8
Percent Passing	Total*	76.1	51.2	46.7	68.7
	Essay	63.5	40.0	33.2	56.2
	MBE	78.8	54.0	58.2	72.2
Number of Applicants		3163	868	383	4414

\* Percent passing after reappraisal.

Table 2

SUMMARY DESCRIPTIVE STATISTICS FOR  
EACH RACIAL/ETHNIC AND SEX GROUP

Descriptive Statistic	Variable	Racial/Ethnic Group				Sex Group	
		Anglo	Asian	Black	Hispanic	Male	Female
Average Score	Total	1228.5	1188.7	1140.1	1170.0	1221.5	1224.2
	Essay	847.8	828.2	792.1	812.7	841.6	850.9
	MBE	380.7	360.5	348.0	357.3	379.9	373.2
	LGPA	50.9	44.4	37.6	42.0	49.5	51.3
	LSAT	588.2	559.5	481.2	513.6	579.6	585.1
Standard Deviation	Total	78.6	85.7	73.1	81.2	80.8	81.9
	Essay	53.3	58.9	51.0	53.9	54.3	55.3
	MBE	33.0	34.5	33.2	35.5	34.0	33.8
	LGPA	9.6	8.8	7.4	9.6	9.7	10.6
	LSAT	83.1	83.2	73.9	75.0	87.3	81.6
Percent Passing	Total*	71.9	53.2	26.6	40.5	67.8	71.0
	Essay	58.9	42.9	18.6	34.6	54.4	61.2
	MBE	75.1	54.8	38.1	47.0	73.5	68.5
Number of Applicants**		3957	126	113	185	3253	1157

\* Percent passing after reappraisal.

\*\* Some of the applicants did not indicate their sex and/or racial/ethnic group on the form provided for this purpose. Moreover, some of the applicants who took the examination did not belong to any of the four racial/ethnic groups included in this table. Thus, the total number of applicants across the four racial/ethnic groups or across the two sex groups does not equal the total number of applicants in Table 1.

Table 3

## CORRELATIONS BETWEEN VARIABLES\*

Variables	School Type			Sex		Racial/Ethnic Group				Total
	ABA Approved	Other Cal.		Males	Females	Anglo	Asian	Black	Hispanic	
		Accredited	Unaccredited							
LGPA & Essay	.62	.59	.47	.57	.61	.56	.53	.51	.54	.58
LSAT & Essay	.34	.24	.37	.39	.44	.37	.42	.27	.32	.40
LGPA & MBE	.59	.53	.38	.54	.57	.50	.40	.52	.52	.54
LSAT & MBE	.52	.41	.37	.55	.58	.53	.53	.51	.47	.55
LGPA & Total	.67	.62	.48	.61	.64	.59	.53	.59	.59	.62
LSAT & Total	.45	.33	.41	.49	.53	.47	.50	.42	.42	.50
LSAT & LGPA	.34	.28	.27	.27	.30	.21	.15	.28	.31	.28
Essay & MBE	.62	.63	.63	.66	.67	.64	.66	.48	.63	.65

\* Internal consistency reliability estimates for the variables and the sources for these estimates were as follows: MBE = .91 (Faggen, 1977); Essay = .78 and Total = .88 (Klein, 1978); LSAT = .90 and LGPA = .85+ (Carlson and Werts, 1976).

to permit their being included in comparisons between groups. These four groups were identified as follows: Anglo, Asian, Black, and Hispanic.

### Sample Characteristics

Table 1 provides summary descriptive statistics for each of the three categories of schools and the total sample. Table 2 contains the corresponding data for each of the sex and racial/ethnic groups. The correlations between the measures within each school type, sex, and racial/ethnic group are presented in Table 3.

## DATA ANALYSIS PLAN

The data analysis procedures focused on assessing the extent to which differences in bar scores between applicants could be explained by factors that were independent of how well these applicants performed in law school. In other words, the procedures were designed to answer the question: "Why do two applicants with comparable grades in law school get different scores on the bar examination?" The first step in answering this question involved determining how much of the variation in bar scores between applicants was related to their law school grades. This was done by constructing an equation to predict bar scores from knowledge of an applicant's LGPA. How well this equation worked was indicated by the degree to which differences in the applicants' LGPA's corresponded with differences in their bar scores; i.e., the higher the degree of correspondence, the better the prediction.

The next analytic step involved adding to this equation one or more of the variables under investigation, such as the applicant's sex, and then measuring whether this expanded equation increased the level of predictive accuracy achieved. If the addition of a variable improved prediction over LGPA alone, then it is evident that this variable helped to explain why one applicant received a different bar score than another applicant even though they had comparable LGPA's. Thus, a variable's unique contribution to prediction provides an index of the degree to which bar scores are related to this variable after the bar scores have been adjusted for differences between applicants in how well they performed in law school. This index can be expressed in terms of the percent of variation in bar scores that the variable explains that has not already been explained by LGPA.

When a variable is able to explain bar score variation, it does not mean that this variable in and of itself caused the scores to differ. Other factors which are closely associated with both the variable and bar scores may be producing the observed relationship. For example, if differences in the applicants' socioeconomic status (SES) were related to differences in their bar scores, and if the racial/ethnic groups differed substantially in their average SES levels, then the variable "racial/ethnic group" would appear to explain some of the variation in bar scores. The role of a variable such as "sex" or "racial/ethnic group" is therefore primarily that of a proxy for one or more other variables with which it is closely associated. If the proxy variable makes a contribution to prediction, we do not know which of a host of variables (like SES) are the underlying causes of this contribution. On the other hand, if a variable like "sex" fails to explain any of the variation in bar scores, then it is apparent that it and the factors closely related to it are not influencing an applicant's bar scores.



The total percent of variance explained by a team of predictors, such as LGPA and LSAT, may be less than the sum of their individual contributions to prediction. The reason for this is that there may be some overlap between the predictors in the amount of variation they explain; i.e., the predictors are explaining a certain percentage of the same variation in bar scores. The importance of this consideration is that the statistical procedures used in this study credit all of this shared (or common) variance to the first predictor that enters the equation; i.e., LGPA. The unique contribution of the second predictor is therefore just that part of the variance in bar scores that has not already been explained by the first predictor. Similarly, the potential unique contribution of a third predictor is limited to just that part of the bar score variation that has not already been explained by the first two predictors that were allowed to enter the equation. In general, the greater the correlation between the predictors, the greater the likelihood that they will share explanatory power.

The total percent of variance in bar scores that can be explained by one or more predictors is also influenced by the reliability of all the measures involved; i.e., both bar scores and predictors. The reason for this is that any chance variation in a variable, such as might stem from inconsistencies in the Essay grading process, reduces the degree to which Essay scores will correlate with some other variable. Thus, the higher the reliability of each measure, the greater the likelihood that the predictors will be able to explain differences in bar scores.

In summary, the factors that determine the extent to which variation in bar scores between applicants can be explained are: (1) the underlying relationships between bar scores and the variables for which the predictors used in this research served as proxies; (2) the degree to which the predictors are correlated with each other (i.e., the amount of shared versus unique variance they explain); and (3) the reliabilities of both bar scores and the measures used to predict them. Although there are no clear guidelines as to what should be considered a "high" versus a "low" percentage of explained variation, one potentially relevant benchmark is that the combination of LSAT and undergraduate grade point average is able to predict about 20 percent of the variance in LGPA (Carlson and Werts, 1976; pg. 34).

## RESULTS

### School Effects

The data in Table 4 indicate that an applicant's law school explained 17 percent more of the variance in Total bar scores than was explained by LGPA alone (equation #5 versus #8). When LSAT is added to the prediction system, the overall level of prediction did not change (equation #8 versus #12), but the unique contribution due to School was reduced to 8 percent (equation #9 versus #12).

These findings suggest that the School effect is made up of at least two components. One component may be differences in grading standards between schools that are related to differences in the average academic ability of the students they enroll. In other words, a certain level of academic performance might receive a relatively high grade at one school but only a medium or even a low grade at another school.

Table 4

PERCENT OF VARIATION IN BAR SCORES  
 THAT WAS EXPLAINED BY EACH PREDICTOR  
 WHEN USED SINGLY AND IN  
 COMBINATION WITH OTHER VARIABLES\*

Equation Number	Variables Included in the Equation	Percent of Explained Variation		
		Essay	MBE	Total
1	Racial/Ethnic Group	4	5	6
2	Sex Group	0	2	0
3	School	15	16	17
4	Law School Admissions Test (LSAT)	16	30	25
5	Law School Grade Point Average (LGPA)	34	29	38
6	LGPA + Racial/Ethnic	34	29	38
7	LGPA + Sex	34	30	38
8	LGPA + School	49	51	55
9	LGPA + LSAT	40	46	50
10	LGPA + LSAT + Racial/Ethnic	40	46	50
11	LGPA + LSAT + Sex	40	48	50
12	LGPA + LSAT + School	49	51	58
13	LGPA + LSAT + School + Sex + Racial/Ethnic	49	53	58

\* Group membership was included in the equations by constructing a separate predictor for each group. This was done by assigning a score of 1 versus 0 to an applicant corresponding to whether or not that applicant was a member of the group. Thus, there were two variables for sex, four for racial/ethnic group, and 38 for school.

Adding LSAT to the prediction system apparently served to adjust the LGPA's between schools for these differences in performance standards.

The second School effect component appears to be a function of how well the law schools prepared their graduates to take the bar examination and/or systematic differences between schools with respect to certain characteristics of the students they enroll. For example, if going to night school versus day classes was related to bar scores even after the effects of LGPA and LSAT were controlled, then part of the School effect could be due to differences between schools in the proportions of their graduates who attended night versus day classes.

Additional analyses indicated that the schools which tended to have a positive effect on the Essay portion of the examination also tended to have a positive effect on the MBE section.\* This finding suggests that whatever effect a particular school had on an applicant's chances of passing, it did not result in improving performance on one section of the examination at the expense of scores on the other section. It was noted, however, that the size of the school effect was slightly larger on the Essay than on the MBE portions of the examination and that this differential was apparently related to LSAT's relative ability to predict these two types of scores (see equations #5 versus #8 and #9 versus #12).

Table 5 presents a cross-tabulation of type of school by whether the school tended to have a positive versus negative effect on Total Score. The data in this table indicate that the ABA approved schools tended to have positive effects, while the unaccredited schools tended to have negative effects. This same trend was observed with both the MBE and Essay portions of the examination. The individual effect of each school with respect to Total Score is presented in the "School with Total" column of Appendix A. An inspection of these data indicates that school #8 had the largest positive effect, and School #9 had the largest negative effect.

#### Racial/Ethnic Group Effects

The data in Table 4 indicate that knowledge of an applicant's racial/ethnic group did not contribute to the prediction of bar scores. This result was obtained when racial/ethnic group was teamed with just LGPA (equation #5 versus #6) and when it was combined with both LGPA and LSAT (equation #9 versus #10). Even by itself, racial/ethnic group explained only one-sixth as much variance in Total bar scores as was explained by LGPA (equation #1 versus #5) and only one-eighth as much as the team of LGPA and LSAT (equation #1 versus #9). These findings indicate that what little systematic relationship exists between bar scores and racial/ethnic group could be explained fully by differences between groups in their average LGPA's.

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\*The point biserial correlation coefficient between attendance versus non-attendance at a school and MBE scores was computed for each school with the effect of LSAT partialled out of both measures. Corresponding coefficients were computed for the Essay scores. A correlation of .81 was obtained between these two sets of coefficients across the 38 schools.

Table 5.

NUMBER OF SCHOOLS WITHIN EACH SCHOOL TYPE  
 THAT HAD A POSITIVE VERSUS NEGATIVE RELATIONSHIP  
 WITH TOTAL BAR SCORES AFTER CONTROLLING FOR  
 DIFFERENCES BETWEEN SCHOOLS IN THEIR AVERAGE LSAT SCORES

Direction of School Effect	Type of School			Total
	ABA Approved	Other California Accredited	Unaccredited	
Positive or Neutral	11	3	4	18
Negative	5	5	10	20

Table 6  
 PERCENT OF APPLICANTS WITHIN  
 EACH SEX AND RACIAL/ETHNIC GROUP  
 WHO GRADUATED FROM EACH TYPE OF LAW SCHOOL

Type of Law School	Sex Group		Racial/Ethnic Group				Number of Schools
	Male	Female	Anglo	Asian	Black	Hispanic	
Unaccredited	9	7	9	6	8	4	14
California but not ABA Accredited	22	14	21	7	8	14	8
ABA Accredited:							
Low Average LSAT	19	17	19	22	13	11	5
Medium Average LSAT	27	30	28	21	23	32	6
High Average LSAT	22	33	23	44	48	38	5

A comparison of Anglo and minority group enrollment patterns revealed that a disproportionately large number of minority applicants graduated from ABA approved schools (see Table 6). Nevertheless, within these schools, Anglo and minority applicants had about the same proportion of graduates (31 and 28 percent, respectively) from schools which had a positive effect on bar scores (when this effect was measured by the point biserial correlation coefficients in Appendix A). Thus, relative to Anglos, minority passing rates were not hurt or helped by the particular ABA approved schools from which minority applicants tended to graduate. It was noticed, however, that within the ABA approved category, minority applicants were far more likely than Anglo applicants to graduate from the five schools with the highest average LSAT scores. This finding suggests that the results presented in Table 4 regarding racial/ethnic group effects may have been unduly influenced by the trends at a few schools.

In order to investigate this issue, the average LSAT, LGPA, and Total bar score were computed for each racial/ethnic group within each of the three categories of ABA approved schools (see Appendix B).<sup>\*</sup> The mean and standard deviation of these measures (in conjunction with standard statistical tables) were then used to convert the averages to percentile scores (see Table 7). These percentile scores indicate the relative standing of each group on each measure. For example, it may be seen from Table 7 that the average Anglo applicant who graduated from a low-average-LSAT school had a Total bar score that was as good or better than 46 percent of all the applicants who took the examination.

The differences between the percentile scores of Anglos and each of the minority groups are presented in Table 8. These data indicate that the percentile score differences between Anglo and minority group applicants on LGPA were quite similar to their respective score differences on the total examination. For example, in the high average LSAT schools (i.e., the schools in which most of the minority group members were located), the Anglo-Black gap between percentile scores was 46 points on LGPA and 52 points on Total score, or a disparity of only six percentile points. For Hispanic applicants at these five schools, the gap between their average LGPA and that of the Anglos' LGPA was identical to that of the gap between their respective percentile scores on the Total examination; i.e., it was 47 points on both measures. The differences between Asian and Anglo applicants on LGPA was 11 points larger than it was on Total score. This trend suggests that the bar examination tended to reduce rather than exacerbate the differences between Asian and Anglo applicants in their relative performance levels in law school. It is apparent, therefore, that even when differences in enrollment patterns between groups were controlled, the parallelism between performance in law school and scores on the bar examination remained. In short, whatever caused minority group applicants to get lower grades in law school probably also caused them to get lower scores on the bar examination; i.e., regardless of whether they attended a school with a high, medium, or low average LSAT score.

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<sup>\*</sup>There were too few minority group applicants in other California accredited and non-accredited law schools to conduct the corresponding analyses with their graduates.

Table 7

LSAT, LGPA, AND TOTAL EXAMINATION PERCENTILE SCORES  
FOR EACH RACIAL/ETHNIC GROUP WITHIN EACH OF  
THREE CATEGORIES OF ABA APPROVED LAW SCHOOLS

Score	Low Average LSAT				Medium Average LSAT				High Average LSAT			
	Anglo	Asian	Black	Hispanic	Anglo	Asian	Black	Hispanic	Anglo	Asian	Black	Hispanic
LSAT	47	29	5	21	64	43	10	17	84	53	18	31
LGPA	52	22	16	40	54	33	9	19	59	22	13	12
Total	46	14	18	27	64	39	14	29	71	45	19	24
Number of Applicants	760	28	15	21	1113	27	26	60	911	55	54	71

Table 8  
 DIFFERENCE BETWEEN ANGLO AND MINORITY GROUP PERCENTILE SCORES  
 WITHIN EACH OF THREE CATEGORIES OF ABA APPROVED LAW SCHOOLS

Score	Low Average LSAT			Medium Average LSAT			High Average LSAT			Average Difference		
	Asian	Black	Hispanic	Asian	Black	Hispanic	Asian	Black	Hispanic	Asian	Black	Hispanic
LSAT	18	42	26	21	54	47	31	66	53	23	54	42
LGPA	30	36	12	21	45	35	37	46	47	29	42	31
Total	32	28	19	25	50	35	26	52	47	28	43	34



The corresponding set of comparisons between LSAT and Total score indicated that, on the average, there was a greater gap between Anglo and minority percentile scores on the LSAT than there was on Total bar score. For example, the difference between Anglo and Black applicants' average percentile scores on LSAT and the total examination was 54 and 43 points, respectively. Moreover, with both Black and Hispanic applicants, this disparity was in the direction of greater Anglo-minority differences on LSAT than on Total score; i.e., there was a smaller difference between the groups on Total score than would have been expected on the basis of the disparity between their respective average LSAT scores. Thus, the bar examination reduced rather than increased the differences between racial/ethnic groups that were observed in their LSAT scores at the time these groups entered law school.

A comparable set of findings were obtained with the MBE and Essay portions of the examination. In the high average LSAT schools, for example, there was a 44 point percentile difference between Anglo and Hispanic applicants on the MBE portion of the examination and a 43 point percentile difference on the Essay portion. The gap in percentile points between these two groups on LGPA was 47 points; i.e., there was a very close correspondence between the size of the gap on LGPA and both portions of the examination. Black applicants at the high average LSAT schools differed from their Anglo classmates by 50 and 48 percentile points on the MBE and Essay portions of the examination, respectively. These gaps corresponded closely with the 46 percentile spread between them on LGPA. Similar trends were observed at the medium and low average LSAT schools and with Asian applicants.

In summary, the differences in performance level between racial/ethnic groups in law school and on the LSAT paralleled quite closely the differences between these groups on the bar examination. This was true for the MBE and Essay sections as well as for the examination as a whole. The slight deviations from this trend tended to be in the direction of smaller differences between groups on the bar examination than were observed in law school. It was apparent, therefore, that the bar examination did not systematically widen the gap between groups.

#### Sex Group

The results obtained with equation #5 versus #7 in Table 4 indicated that an applicant's sex was generally unrelated to that applicant's bar scores whether or not LGPA was already in the prediction system. The only exception to this general trend was the very slight improvement in the prediction of MBE scores by the inclusion of the Sex variable. Adding LSAT to the prediction system did not change these relationships (equation #9 versus #11).

An inspection of the Sex group data in Table 2 indicated that the small Sex effect on the MBE was due to female applicants performing less well on this portion of the examination than would have been expected on the basis of their LGPA and/or LSAT scores. In other words, the female applicants had higher average scores on these predictors but lower MBE scores than did male applicants. Nevertheless, the absolute size of the Sex effect was so small (2 percent) that it had an almost negligible impact on an applicant's chances of passing the MBE portion of the test and essentially no unique influence on Total score.

### All Factors Combined

Figures 1, 2, and 3 indicate the relative contribution to prediction of Essay, MBE, and Total scores by each of the variables under investigation. These calculations were made by entering the variables into the prediction equation in the following order: LGPA, LSAT, School, Sex, and Racial/Ethnic group (see equation #13). Entering Sex and/or Racial/Ethnic group into the equation sooner would not have changed the estimate of their explanatory power because these variables did not increase the level of prediction achieved by the use of LGPA alone (see Table 4). One major constraint on explaining the observed variance in bar scores was the reliability of both the predictor variables and the bar scores to be predicted. When an estimate of the effect of such unreliability was made (via a standard statistical procedure called "correction for attenuation"), it was found that the unreliability would have explained 21 percent of the variance in Essay scores, 12 percent of the variance in MBE scores, and 15 percent of the Total score variance.

It was noted, however, that even when the variables were corrected for unreliability, there was still a substantial amount of unexplained variance (e.g., 27 percent on Total score). Some of the factors that may have contributed to the unexplained variance are described briefly below:

- o Lack of sensitivity in LGPA to reflect true performance level differences within each school. For example, the grades may have been artificially constrained at the top and/or bottom end of the scale, such as if a large number of students were given the same low (but passing) grade even though there were marked differences in their performance levels.
- o Applicants may have varied in the type of post-law school preparation they had for the examination and/or in how much they were able to profit from this preparation, such as if applicants differed in ability to "cram" for the test.
- o Individual differences in potentially relevant personality characteristics that were not directly related to an applicant's LGPA, LSAT score, school, sex, or racial/ethnic group. Such characteristics might include variables related to how much the extreme pressure of a bar examination affected their ability to perform well on it.
- o Complex interactions among the predictors used in this research and/or other factors. For example, it is possible that certain students may have done better on the examination if they had attended a law school whose curriculum and teaching philosophy were more compatible with their particular study habits, interests, skills, etc.
- o Chance events. In this category there are a variety of factors, such as: the applicant's physiological and psychological state at the time of the examination and the period immediately preceding it; whether the applicant happened to be lucky enough to be asked a question involving an issue with which he or she was especially familiar; whether the applicant happened to draw Essay graders who tended to be slightly more or less lenient than other graders, etc.

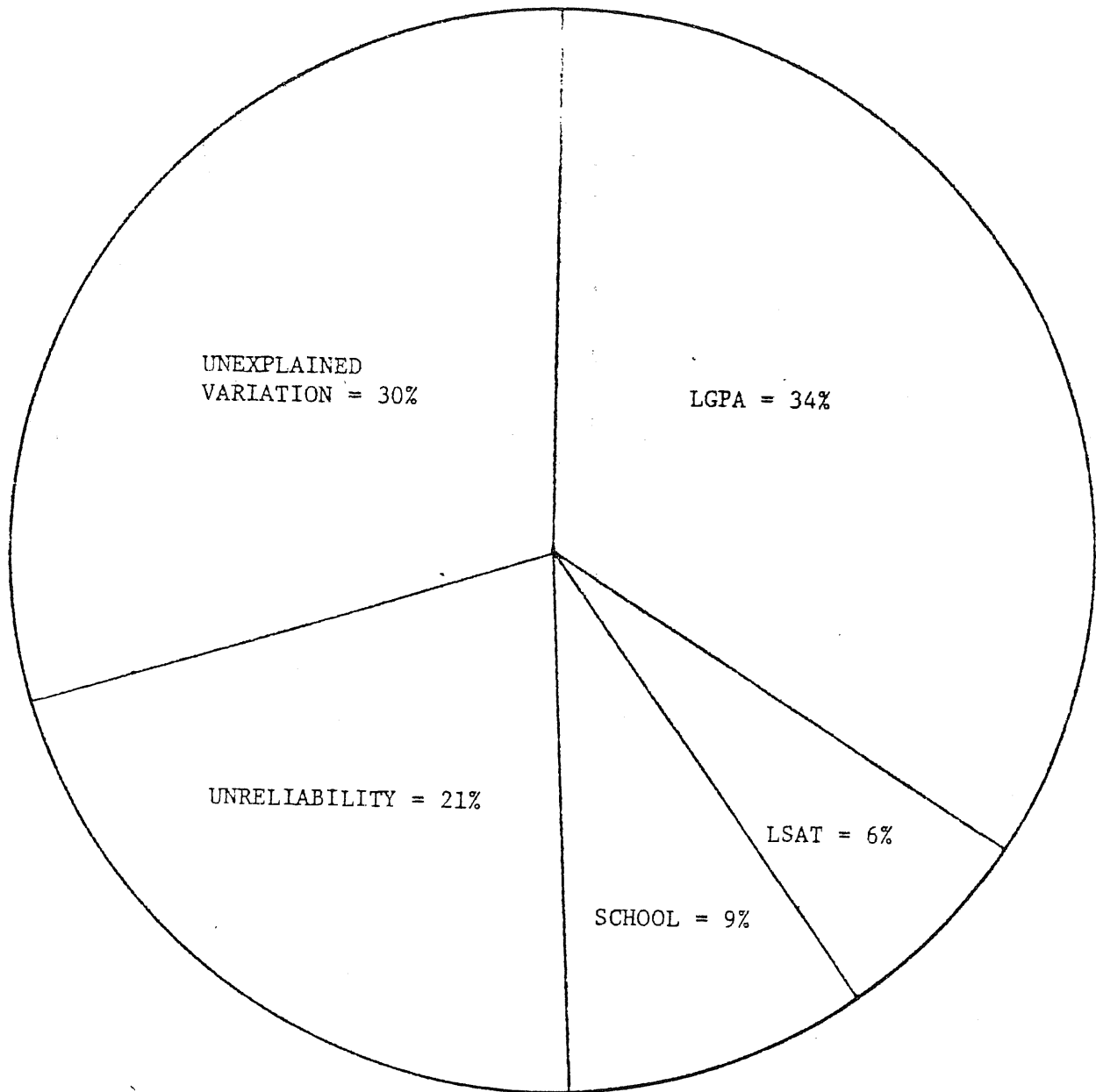


Figure 1. RELATIVE CONTRIBUTIONS TO THE PREDICTION OF ESSAY SCORES

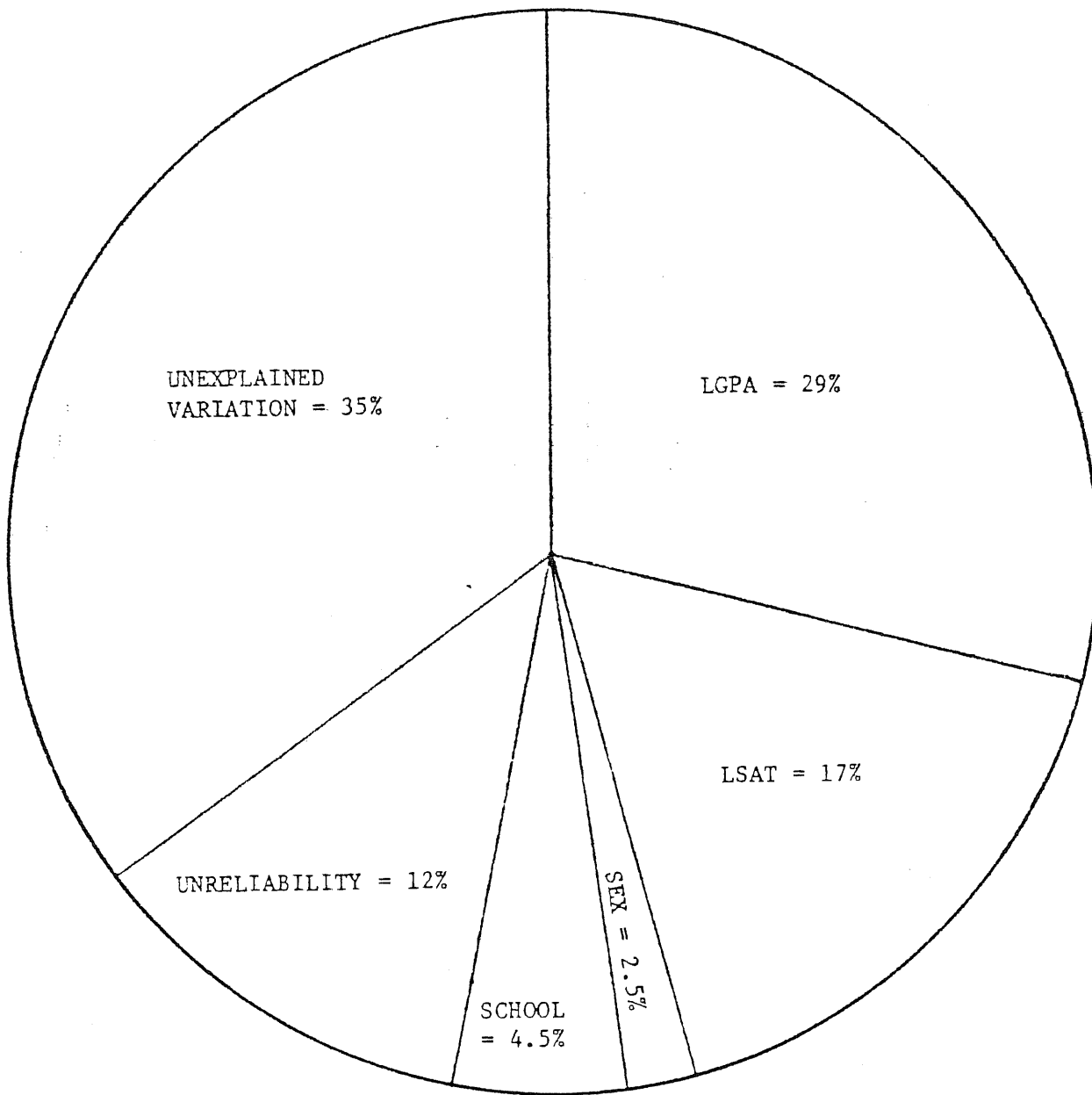


Figure 2. RELATIVE CONTRIBUTIONS TO THE PREDICTION OF MBE SCORES

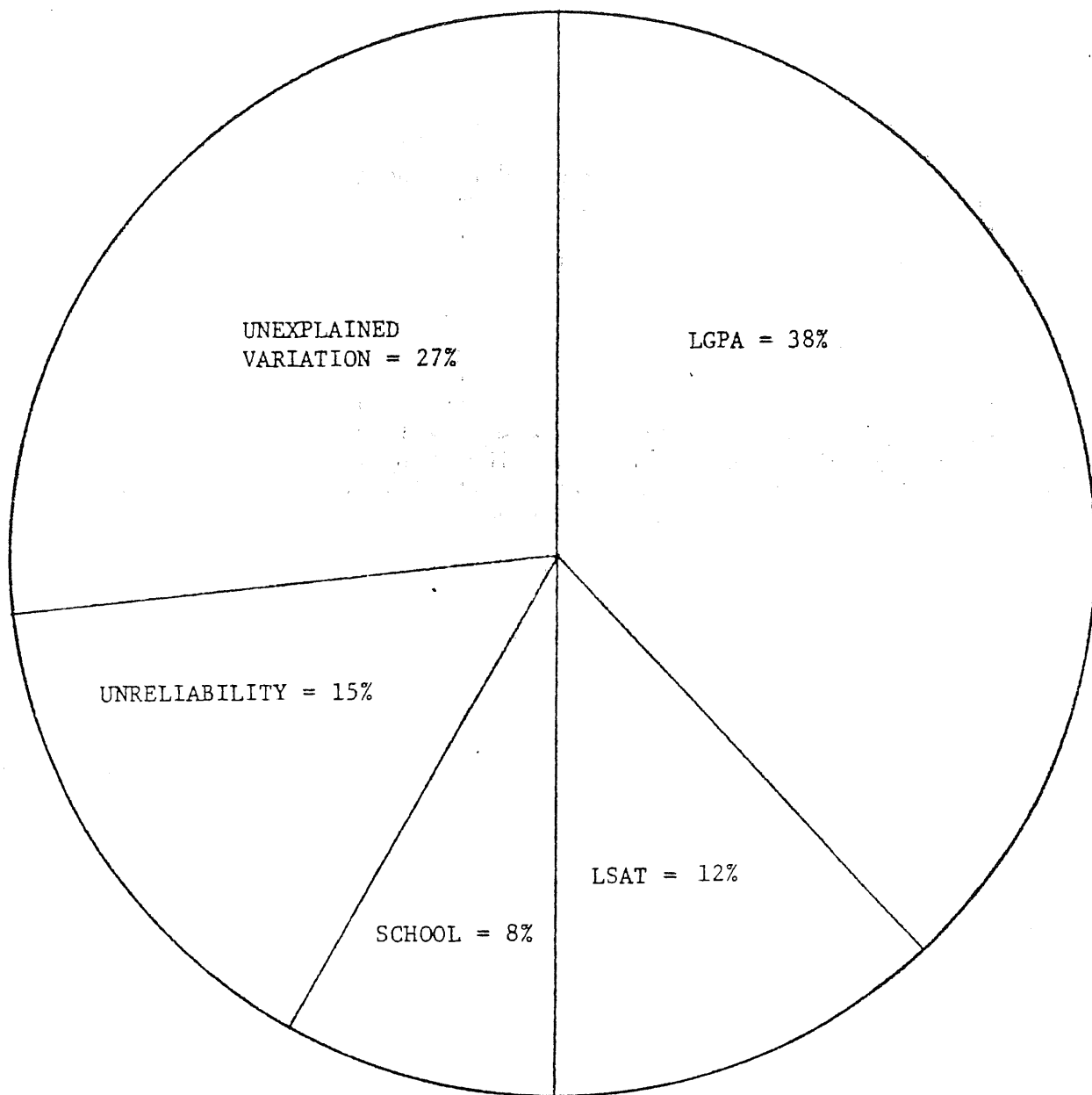


Figure 3. RELATIVE CONTRIBUTIONS TO THE PREDICTION OF TOTAL BAR EXAMINATION SCORES.

Despite the presence of the unexplained variance in bar scores, it was evident that the overall level of prediction achieved was quite high. For example, the combination of LGPA, LSAT, and School was able to explain 58 percent of the Total score variance (see equation #12). This is almost three times more variance than the combination of LSAT and undergraduate grade point average is able to explain in law school grades. Even when LGPA was used by itself, it explained 34 percent of the variance in Essay scores and 29 percent of the variance in MBE scores. These relationships of LGPA to Essay and MBE scores are identical with those obtained by Carlson and Werts (1976) in their seven-state study. The percentages of explained variance that Carlson and Werts reported for the LSAT are also quite similar to those listed in Table 4, equation #4. Thus, the results obtained in the present study are probably typical of those that would be found with bar examinations administered in other states.

SUMMARY AND CONCLUSIONS

This study investigated the extent to which disparities in bar examination scores between applicants were related to factors that were uniquely and systematically associated with an applicant's law school, racial/ethnic group, and sex. The study was conducted with almost all of the applicants who in the fall of 1977 were taking the examination for the first time and who had also just graduated from a California law school. The major results of this research were as follows:

- o Applicants from ABA approved schools generally had higher bar scores than did applicants from other California accredited or unaccredited law schools.
- o The average bar scores at ABA approved schools tended to be slightly higher than would be expected on the basis of their average LSAT scores while unaccredited schools tended to have slightly lower average bar scores than expected.
- o Within all three types of schools, certain ones had higher bar scores than expected while others had lower scores than expected. In general, the magnitude of these school effects were relatively small, especially in comparison to the relationship between bar scores and LGPA.
- o It could not be determined from the data available for this research whether the observed School effects were a function of differences in educational programs between schools and/or in the general characteristics of the students they enrolled. It was evident, however, that the factors which produced the School effects were not related to differences between the schools in their average LSAT scores and/or in their proportional representations of each sex and racial/ethnic group.
- o Schools which had average Essay scores that were higher than expected (on the basis of their average LSAT scores) also tended to have higher than expected MBE scores.

- o About the same percentage of racial/ethnic minority applicants as Anglo applicants attended the ABA approved schools which had positive School effects. Thus, the performance differentials between groups on the bar examination were not affected by school effects.
- o Knowledge of an applicant's racial/ethnic group did not contribute to the prediction of that applicant's bar scores once these scores had been adjusted for differences between applicants in their relative performance levels in law school. Even before this adjustment was made, racial/ethnic group explained only 6 percent of the variance in Total scores as compared to the 25 percent and 38 percent that were explained by LSAT and LGPA, respectively.
- o A disproportionately large number of minority group applicants graduated from ABA approved schools, and even within this category of schools, proportionately more minority applicants than Anglo applicants graduated from the five schools with the highest average LSAT scores. When these differences in Anglo and minority enrollment patterns were controlled, the differences between the groups in their law school grades still paralleled quite closely their differences in their Essay, MBE, and Total scores.
- o The size of the gap between Anglo and minority groups on the Essay portion of the examination paralleled the size of the gap between them on the MBE. In other words, the Essay section of the test was not relatively more or less difficult for racial/ethnic minority groups than was the MBE section. For example, the difference in passing rates between Anglo and Hispanic applicants on the MBE and Essay portions of the test were 25% and 28%, respectively. Thus, giving more or less weight to either section of the test would not have any affect on the relative passing rates of the groups.
- o The foregoing findings led to the hypothesis that whatever was producing the performance differentials between racial/ethnic groups in law school was probably also at work on the bar examination. In other words, the observed differences in average bar scores between groups were probably not a function of certain features of the examination (such as its time limits or the length, wording, or complexity of its questions), but rather they were due to differences between the groups in the degree to which they possessed the general skills and knowledge that are required to get high grades in law school. Whether these same characteristics are also required for legal practice is an issue that was not addressed by this research.
- o Female applicants did slightly less well on the MBE portion of the examination than would have been expected on the basis of their LGPA's and LSAT scores. For example, 7% more females than males passed the Essay, but 5% more males than females passed the MBE. While it is not known what produced this trend, it was evident that it had only a very minor effect on MBE scores and essentially no effect on an applicant's Total score.

- o The overall percent of variance explained in bar scores by LGPA and LSAT (or by LGPA and School) was quite high and consistent with what is usually found in similar types of research. Nevertheless, there was still a substantial amount of variation in bar scores that was not explained by the predictors, even after controlling for the less than perfect reliability of the measures involved in the analyses.
  
- o It was hypothesized that some of the factors that may have contributed to this unexplained variance were: lack of sensitivity of the LGPA's to reflect fully the true performance differentials within schools; post-law school preparation for the examination; individual differences in potentially relevant ability and personality characteristics that were independent of an applicant's LGPA, LSAT score, school, sex, and racial/ethnic group; complex interactions between these and other variables; and chance events.

Finally, it should be noted that the foregoing findings and hypotheses are based on the analyses conducted on a single examination. Replications of this investigation are therefore recommended so as to check on the stability of the results obtained, especially with respect to the effects of individual schools on their graduates' chances of passing the examination. If it were found that the size and direction of these school effects remained relatively constant across examinations, then subsequent research might be undertaken to determine the source of these effects.



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This study was conducted by Dr. Klein while he was serving as a private consultant to The Committee of Bar Examiners of The State Bar of California. The views expressed in this report are his own and do not necessarily represent those of The Committee of Bar Examiners or The Rand Corporation.

## SUMMARY DESCRIPTIVE STATISTICS BY SCHOOL

School Number	School Type	Number of Applicants	Percent Passing	Percent Minority	Average LSAT Score	Percent Missing LSAT	Correlations		
							LSAT with LGPA	LGPA with Total	School with Total**
01	UnAcr	27	37	15	519	0	.26	.35	-.05
02	ABA	125	49	6	550	1	.40	.70	-.08
03	ABA	144	71	7	594	1	.19	.65	-.02
04	ABA	396	78	13	621	2	.44	.78	+.03
05	UnAcr	10	10	0	480	30	.01	.64	-.05
06	UnAcr	70	50	8	511	33	.31	.57	-.07
07	ABA	278	85	8	612	1	.23	.63	+.10
08	ABA	262	92	6	598	0	.24	.61	+.18
09	ABA	334	59	9	573	0	.19	.66	-.10
10	ABA	78	78	17	682	0	.60	.77	.00
11	CalAcr	45	78	2	531	0	.08	.60	+.05
12	ABA	216	87	21	675	6	.40	.61	+.10
13	ABA	146	78	23	631	0	.41	.79	+.04
14	ABA	264	78	17	638	0	.44	.75	+.01
15	ABA	198	77	8	601	0	.22	.77	+.02
16	ABA	156	65	13	587	3	.41	.76	-.04
17	ABA	215	74	17	601	0	.48	.76	-.02
18	ABA	138	82	17	603	1	.48	.81	+.04
19	CalAcr	207	46	3	491	33	.26	.65	-.04
20	ABA	138	72	4	556	0	.11	.66	+.04
21	CalAcr	81	62	9	540	51	.19	.70	-.01
22	ABA	75	88	5	574	1	.23	.63	+.06
23	CalAcr	287	46	8	513	5	.36	.62	-.09
24	UnAcr	17	53	0	554	18	.48	.49	.00
25	UnAcr	39	54	10	543*	100	--	.51	-.03
26	CalAcr	16	81	0	598*	100	--	.80	+.01
27	CalAcr	49	39	6	507	0	.15	.72	-.06
28	CalAcr	18	83	0	529	0	.05	.82	+.07
29	UnAcr	41	34	7	501	66	.28	.62	-.06
30	UnAcr	24	25	4	483*	100	--	.69	-.05
31	CalAcr	165	52	5	515	1	.33	.62	-.07
32	UnAcr	19	21	5	475*	100	--	.49	-.07
33	UnAcr	17	71	0	571	0	.25	.60	.00
34	UnAcr	12	83	8	607	8	.01	.42	+.01
35	UnAcr	11	27	9	487*	100	--	.81	-.02
36	UnAcr	39	74	5	523	28	.43	.54	+.03
37	UnAcr	30	60	10	512	20	.31	.39	-.01
38	UnAcr	27	26	7	485*	85	--	.42	-.09

\* Average LSAT score estimated for all applicants.

\*\* This column contains the point biserial correlation coefficients between Total score and enrollment versus non-enrollment at the school with the effect of LSAT partialled out of Total score.

APPENDIX B

AVERAGE SCORES AND NUMBER OF APPLICANTS WITHIN EACH RACIAL/ETHNIC AND SEX GROUP AT ABA APPROVED SCHOOLS

School's Average LSAT Score	Variable	Anglo		Asian		Black		Hispanic	
		Male	Female	Male	Female	Male	Female	Male	Female
Low	N	578	182	22	6	9	6	19	2
	LSAT	577.6	566.9	530.4	548.8	458.2	420.0	517.8	439.5
	LGPA	50.1	52.1	42.0	43.5	39.1	41.3	48.5	37.9
	Total	1214.1	1214.5	1132.9	1142.5	1152.0	1139.5	1184.4	1053.0
Medium	N	798	312	21	6	14	12	50	10
	LSAT	614.8	605.9	564.1	573.0	446.0	503.8	503.1	476.7
	LGPA	50.3	52.5	45.8	45.2	36.4	37.3	41.1	41.3
	Total	1254.9	1241.6	1193.5	1200.0	1130.1	1142.8	1179.5	1166.4
High	N	606	305	29	26	32	22	46	25
	LSAT	666.8	651.8	597.0	577.0	509.2	490.6	548.5	521.8
	LGPA	52.1	52.7	42.4	42.3	36.7	35.1	39.0	37.2
	Total	1267.4	1265.7	1227.6	1193.6	1148.1	1154.0	1184.4	1129.4

## Appendix C

GLOSSARY OF STATISTICAL TERMS

Correction for Attenuation	The correction for attenuation is used to determine what the correlation between two variables would be if both variables were perfectly reliable; i.e., it provides an estimate of the underlying relationship between the variables.
Correlation Coefficient (r)	The correlation coefficient (symbolized by the letter "r") is an index of the degree to which the relative performance of the applicants on one measure corresponds to their relative scores on another measure. The correlation may be positive (which means that high scores on one measure correspond to high scores on the other) or negative. The coefficients themselves may range between $\pm 1.00$ ; the higher the coefficient, the stronger the relationship between the two measures (regardless of its algebraic sign). A zero correlation means that there is no linear relationship between the measures.
Internal Consistency Coefficient (Reliability)	An internal consistency coefficient is a type of correlation coefficient. It indicates the extent to which an applicant's performance level is consistent throughout the test relative to the other applicants who took that test. If the content of the test is relatively homogeneous (e.g., all of the questions measure the applicants' general legal knowledge and skills), then its internal consistency coefficient provides an estimate of what the correlation would be between that measure and a parallel form of it. For example, the internal consistency of a 12-question Essay test is about .78. This means that if the applicants answered another 12 questions, their scores on this second set would correlate about .78 (all other factors being equal) with their scores on the first set.
Mean Score	The mean score is the arithmetic average score. It is computed by adding all the scores and then dividing by the number of scores added.
Percent of Explained Variance ( $r^2 \times 100$ )	The square of the correlation coefficient is called the "coefficient of determination." When multiplied by 100, this statistic indicates the percent of variance in one variable (such as Total Bar scores) that is associated with, determined by, or accounted for by the variance in another variable (such as LGPA). For example, if one applicant's Total score is 20 points higher than another applicant's Total score and if $r^2 = .60$ , then about 12 of the 20 points can be explained by the differences between these two applicants in their respective LGPA's.

Standard Deviation

The standard deviation of a test is an index of the degree to which the scores on that test spread out on either side of the mean (average) score. The larger the standard deviation, the greater the spread. Approximately 68 percent of the applicants fall within plus or minus one standard deviation of the mean, and about 95 percent fall within plus or minus two standard deviations. For example, the July 1977 examination had an average total score of 1222 points and a standard deviation of 81 points. This means that applicants with scores between 1141 and 1303 comprised about 68 percent of those taking the test.

Standard Error of Measurement

The standard error of measurement is an index of the range within which an individual applicant's score is likely to fall on a parallel form of the test. For example, if the standard error on a test was 30 points and if an applicant had a score of 1170 on this test, the chances are two out of three that this applicant would have received a score between 1140 and 1200 had that applicant taken a different form of this test. The more reliable the test, the smaller the standard error of measurement.