



Law School Admission Council

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August 27, 2004

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Dear Amy:

Jean Madden has forwarded your concerns regarding information being posted by a pre-law advisor on the use of index formulas. In response to your request for information, we are providing you with copies of the "Key to the Master Law School Report" and the "Admission Index Information Sheet" which each candidate receives with their master law school report. In addition, I thought it might be helpful to explain in detail how relative weightings of LSAT and UGPA are calculated. The calculations are more complex than might be expected and require knowledge of data that is treated as confidential for each school and distributed only to the Admissions office. I hope these details will help correct any misunderstanding that might exist regarding index weightings.

The relative weightings of UGPA and LSAT for the index formulas are calculated by standardizing the multiplicative constants to remove the effects of the different scales for LSAT and UGPA. These calculations are mathematically derived from the equations describing multiple regression.

Multiple Regression

The LSAT Correlation Studies use two predictors, LSAT score and UGPA, to predict first-year grades in law school. The resulting multiple regression equation takes the form:

$$X_1 = b_{12}X_2 + b_{13}X_3 + a,$$

where  $X_1$  = Index score,  $X_2$  = LSAT score and  $X_3$  = UGPA.

Based on the 2003 LSAT Correlation Study analysis for the University of Iowa, this formula is:

$$\text{Index} = 0.409 \cdot \text{LSAT} + 3.599 \cdot \text{UGPA} - 1.290$$

Each predictor variable is multiplied by a multiplying constant or weight (i.e.,  $b_{123}$  or  $b_{132}$ ). The constant in the multiple regression equation (-1.290 in the University of Iowa equation) is calculated from the data to ensure that the mean of the predicted criterion value coincides with the mean of the actual criterion value (FYA). The particular multipliers that are applied to each of the predictors are calculated to ensure the maximum correlation between predicted and obtained first year grades

### Calculating relative weights

LSAT scores are on the 120-180 scale while UGPA values are expected to range between 2.00 and 4.33. The magnitude of the multipliers in the index formulas reflects the different distributions of the predictor variables: the value for the UGPA multiplier is large relative to the multiplier for LSAT in part because the UGPA values vary within a smaller range. Because these multipliers are scale-dependent, it is not possible to use them to compare the weightings of LSAT and UGPA.

*no because they are smaller in magnitude*

*yes it is - just not directly*

You can calculate the weight of UGPA relative to LSAT by standardizing the multiplying constants in order to remove the effects of the different scales for LSAT and UGPA. This can be done by multiplying the multiplying constant in the index formula equation by the standard deviation of that predictor divided by the standard deviation of the criterion. Symbolically

*1. is this a proper standard deviation of the  $\beta$ ?  
2. is it relevant to what I did?*

LSAT  $\beta_{123} = b_{123} (\sigma_2 / \sigma_1)$  and

UGPA  $\beta_{132} = b_{132} (\sigma_3 / \sigma_1)$

For the equations using the data for the University of Iowa:

Regression Formula:

$$\beta_{\text{FYA LSAT UGPA}} = 0.409 (5.30 / 4.62) = 0.469$$

$$\beta_{\text{FYA UGPA LSAT}} = 3.599 (0.36 / 4.62) = 0.280$$

For the Regression formula, the standard deviations are based on the available data for students in the 2000, 2001, and 2002 entering classes. Once the regression weights are standardized, each weight can be divided by the sum of the pair to determine the relative weight of each variable.

$$\frac{5.30}{4.62} = 1.147$$

$$\frac{0.36}{4.62} = 0.078$$

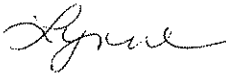
Thus,

	<u>LSAI</u>	<u>Proportion</u>	<u>UGPA</u>	<u>Proportion</u>
Regression Formula:	$\frac{0.469}{0.469 + 0.280}$	= 0.626	$\frac{0.280}{0.469 + 0.280}$	= 0.374

In percentages, the relative weightings of LSAT and UGPA are, therefore, 62.6% and 37.4%, respectively. The values reported on the Index Selection Form and in the Correlation Study are calculated using a different number of decimal digits and may differ in the last digit from the values shown here. For your reference, a copy of the summary page for the 2003 Correlation Study for the University of Iowa with the values used in the above calculations is enclosed.

I hope this explanation has been of some help. If you have additional questions regarding your index formula or the information about them that LSAC provides, please give me a call at (215)968-1224.

Sincerely,



Lynne Norton,

Project and Resource Coordinator – Psychometric Research

Cc: Jean Madden

Enclosure