A Geographic Approach to Prediction of College Freshmen Enrollment

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In recent years the rapid growth of colleges and the certain prospect of continued expansion has drawn attention to and made necessary some means of forecasting future enrollments. Officials at Indiana University, for instance, estimate that the student population will double within two decades. On the strength of these predictions, already crowded facilities are undergoing a multi-million dollar enlargement intended to meet and serve the increased and increasing demand for college education.

Predicting enrollments, then, is of some importance to college administrators. At Indiana University, for example, future enrollment has been predicted as follows: the number of incoming freshmen each year is divided into the total number of births in Indiana eighteen years previously. Over the years this has produced a series of percentages which have been projected, with adjustments annually to apparent indicated trends, and applied to more recent birth records (i.e., less than 18 years previous to date of prediction) in order to estimate future matriculations. Herein is suggested a refinement of this method which, while not radically different, is so modified as to yield greater detailed information from a comparable body of raw data, of interest to both the administrator and geographer.

At Indiana University, to continue the example, the student population is not derived uniformly from the ninety-two counties of Indiana, although this assumption is implicit in any use of gross state figures to estimate enrollments. In light of the fact that more students are attracted from some areas than from others, it would seem appropriate to base predictions on data from counties, a convenient smaller area, in the hope that errors arising from areal variations in student yield may therefore be minimized and a greater insight provided into the probable source and size of future incoming freshmen classes.

Toward this end, the number of freshmen enrolling at I. U. in 1950 from each Indiana county was computed as a percentage of the number of children 5 and 6 years old in each county who were enrolled in grade school in 1940. For any one county then, the derived percentage, when applied to the grade school enrollment figure of 1950, would produce an estimate of the yield of freshmen to I. U. in 1960. The total of the county figures is the predicted size of the freshmen class at I. U. in 1960. The county percentage figures have also been arranged in order according to size, the ranking arbitarily divided into three classes of approximately equal size and the distribution of these percentage classes plotted on the map.

The 1940 and 1950 Census of Population was the source of the grade school figures while college enrollment data was obtained through the courtesy of Mr. Charles E. Harrell, Registrar, Indiana University.

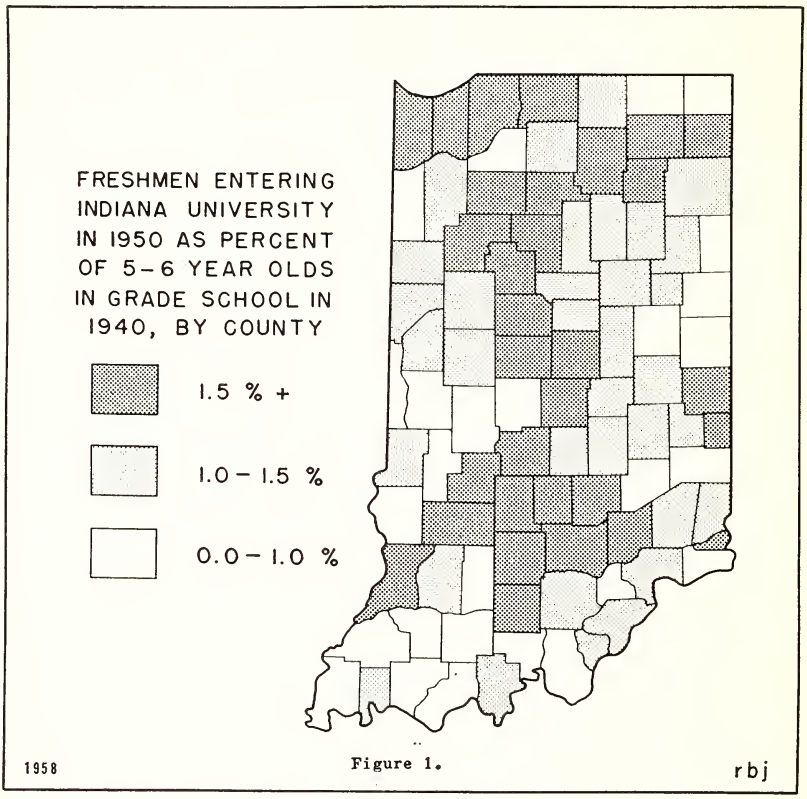

Figure 1.

The distribution of the percentage classes illustrates, among other things, that some counties are more productive of I. U. students than others. One must remember that the county values are not reckoned in terms of the absolute number of freshmen at I. U. but according to the relative percentage or proportion of freshmen as compared to 5 and 6 year olds in grade school. In this way all counties are rendered comparable for comparative purposes, the values not directly reflecting absolute population.

The counties surrounding I. U. are seen in Fig. 1 to be among the most productive of students and Monroe Co., the site of Indiana University, ranks the highest in the state with freshmen enrollment in 1950 amounting to 8.98% of the number of 5 and 6 year old grade school pupils in 1940. Other counties in the 1.5% or more class extend north through the central part of the state and occur in the heavily populated counties in the northwest corner of the state. It is suspected that the density of population in the counties in the northeast portion, while not formed into larger urban places, may be otherwise sufficiently concentrated to

account for the comparatively high yield of freshmen to I. U. The 1.0-1.5% group tends to surround the generally more central high yield counties except where the pattern is interrupted by low value areas. About one-half of these moderately productive counties contain an urban place of 10,000 or more. With one exception, none of the thirty-four counties in the 0.0-1.0% class have sizable urban places. The association between high yield and the Monroe Co. area is demonstrated in the southwest quadrant of the state where low value counties are otherwise concentrated.

Using these county data then a prediction can be made for the Indiana University freshman class of 1960. The total number of freshmen enrolling in the fall of 1950 was 1,560. In the preceding ten years, between 1940 and 1950, the school age population expanded markedly. As a result, the total of the county predictions comes to 2,257, the estimated number of entering freshmen at I. U. in 1960. The additional 697 freshmen enrollments estimated for 1960 over the known 1,560 in 1950 constitute a 44.7% increase.

This investigation has shown that a higher yield of freshmen to Indiana University may be related to areas having greater urban development. As well, counties surrounding the university contribute a high percentage of freshmen in spite of the fact that they are not heavily populated. Since the comparative analysis was based on percentages and the counties thereby rendered comparable, it is possible to say that college entrance is more valued or available to the high percentage counties than to others and is not a direct function of population size. While some explanation of the distribution of percentage values has been offered, there are no doubt other unrecognized, sometimes special, elements in operation exerting an influence on the yield of freshmen students from certain sections. Predictions will be more reliable when these and other elements are taken into account.