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AN ANALYSIS OF FACTORS AFFECTING ANNUAL EARNINGS
OF SELECTED JUNIOR COLLEGE GRADUATES.

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Introduction

In coming years, we should observe considerable change in evaluation techniques. Techniques for comprehensive evaluation of education, by and large, are at the conceptual stage. Moss layed out a general theoretical evaluation model in a recent article¹. He notes that output from educational processes is multi-faceted.

Possible quantifiable facets of a composite output of vocational education should be job satisfaction, degree of unemployment over time, extent of employment in jobs related to training, and earnings.

Evaluators are increasingly turning to benefit-cost analysis as a relevant model. Conceptually, it is theoretically sound; however, considerable disagreement exists among evaluators due to the inability to identify and to measure various non-tangible benefits and costs.

This particular article is concerned only with the benefits of specific agricultural training. Only one aspect of educational output is considered-earnings. One should expect a high correlation between earnings and other aspects of educational output.

Objectives

The objective of this study was to determine the correlation between socio-economic characteristics of agriculture graduates of Junior College graduates and their earnings. Also, to determine if significant salary differences exist among curriculums.

Data

The data for this study was collected by questionnaires in 1966-67. The earnings information represented the income of 45 Junior College graduates at their first job after terminating their educational program.

Statistical Model

The benefits of education (earnings exclusive of consumption aspects of education) supposedly are affected by both schooling and non-schooling (student characteristics) variables. The following independent variables were hypothesized to be correlated with earnings:

High School Rank in Class (X_1)

As a measure of student's ability, rank in class was included in the regression equation. One would expect a positive correlation between student's rank in high school class and their earnings. In a study by Wolfe and Smith, they reported that those students who ranked closest to the top of their high school class reported the largest income².

Grade Point Average First Semester in Junior College (X_2)

Grade point average during the first semester likewise should be a proxy of scholastic ability and achievement. It is hypothesized that those students who obtained high grade points would likely earn larger salaries.

Distance of Migration from Home Community to Work (X_3)

Migration is an investment in human capital which people often make to increase incomes. The income gains from migration should be distinguished from the income effects of education. Distance mi-

grated is measured in number of miles from place of employment to the community from which the person had graduated from high school. It was expected that a positive correlation between distance migrated and income would be found.

Size of High School Class (X_4)

The size of the high school graduation class is included as a proxy for size of high school. Larger schools may tend to be more selective in hiring teachers, pay higher teacher salaries, and offer broader curriculum to students. Other things being equal, one would expect a positive relationship between size of high school and the dependent variable.

Vocational Agriculture Training (X_5)

This independent variable was included as a group membership variable by assigning the value of one if the student had vocational agriculture and zero if not. Vocational agriculture training was hypothesized to increase the market value of the agriculture student. Therefore, one would expect a positive relationship between income and vocational agriculture training.

Office Held in High School (X_6)

If the Junior College graduates held an office in their high school, they were assigned the value of one and zero if not. This variable was included in the regression equation as a measure of personality and leadership. One would expect leadership experience in high school and income to be positively correlated.

Curriculum Taken in Junior College (X_7)

This variable was included in the regression equation as a group membership variable with the students being assigned the value of one if they were enrolled in the agriculture business program and zero if they were enrolled in the agriculture mechanization curriculum. This variable was included to ascertain if a net salary difference exists between the two agriculture curriculums. If a significant difference exists, as reflected by income, such a differential would reflect the relative supply and demand for graduates of the different curriculums.

Analysis

Table 1 showed the average income of the Junior College graduate was \$5,851. A standard deviation of \$1,364 represents a relative high variation among salaries.

COLLEGE GRADUATES, 1967

	Means	Deviation	Coefficient of Variation
Yearly income (Y_1)	\$5851.90	\$1364.42	23.0
High school rank in class (X_1)	59.06	22.34	38.0
Grade point average first semester in junior college (X_2)	3.42	.514	15.0
Distance in miles of migration from home to work (X_3)	32.70	56.83	173.0
Size of high school class (X_4)	99.46	92.86	93.0
Vocational agriculture in high school (X_5)	.95	.20	21.0
Office held in high school (X_6)	.60	.48	80.0
Curriculum taken in junior college (X_7)	.73	.44	60.0

The students in the agriculture mechanization program had a mean income of \$5,916, and the students in the agriculture business curriculum had a mean income of \$5,828. A greater amount of variation of income exists among the students who were enrolled in the agriculture mechanization program than the agri-business curriculum. The graduates of the agricultural mechanization program had a standard deviation of \$1,928 and coefficient of variation of 32. In contrast the students in the agriculture business program had a standard deviation of \$1,088 and coefficient of variation of 18. These statistics lend support to the contention that the agri-business students were more homogeneous with respect to characteristics that affect earnings and/or confront a different type of labor market.

Table 1 showed that the mean rank in class (X_1) was about 59. The average grade point average on a five point scale (X_2) was 3.42. A low variation in grades was found—a standard deviation of .514 and coefficient of variation of 15.

The average distance from home to work (X_3) was 32.7 miles with a standard deviation of 56.8. As indicated by the computed coefficient of variation of 173, the variation of this variable was very high.

The mean size of high school class (X_4) was 99.4 with a standard deviation of 92.8. This variable has a high amount of variation as indicated by the coefficient of variation of 95.

The percentage of junior college graduates who took vocational agriculture (X_5) was 95 percent. Slightly over one-half of the students (X_6) held some office in high school.

The largest group of students included in this study were enrolled in the agriculture mechanization program. Twenty-seven percent and seventy-three percent were enrolled in the agriculture business program and agricultural mechanization curriculums respectively.

Multiple regression techniques were employed to investigate the net relationship between earnings and the above variables hypothesized to affect earnings of the graduates. The results of the regression model were discouraging in that none of the independent variables were correlated with earnings and the full model explained less than 10 percent of the salary variation.

The relative small sample size at one point in time prompts the author to interpret the results with caution. Some of the independent variables selected had previously been investigated by other researchers. They appear logically consistent with real world expectations. The author, therefore, suggests that additional data be collected for additional tests of the formulated model.

FOOTNOTES

¹J. Moss, Jr. and et al., "Project Improve: State-Operated Evaluation System," American Vocational Journal, Vol. 45, No. 2, 1970.

²D. Wolfle and J. Smith, "The Occupational Value of Education for Superior High School Graduates," Journal of Higher Education, Vol. 27, 1965.