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FACTORS ASSOCIATED WITH ATTITUDE TOWARD HIGH-SCHOOL EDUCATION IN RURAL WISCONSIN*

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ABSTRACT

This study reports the analysis of the relationship between ten independent variables and attitude toward high-school education. Seven factors were significantly associated with attitude toward high-school education. These were educational attainment, socio-economic status, ethnic background, sex, occupational status, size of farm, and age.

A more detailed test of the association of the three independent variables most highly associated with attitude toward education was then undertaken. The most important conclusion is that the total associations hold only under specific conditions. Socio-economic status is associated with attitude toward high-school education within three of four samples: Continental Europeans of high educational attainment, Continental Europeans of low educational attainment, and Anglo-Americans of low educational attainment. Educational attainment is associated with attitude toward high-school education only among Continental Europeans of high socio-economic status, and ethnic background only among persons of high socio-economic status who have not attended high school.

INTRODUCTION

In a previous article, a correlation analysis of the association between eight independent variables and school attendance of farm youth 16-17 years of age in 1940 was presented.[1] The data were on a county basis and to some degree the analysis was limited by this fact. The results of that study indicated that, while several of the variables tested were related to school attendance, nationality background was the most important single variable influencing school attendance. Even this variable was not sufficiently related to explain as much as half of the observed variance in high-school attendance.

The study reported in the present paper extends this analysis by testing the association between similar independent variables—as well as some independent variables not previously included—and the attitude of Wisconsin farm people toward high-school education. After the association between each of the independent variables and attitude toward high-school education is shown, a controlled analysis is presented in which the association between each of the three most highly associated independent variables and attitude toward high-school education is tested by controlling the influence of the two remaining independent variables.

The data upon which this study is based were obtained in 1949 by means of interviews with one adult in each of 400 randomly selected open-country families from four Wisconsin high-school-attendance areas.[2] The areas were selected on the basis of ethnic

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[1] D. G. Marshall, W. H. Sewell, and A. O. Haller, "Factors Associated with High-School Attendance of Wisconsin Farm Youth," *Rural Sociology*, XVIII:3 (Sept., 1953), pp. 257-260.

[2] The four communities are Denmark (90 schedules); Montello (103 schedules); Princeton (60 schedules); and Wautoma (145 schedules). In the analysis of the data, the schedules were pooled since no significant difference was found between communities, in attitude toward high-school education.

composition and predominance and type of agriculture. The interviewing was done by trained interviewers using a survey schedule designed to obtain attitude of rural people toward high-school education and related matters.

Attitude toward high-school education was inferred from answers to a series of four questions relating to the opinion of the respondent regarding the desirability of a high-school education for his own and other rural children. Those who expressed the opinion that their own sons and daughters and other farm boys and girls should obtain at least a high-school education were classified as having a favorable attitude toward high-school education; all others were classified as having an unfavorable attitude. This dichotomous classification of attitude toward high-school education is used as the dependent variable throughout the analysis which follows. The ten independent variables, measured by material from the interviews, were as follows: (1) educational attainment, (2) ethnic background, (3) number of milk cows per farm, (4) size of farm, (5) distance from nearest high school, (6) occupation of head of household, (7) socio-economic status scale scores, (8) tenure status, (9) age, and (10) sex.

ASSOCIATION BETWEEN INDEPENDENT VARIABLES AND ATTITUDE TOWARD HIGH-SCHOOL EDUCATION

The chi-square test was used in the analysis of the association between each of the independent variables and attitude toward high-school education. If the chi-square value proved to be statistically significant at the 5 per cent level, the degree of association was measured by the corrected coefficient of contingency, $\bar{C}$.[3]

[3] Thomas C. McCormick, *Elementary Social Statistics* (New York: McGraw-Hill Book Co., 1941), p. 207.

The relationship between each of the ten independent variables and attitude toward high-school education is shown in Table 1. The first independent variable considered is the educational attainment of the respondents. When compared with attitude toward high-school education, a significant difference is noted. Persons who have attended high school are much more likely to be favorable toward high-school education than are those persons who have not attended high school. The degree of association, as measured by the coefficient of contingency, is the highest found for the variables tested.

The relationship between ethnic background and attitude toward high-school education is tested by data presented in the second comparison shown in Table 1. The chi-square is significantly large, indicating that ethnic background is associated with attitude toward high-school education. Anglo-Americans are more favorable toward high-school education than are persons of mixed ethnic backgrounds or Continental Europeans. The degree of association as measured by $\bar{C}$ is the third highest found in the analysis.

The third test concerns the relationship between the number of milk cows per farm and attitude toward high-school education. As Table 1 indicates, there is no significant association.

The association between distance from nearest high school and attitude toward high-school education is not significant, as shown by the fourth comparison in Table 1.

The latter two variables, number of milk cows and distance from nearest high school, are crude indicators of work-time requirements. Since neither of these is significantly associated with attitude toward high-school education, it may be tentatively concluded that work-time requirements are not important factors in attitude toward high-school education, although it is

possible that more refined indexes might show a greater relationship.

The fifth comparison is between occupation of household head and attitude toward high-school education. The association between these two var-

TABLE 1. ASSOCIATION OF INDEPENDENT VARIABLES AND ATTITUDE TOWARD HIGH-SCHOOL EDUCATION

Independent variable	Number of cases	Per cent favorable	Per cent unfavorable	X^2	P	$\bar{C}$
1. *Educational attainment:*	399			47.3	<.001	.52
Attended high school	141	93	7			
Did not attend high school	258	57	43			
2. *Ethnic background:*	399			23.6	<.001	.38
Anglo-American	67	88	12			
Mixed	98	81	19			
Continental European	234	62	38			
3. *Number of milk cows:*	342			0.1	ns*	....
1- 9	103	68	32			
10-19	199	69	31			
20 or more	40	68	32			
4. *Distance from nearest high school:*	398			0.4	ns*	....
0-3.9 miles	111	72	28			
4.0-5.9 miles	99	72	28			
6.0 or more miles	188	69	31			
5. *Occupation of head of household:*	396			9.0	<.02	.22
Farm and white-collar	18	100	0			
Farm and blue-collar	43	77	23			
Farm only	334	69	31			
6. *Socio-economic status score:*	399			40.2	<.001	.44
71 or more	136	88	12			
61-70	186	68	32			
60 or less	77	48	52			
7. *Tenure status:*	388			3.3	ns*	....
Owner	328	68	32			
Tenant	60	80	20			
8. *Size of farm:*	386			8.6	<.02	.22
150 or more acres	61	85	15			
75-149 acres	204	68	32			
0- 74 acres	121	64	36			
9. *Age:*	399			6.5	<.02	.20
39 years or less	163	77	23			
40 years or more	236	66	34			
10. *Sex:*	400			9.4	<.01	.24
Female	248	76	24			
Male	152	62	38			

*ns = not significant at .05 level.

iables is statistically significant (Table 1). Those who live on farms but work full time in white- or blue-collar occupations and those who combine these occupations with farming are more favorable toward high-school education than are those who farm exclusively. However, the coefficient of contingency is quite low.

The sixth comparison concerns socio-economic status scale scores and attitude toward high-school education.[4] From the evidence in Table 1, it is clear that there is a significant positive association between socio-economic status and attitude toward high-school education; each of the successively higher socio-economic status groups is significantly more favorable to high-school education than the ones below them in status. The over-all association as measured by the coefficient of contingency is the second highest found for the ten independent variables.

The seventh comparison involves the association between tenure status and attitude toward high-school education. As Table 1 indicates there is no significant association.

The eighth comparison is between size of farm and attitude toward high-school education. There is a low but significant relationship. Respondents living on large farms are clearly more favorable in their attitude toward education than those on smaller farms. However, those on small and medium-sized farms do not differ greatly in their attitudes. The coefficient of contingency is quite low.

Of the various indicators of socio-economic status presented in Table 1 (variables 5-8), the one most highly related to attitude toward high-school educaton is clearly the socio-economic status scale score. Occupation and size of farm are also significantly associated with attitude toward high-school education, but to a considerably lower degree.

The ninth comparison in Table 1 shows the relationship between the age of respondent and attitude toward high-school education. Age is dichotomized into those aged 40 and under and those over 40. The results indicate that there is a significant association; those in the younger age category are more favorable toward high-school education than those in the older age category. The degree of association, as measured by $\bar{C}$, is quite low.

As comparison ten indicates (Table 1), female respondents are significantly more favorable toward high-school education than are males. Nevertheless, the degree of association as indicated by $\bar{C}$ is quite low.

CONTROLLED ANALYSIS

At best, the simple contingency measures and tests of independence which have been presented thus far in the analysis of the data are suggestive; without more rigorous analysis it is not possible to arrive at reliable conclusions about the relative importance of the contribution of the independent variables to the variation in the dependent variable, attitude toward high-school education. For this reason additional analysis was undertaken using a partial association technique.

Seven independent variables were shown to be associated significantly with attitude toward education when no controls were applied. Ideally, six of these variables should be controlled while allowing the dependent factor to vary with the seventh independent variable. In this study, however, such precision is not possible, due to the limitations imposed by sample size and correlation between the independent variables. Consequently, it was decided

[4] William H. Sewell, "A Short Form of

dependent variable would be selected for controlled analysis.

Following the rationale given above, educational attainment, socio-economic status, and ethnic background were isolated for controlled analysis in which attitude toward high-school education was allowed to vary with each independent variable, holding both of the other independent factors constant. In order to do this, it was necessary to dichotomize educational attainment, socio-economic status, and ethnic background. Educational attainment was dichotomized as "high" (eight or more grades completed) and "low" (less than eight grades completed). Socio-economic status was divided into "low" and "high" categories, the former including those with scores of less than 65, the latter consisting of those with scores of 65 or more. The dichotomous classification of ethnic background was achieved by combining the "mixed" category with the Anglo-American category.

The schedules were then cross-classified by each of the three independent variables and the dependent variable. Twelve samples resulted from this cross-classification. Within each of these, the association between the independent and the dependent variable was tested. A chi-square formula for $2x2$ tables, which includes Yates' correction for continuity, was used to test the association within each of these samples.[5] The corrected coefficient of contingency $\bar{C}$ was used to measure the degree of association.

The results of this analysis are shown in Table 2. From this table the following conclusions are evident:

(1) Each of the three factors—socio-economic status, educational attainment, and ethnic background—is significantly associated with attitude toward high-school education within at least one of the samples.

(2) Nevertheless, none of the independent variables is significantly associated with attitude toward high-school education within every sample. This evidently indicates that the total associations which were presented earlier hold only under certain conditions.

(3) Socio-economic status is associated with attitude toward high-school education in the following samples: (a) Anglo-Americans who have not attended high school, (b) Continental Europeans who have attended high school, (c) Continental Europeans who have not attended high school. Only in the group including persons of high educational attainment and Anglo-American background is there no significant association between socio-economic status and attitude toward high-school education. This is due to the fact that almost everyone (92 per cent) in this category is favorable to high-school education.

(4) Educational achievement of respondents is associated with attitude toward high-school education among Continental Europeans of high socio-economic status.

(5) Ethnic background is associated with attitude toward high-school education only among persons of high socio-economic status who have not attended high school.[6]

[5] Wilfred J. Dixon and Frank J. Massey, Jr., *Introduction to Statistical Analysis* (New York: McGraw-Hill Book Co., 1951), p. 189.

[6] In a previous state-wide study by D. G. Marshall, W. H. Sewell, and A. O. Haller (*op. cit.*), a variable similar to ethnic background (nationality) was found to account for a large proportion of the variance in high-school attendance. The finding of the present study—that ethnic background is associated with attitude toward high-school education only under specific conditions—suggests that further controlled analysis of this factor will be necessary before a definitive statement can be made about its influence on high-school attendance and attitude toward education in rural Wisconsin.

TABLE 2. ASSOCIATION OF ATTITUDE TOWARD HIGH-SCHOOL EDUCATION WITH SOCIO-ECONOMIC STATUS, ETHNIC BACKGROUND, AND EDUCATIONAL ATTAINMENT CONTROLLED AND VARIED INDEPENDENTLY

Independent variable	Control categories	Subclasses of independent variable	Number of cases	Per cent favorable	Per cent unfavorable	χ^2	P	$\bar{O}$
1. Socio-economic status ($N = 399$)	a. Anglo-American, high education		61			0.1	ns*	
		(1) High status	50	94	6			
		(2) Low status	11	91	9			
	b. Anglo-American, low education		52			4.4	<.05	.38
		(1) High status	30	87	13			
		(2) Low status	22	59	41			
	c. Continental European, high education		81			3.8	**<.05	.41
		(1) High status	77	94	6			
		(2) Low status	4	50	50			
	d. Continental European, low education		205			5.0	<.05	.24
		(1) High status	105	62	38			
		(2) Low status	100	49	51			
2. Educational attainment ($N = 399$)	a. Anglo-American, high status		80			0.5	ns*	
		(1) High education	50	94	6			
		(2) Low education	30	87	13			
	b. Anglo-American, low status		33			2.1	ns*	
		(1) High education	11	91	9			
		(2) Low education	22	59	49			

	c. Continental European, high status		*182*			*22.2*	*<.001*	*.51*
		(1) High education	77	94	6			
		(2) Low education	105	62	38			
	d. Continental European, low status		*104*			*0.2*	*ns**	
		(1) High education	4	50	50			
		(2) Low education	100	49	51			
3. Ethnic background ($N = 399$)	a. High education, high status		*127*			*0.1*	*ns**	
		(1) Anglo-American	50	94	6			
		(2) Continental European	77	94	6			
	b. ~~High~~ Low education, ~~low~~ High status		*135*			*5.4*	*<.05*	*.28*
		(1) Anglo-American	30	87	13			
		(2) Continental European	105	62	38			
	c. ~~Low~~ High education, ~~high~~ low status		*15*			*1.0*	*ns**	
		(1) Anglo-American	11	91	9			
		(2) Continental European	4	50	50			
	d. Low education, low status		*122*			*0.1*	*ns**	
		(1) Anglo-American	22	59	41			
		(2) Continental European	100	49	51			

**ns* = not significant at the .05 level.

**Due to the possibility of small cell frequencies producing a spuriously high X^2, this probability was rechecked by Fisher's method of exact probability: $P < .03$. See R. A. Fisher, *Statistical Methods for Research Workers* (7th ed.; London: Oliver and Boyd, 1938), pp. 100-102.