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American Journal of Sociology, Volume 73, Issue 5 (Mar., 1968), 559-572.

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American Journal of Sociology
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William H. Sewell and Vimal P. Shah

ABSTRACT

In this study of a randomly selected cohort of 10,318 Wisconsin high school seniors, correlational, path, and cross-tabular analyses show that socioeconomic status, intelligence, and parental encouragement all have substantial independent relationships to college plans of males as well as of females and that neither intelligence nor parental encouragement—individually or jointly—can completely account for social class differences in college plans. It substantiates, however, the claim made by other investigators using less rigorous methods and less representative samples that parental encouragement is a powerful intervening variable between socioeconomic class background and intelligence of the child and his educational aspirations. Parental encouragement appears to have its strongest effect on the college plans of males and females who score relatively high on intelligence and come from families occupying relatively high socioeconomic positions. Also, ability continues to accentuate the social class differences in aspirations of both males and females regardless of parental encouragement.

INTRODUCTION

It is a sociological truism, evidenced by a number of studies, that children of higher social class origins are more likely to aspire to high educational and occupational goals than are children of lower social class origins.² This is true despite wide differences

among the studies in the nature of their samples, the age level of their subjects, their measurement procedures, and the particular cutting points used to categorize the variables.³ Even when other variables

¹ Paper presented at the 62d annual meeting of the American Sociological Association, San Francisco, August, 1967. The research reported in this paper was financed by a grant from the National Institutes of Health, U.S. Public Health Service (M-6275). The writers acknowledge the services of the University of Wisconsin Computing Center and wish to thank Otis Dudley Duncan and Warren Hagstrom for their helpful comments on an earlier draft of this paper.

² There is a vast literature in this regard. References to these studies are given in: William H. Sewell, Archibald O. Haller, and Murray A. Straus, "Social Status and Educational and Occupational Aspiration," *American Sociological Review*, XXII (February, 1957), 67-73; William H. Sewell, "Community of Residence and College Plans," *American Sociological Review*, XXIX (February, 1964), 24-38; William H. Sewell and Alan M. Orenstein, "Community of Residence and Occupational Choice," *American Journal of Sociology*, LXX (March, 1965), 551-63; William H. Sewell and Archibald O. Haller, "Educational and Occupational Perspectives of Farm and Rural Youth," in Lee

G. Burchinal (ed.), *Rural Youth in Crisis* (U.S. Department of Health, Education, and Welfare) (Washington, D.C.: Government Printing Office, 1965), pp. 149-69; William H. Sewell and J. Michael Armer, "Neighborhood Context and College Plans," *American Sociological Review*, XXXI (April, 1966), 159-68; and William H. Sewell and Vimal P. Shah, "Socioeconomic Status, Intelligence, and the Attainment of Higher Education," *Sociology of Education*, XL (Winter, 1967), 1-23.

³ Interesting evidence is provided by Haller and Miller, who attempted to test the hypothesis of a positive correlation between the level of occupational aspiration and social class status, race, parents' willingness to contribute financial support to help the youth, and posteducational work experience. They examined data from several published and unpublished studies. The hypothesis was confirmed in twenty-three instances, and the authors were somewhat doubtful about the validity of all of the remaining instances classified by them as contrary to the hypothesis. Archibald O. Haller and Irwin W. Miller, *The Occupational Aspiration Scale: Theory, Structure and Correlates* (East Lansing: Michigan State University Agricultural Experiment Station, 1963), pp. 28-55.

known to be related to both social class origins and aspirations—such as sex, intelligence, high school achievement, value orientations, and contextual variables such as neighborhood and community of residence—have been controlled, social class origins have been found to have an independent influence on educational and occupational aspirations. The question is often raised as to what it is about social class that accounts for this relationship and through what intervening variables this relationship may be further explained. In other words, the need is emphasized for specifying the variables by which the social class characteristics of individuals are translated into differences in aspiration and subsequently into achievement.⁴ One factor which has come in for considerable emphasis is the degree to which the child perceives his parents as encouraging or even pressuring him to have high educational and occupational goals.

Kahl first suggested the importance of parental encouragement in his study of the educational and occupational aspirations of "common-man" boys. After finding that intelligence and social class position accounted for the major variations in college aspirations of boys of common-man or working-class origins, he noted that the attitude of the parents regarding the importance of occupational success for personal happiness was the critical factor.⁵

⁴ For example, Peter Rossi, in "Social Factors in Academic Achievement," in E. H. Halsey, Jean Floud, and C. Arnold Anderson (eds.), *Education, Economy and Society* (Glencoe, Ill.: Free Press, 1961), p. 269, in surveying the researches on social factors affecting the achievement of students in American elementary and high schools, observed that "it is characteristic of past researches on individual differences that they have not gone much beyond measuring the association between characteristics of individual students and their achievement scores, to specify the processes by which these characteristics are translated into differences in achievement."

⁵ Kahl selected twenty-four subjects for his study from a larger sample of 3,971 boys in public high

Kahl's findings, although based on a very small sample of twenty-four common-man boys, have led many social scientists to emphasize the importance of parental encouragement and other social-psychological variables in explaining the relation of social stratification to aspirations. For example, in a critique of social structure and American education, Gross observes the following:

It is frequently assumed that because children come from backgrounds, similar on such criteria as education, occupation, and religion of parents that these children experience similar influences. However, as Kahl's paper suggests, in a setting of highly similar social status dimensions, quite disparate sociological and psychological influence, in this case parental pressure, may be operative on the child. This suggests that to type children simply on the basis of the characteristics of their socioeconomic environment or "social class" may provide an extremely inaccurate picture of the crucial influences affecting them. Social class typing of children, in short, may obscure more than it may reveal regarding influences operative on children.⁶

Bordua, in a study of 1,529 ninth through twelfth graders in two cities of Massachusetts, found that socioeconomic status was related positively to college plans at all school-year levels in both sexes and in Catholic, Protestant, and Jewish reli-

schools in eight towns of the Boston metropolitan area. These twenty-four boys had intelligence scores in the top three deciles of their schools and therefore were considered intelligent enough to succeed in college. While most upper-status boys aimed toward college as a matter of course, most lower-status boys tended to be uninterested in college. Consequently, working-class boys who aimed high were exceptions, and Kahl's intensive study of this group was designed to discover the source of their higher aspirations (see Joseph A. Kahl, "Educational and Occupational Aspirations of 'Common-Man' Boys," *Harvard Educational Review*, XXIII (Summer, 1953), 186-203.

⁶ Neal Gross, "A Critique of Social Class Structure and American Education," *Harvard Educational Review*, XXIII (Fall, 1953), 298-329.

gious affiliations.⁷ Since parental stress on college was positively and linearly related to college plans when sex and school year were controlled, Bordua asked whether these relationships were due to differential stress on college by the parents of boys as opposed to girls, to high socioeconomic status levels as opposed to low, and to Jews as opposed to Protestants and Catholics. He, therefore, controlled for parental stress on college and found that the effects of religious affiliation and socioeconomic status on college aspirations were reduced but not eliminated. Also, parental stress on college was related about equally to college plans whether or not socioeconomic status was controlled. However, Bordua's findings should be viewed with certain reservations because he did not control for all variables simultaneously, and particularly because he did not control for intelligence which has been found consistently related to both socioeconomic status and college plans. Similar limitations of methodology and data are characteristic also of Simpson's study of 743 boys in white high schools in two southern cities, in which it was concluded that "parental advice is a much better predictor of high ambition than is the boy's social class."⁸

In a study of 2,852 male sophomores in secondary schools in six middle-sized Pennsylvania cities, Rehberg and Westby found that the father's education and occupation influence educational expectancy both through parental encouragement and independent of it. Further, they found that the larger the family the greater the reduction not only in the frequency with which the parents encourage their children to continue their education beyond high school but also in the effectiveness of any

given frequency level of parental educational encouragement.⁹ Although family size was used as an additional control variable in their study, in the absence of data on intelligence Rehberg and Westby were unable to partial out the influence of ability on either parental encouragement or educational expectancy of the students. Further, they may have overstated the influence of parental encouragement in their top social status category when they suggested that "parental encouragement comes to being a *necessary* condition for the continuation of education beyond the high school level in *all* strata and not just in the lower classes."¹⁰

A critical review of these and other studies of the influence of parents' attitudes on youths' aspirations indicates not only major limitations of past studies but also the need for a clear formulation of a series of research questions. The purpose of this paper is to determine: (1) whether or not observed social class differences in the college plans of youth can be explained in terms of the differences in the level of perceived parental encouragement when intelligence is taken into account; (2) and if not, what additional influence parental encouragement has on college plans over and above the influence of social class and intelligence; (3) the direct and indirect influences that social class, intelligence, and parental encouragement have on college plans; (4) and, finally, whether or not there are any subpopulations of sex, intelligence, and parental encouragement in which social class differences in college plans might be eliminated.

THE DATA

The data for the present study come from a survey of graduating seniors in all

⁷ David J. Bordua, "Educational Aspirations and Parental Stress on College," *Social Forces*, XXXVIII (March, 1960), 262-69.

⁸ Richard L. Simpson, "Parental Influence, Anticipatory Socialization, and Social Mobility," *American Sociological Review*, XXVII (August, 1962), 517-22.

⁹ Richard A. Rehberg and David L. Westby, "Parental Encouragement, Occupation, Education and Family Size: Artfactual or Independent Determinants of Adolescent Educational Expectations?" *Social Forces*, XLV (March, 1967), 362-74.

¹⁰ *Ibid.*, p. 371.

public, private, and parochial schools in Wisconsin.¹¹ Information was obtained from the respondents, school authorities, and a statewide testing program on a number of matters, including the student's educational and occupational plans, the student's percentile rank in measured intelligence, the socioeconomic status of his family, his rank in his high school class, his course of study, and the educational attitudes of the student and his family. The analysis reported in this paper is based on 10,318 seniors who constituted about a one-third random sample of all 1957 seniors in Wisconsin.

The variable *socioeconomic status* (X_1) of the student's family is based on a weighted combination of father's occupation, father's formal educational level, mother's formal educational level, an estimate of the funds the family could provide if the student were to attend college, the degree of sacrifice this would entail for the family, and the approximate wealth and income status of the student's family. The sample was divided into four roughly equal groups, labeled "High," "Upper Middle," "Lower Middle," and "Low" in socioeconomic status.¹²

¹¹ The over-all results of this survey are given in J. Kenneth Little, *A Statewide Inquiry into Decisions of Youth about Education beyond High School* (Madison: School of Education, University of Wisconsin, 1958).

¹² These six indicators of family socioeconomic status were factor analyzed using the principal-components method and were orthogonally rotated according to the verimax criterion. This produced a three-factor structure composed of a factor on which the three economic items were most heavily loaded, a factor on which the two educational items were most heavily loaded, and a factor on which the occupational item was most heavily loaded. The composite socioeconomic status index was developed by squaring the loadings of the principal items on each factor as weights, then multiplying students' scores on the items by the respective weights, and, finally, summing the weighted scores of the principal items on each factor. The three factors were combined into a composite socioeconomic status score after multiplying the scores of

The variable *intelligence* (X_2) is based on scores on the Henmon-Nelson Test of Mental Ability, which is administered annually to all high school juniors in Wisconsin.¹³ The categories used represent the division of the sample into approximately equal fourths in measured intelligence, according to established statewide norms, labeled "High," "Upper Middle," "Lower Middle," and "Low" in intelligence.

The variable *paternal encouragement* (X_3) is based on the student's response to four statements intended to record his perception of his parents' attitude toward his college plans. The students were asked to check *any one* of the following four statements: (1) My parents want me to go to college; (2) My parents do not want me to go; (3) My parents do not care whether I go; and (4) My parents will not let me go. For the purposes of this study, the students responding to the first statement are considered to have perceived positive parental encouragement to plan on college, while the students responding to the other three statements are considered not to have perceived positive parental encouragement to plan on college. The variable is dichotomized accordingly into high and low parental encouragement categories.

The variable *college plans* (X_4) is based on a statement by the student that he definitely plans to enrol in a degree-granting college or university (or one whose credits are acceptable for advanced standing by the University of Wisconsin). That these statements reflect realistic rather than vague hopes is supported by the fact that 87.3 per cent of the boys and 86.7 per cent of the girls who had stated that they

all students by certain constants which would produce approximately equal variances for each status dimension. The resulting sum of the weighted scores was then multiplied by a constant to produce a theoretical range of scores between 0 and 99.

¹³ V. A. C. Henmon and M. J. Nelson, *The Henmon-Nelson Test of Mental Ability* (Boston: Houghton Mifflin Co., 1942).

planned on college actually attended college.¹⁴

STATISTICAL PROCEDURE

The principal purpose of this paper is to examine the relationship between socioeconomic status and college plans. The strategy followed is to partial out the influence of intelligence and parental encouragement prior to determining the relationship between socioeconomic status and college plans. Also, separate analysis is made for males and females because of known differences in their propensity to pursue higher education as well as likely differences in the influence of socioeconomic status, intelligence, and parental encouragement on their college plans. Various statistical techniques are used to achieve the purpose of this study.

First, the gross relationships of socioeconomic status, intelligence, and parental encouragement to college plans and to one another are determined from their zero-order correlation coefficients. Second, the relationship of socioeconomic status to college plans, controlling for intelligence and parental encouragement, is determined by means of first- and second-order partial correlation coefficients. Third, the additional contribution of parental encouragement in predicting college plans, over and above the contribution of socioeconomic status and intelligence, is determined by means of stepwise multiple correlation coefficients. Fourth, the relative direct and indirect effects of socioeconomic status, intelligence, and parental encouragement on college plans are determined by using the method of path analysis.¹⁵ And fifth, a multivariate cross-tabular analysis of the data is made to demarcate the differential influence of

socioeconomic status on the college plans of various subgroups which differ by sex, intelligence, and degree of parental encouragement. The statistical significance of the relationships examined throughout the analysis is determined by appropriate tests using the .05 probability level.

RESULTS

The gross relationships of socioeconomic status, intelligence, and parental encouragement to college plans can be examined from the zero-order correlations given in the intercorrelation matrix of Table 1. The zero-order correlation coefficients of socioeconomic status, intelligence, and parental encouragement with college plans are all positive and statistically significant for males as well as for females. For males, socioeconomic status and intelligence each explains about 18 per cent of the variance in college plans. For females, socioeconomic status explains 22.9 per cent of the variance in college plans while intelligence explains only 12.6 per cent. Parental encouragement explains about one-fourth of the variance in the college plans of boys and about one-third of the variance in the college plans of girls. Thus, the zero-order correlation coefficients indicate that the relationship of parental encouragement to college plans is stronger than that of either socioeconomic status or intelligence to college plans and that the relationship of parental encouragement to college plans is stronger for females than for males. Socioeconomic status and intelligence have an equally strong relationship to the college plans of males, but socio-

¹⁵ Path analysis provides a convenient and efficient method for determining the direct and indirect effects of each of the independent variables in a causal chain composed of standardized variables in a closed system. These effects are expressed in path coefficients which are the β weights of all of the preceding independent variables on the successive dependent variables in the system. For a brief summary of the method of path analysis, see Otis Dudley Duncan, "Path Analysis: Sociological Examples," *American Journal of Sociology*, LXXII (July, 1966), 1-16.

¹⁴ A follow-up survey was conducted by means of mailed questionnaires and telephone interviews, and responses were obtained from 9,007, or 87.2 per cent, of the students in the original one-third sample. For further information on the follow-up, see Sewell and Shah, *op. cit.* (see n. 2 above), pp. 6-7.

economic status has a considerably stronger relationship to the college plans of females than does intelligence.

The stronger relationships of socioeconomic status and parental encouragement to the college plans of females than to those of males seem to reflect the differential pattern of role expectations from adult males and females in our society. College education is considered as desirable and increasingly necessary for fulfilling male occupational roles, but for females the situation is doubtless complicated by marital roles and economic considerations. Presumably, therefore, the family resources exert stronger

perceived parental encouragement for males and about one-fifth of the variance in perceived parental encouragement for females. But, intelligence explains about one-eighth of the variance in perceived parental encouragement for males and only about one-twelfth of the variance for females. Thus, as in the case of college plans, socioeconomic status is more strongly related to perceived parental encouragement for females than for males, but intelligence is more strongly related to perceived parental encouragement for males than for females.

An examination of the intercorrelation between socioeconomic status, intelligence,

TABLE 1
INTERCORRELATION MATRIX

Variable	X ₁	X ₂	X ₃	X ₄
Males:				
X ₁ (socioeconomic status).....		.30	.40	.43
X ₂ (measured intelligence).....			.35	.42
X ₃ (perceived parental encouragement).....				.51
X ₄ (college plans).....				
Females:				
X ₁ (socioeconomic status).....		.32	.44	.48
X ₂ (measured intelligence).....			.29	.36
X ₃ (perceived parental encouragement).....				.57
X ₄ (college plans).....				

influence on the college plans of females than on those of males, while ability exerts stronger influence on the college plans of males than on those of females.

Although the examination of various factors determining different levels of parental encouragement is outside the scope of this paper, the socioeconomic status of the family and the ability level of the children seem to be two of the most pertinent factors. Consequently, the relationship of parental encouragement to socioeconomic status and intelligence is examined.

Judging from the zero-order correlation coefficients, for both males and females socioeconomic status indicates a stronger relationship with parental encouragement than does intelligence. Socioeconomic status explains about one-sixth of the variance in

and parental encouragement indicates that these variables are related not only to college plans but also to each other and that their relationships are different for males and females. Consequently, intelligence and parental encouragement should be controlled while the relationship of socioeconomic status to college plans is examined.

From the first-order partial correlation coefficients of socioeconomic status to college plans (Table 2), it is clear that when either intelligence or parental encouragement is controlled, the relationship between socioeconomic status and college plans of both males and females is reduced but not eliminated. When controlled for intelligence, socioeconomic status explains 12.0 per cent of the variance in the college plans of males, but it explains 17.0 per cent of the

variance in the college plans of females. Similarly, when controlled for parental encouragement, socioeconomic status explains 8.0 per cent of the variance in the college plans of males, but it explains 9.4 per cent of the variance in the college plans of females. It should be noted that controlling for parental encouragement makes a greater reduction in the relationship of socioeconomic status to college plans than the reduction made in the relationship when intelligence is controlled. In either case, however, the relationship continues to be substantial and statistically significant. Also, the stronger relationship of socioeconomic

The zero-order and partial correlation coefficients indicate that there is a positive and statistically significant relationship between socioeconomic status and the college plans of both males and females, with or without controls for intelligence and parental encouragement, which are themselves related to each other and to both socioeconomic status and college plans. The analysis thus far demonstrates the independent relationship of socioeconomic status to college plans. The strength of parental encouragement for predicting college plans over and above the strength of socioeconomic status and intelligence will be de-

TABLE 2

FIRST-ORDER AND SECOND-ORDER PARTIAL CORRELATION COEFFICIENTS OF SOCIOECONOMIC STATUS WITH COLLEGE PLANS, SEPARATELY FOR MALES AND FEMALES

INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONTROL VARIABLE(S)	MALES		FEMALES	
			Partial <i>r</i>	Variance Explained (%)	Partial <i>r</i>	Variance Explained (%)
Socioeconomic status.....	College plans	Intelligence	.346	12.0	.412	17.0
Socioeconomic status.....	College plans	Perceived parental encouragement	.283	8.0	.307	9.4
Socioeconomic status.....	College plans	Intelligence and perceived parental encouragement	.240	5.8	.268	7.2

status to the college plans of females than to those of males is evident when either intelligence or parental encouragement is controlled.

When intelligence and parental encouragement are both controlled in the second-order partial correlation coefficients (Table 2), the relationship of socioeconomic status to college plans is further reduced, but socioeconomic status still explains 5.8 per cent of the variance in the college plans of males and 7.2 per cent of the variance in the college plans of females. Thus, even after partialing out the effects of intelligence and parental encouragement, the relationship of socioeconomic status to college plans continues to be substantial and statistically significant.

termined by examining the multiple correlation coefficients.

The multiple correlation coefficient of socioeconomic status and intelligence to college plans is the same for both males and females ($R = .524$ —Table 3); together they explain a little over one-fourth of the variance in college plans. This suggests that although socioeconomic status has a stronger relationship to the college plans of girls than of boys, and although intelligence has a stronger relationship to the college plans of boys than of girls, their combined strength is the same for both sexes.

From Table 3, in addition to the variance explained by socioeconomic status, intelligence explains 9.3 (27.5 — 18.2) per cent of the variance in the college plans of males

and 4.6 (27.5 — 22.9) per cent of the variance in the college plans of females, but parental encouragement explains 14.0 (32.2 — 18.2) per cent of the variance in the college plans of males and 15.5 (38.4 — 22.9) per cent of the variance in the college plans of females over and above that explained by socioeconomic status. Thus, both intelligence and parental encouragement add substantially to the variance explained by socioeconomic status, but the additional variance explained by parental encouragement is greater than the additional variance explained by intelligence. It should also be

over and above that explained by socioeconomic status and intelligence.

In summarizing the correlational analysis, it is evident that social class differences in the college plans of Wisconsin high school seniors are not completely accounted for either by the level of students' intelligence or by perceived parental encouragement, or both. Also, the relationship of parental encouragement to college plans is not simply an additive combination of the relationships of socioeconomic status and intelligence to parental encouragement. Its added independent contribution to the ex-

TABLE 3
STEPWISE MULTIPLE CORRELATION COEFFICIENTS OF SOCIOECONOMIC STATUS, MEASURED INTELLIGENCE, AND PERCEIVED PARENTAL ENCOURAGEMENT WITH COLLEGE PLANS, SEPARATELY FOR MALES AND FEMALES

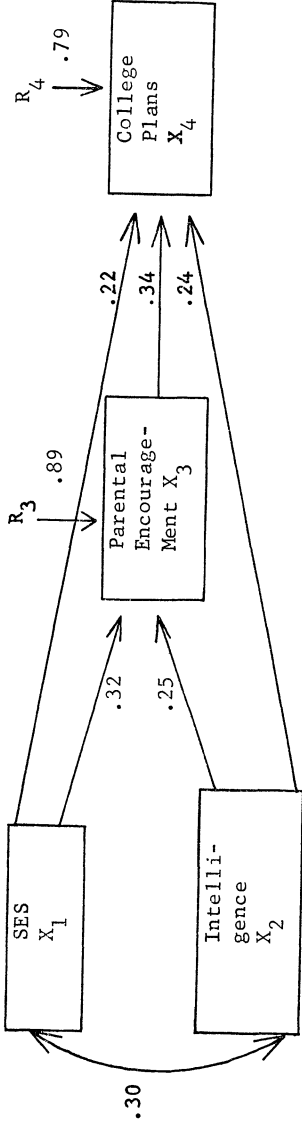
INDEPENDENT VARIABLE(S)	DEPENDENT VARIABLE	MALES		FEMALES	
		r/R	Variance Explained (%)	r/R	Variance Explained (%)
Socioeconomic status.	College plans	.426	18.2	.478	22.9
Socioeconomic status and measured intelligence.	College plans	.524	27.5	.524	27.5
Socioeconomic status and perceived parental encouragement.	College plans	.567	32.2	.620	38.4
Socioeconomic status, measured intelligence, and perceived parental encouragement.	College plans	.607	36.8	.638	40.7

noted that the additional variance explained by parental encouragement is almost equal for males and females. Finally, socioeconomic status, intelligence, and parental encouragement together explain 36.8 per cent of the variance in college plans for males and 40.7 per cent of the variance for females. Parental encouragement explains 9.3 (36.8 — 27.5) per cent of the variance in the college plans of males and 13.2 (40.7 — 27.5) per cent of the variance for females over and above that explained by both socioeconomic status and intelligence. In short, parental encouragement adds very substantially to the explained variance in the college plans of both males and females

plained variance in the college plans of males as well as females is substantial. This demonstrates the usefulness of parental encouragement as an explanatory variable without undermining the importance of socioeconomic status and intelligence as explanatory variables. It is possible to determine and compare the direct and indirect effects of these variables on college plans by following the method of path analysis.

It is assumed in the path diagrams shown in Figure 1 that parental encouragement is determined by socioeconomic status and intelligence and that all three in turn determine college plans. The relationship between socioeconomic status and intelligence

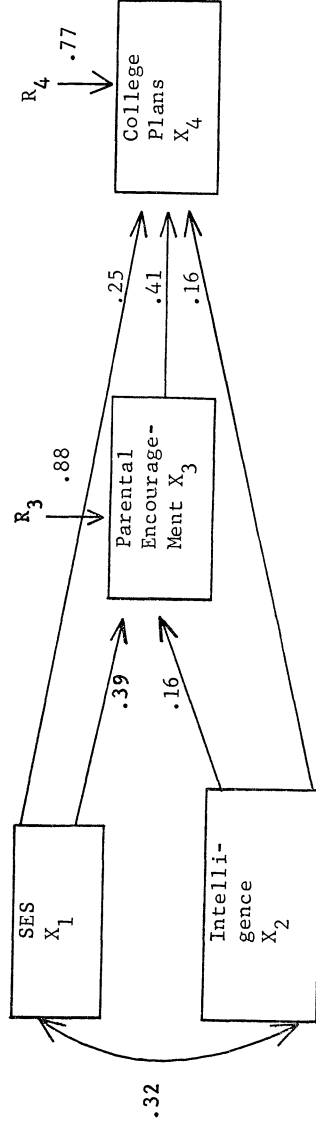
Males



$$R^2_3 (21) = .214$$

$$R^2_4 (321) = .368$$

Females



$$R^2_3 (21) = .220$$

$$R^2_4 (321) = .407$$

FIG. 1.—Path diagrams showing the influence of socioeconomic status, measured intelligence, and perceived parental encouragement on college plans (by sex).

is not analyzed, and, consequently, no assumption is made regarding the causal link between them. The R_3 and R_4 indicate the residual factors determining parental encouragement and college plans, respectively. Although the path analysis generally corroborates the findings of the correlational analysis, several observations should be made from the path coefficients indicated in this figure.

First, neither parental encouragement nor college plans are completely accounted for by the variables explicitly included in this study. The magnitude of the effect of the residual factors on these variables is very large. Substantial proportions of the variance in parental encouragement (78.6 per cent for boys and 78.0 per cent for girls) cannot be accounted for by socioeconomic status and intelligence. Similar proportions of the variance in the college plans of males and females are not accounted for by socioeconomic status, intelligence, and parental encouragement—63.2 per cent and 59.3 per cent, respectively. These large residuals indicate the need for bringing additional variables into the system.

Second, for both boys and girls the contribution of socioeconomic status to parental encouragement is greater than that of intelligence. But, while the effect of socioeconomic status on parental encouragement is greater for girls than for boys, the effect of intelligence on parental encouragement is greater for boys than for girls.

Third, the direct effect of parental encouragement on the college plans of boys as well as girls is greater than that of either socioeconomic status or intelligence. It should be noted in this connection that both socioeconomic status and intelligence also exert some indirect effect on college plans through their effect on parental encouragement. The direct effects of socioeconomic status and intelligence on the college plans of boys are almost equal, but the direct effect of socioeconomic status on the college plans of girls is much greater than

the direct effect of intelligence on their college plans.

Finally, for boys as well as girls, while the direct effects of intelligence on parental encouragement and on college plans are almost equal, the direct effect of socioeconomic status on parental encouragement is much greater than its direct effect on college plans.

In summary, the correlational and the path analyses indicate very clearly that while there is some common component in socioeconomic status, intelligence, and parental encouragement which accounts for their relationship to college plans, all three variables have substantial independent relationships of their own to college plans. With particular reference to the major purpose of this study, neither intelligence nor parental encouragement, individually or jointly, can completely account for the social class differences in the college plans of either males or females. This conclusion leads to the examination of a final question in this paper, namely, whether or not there are specific subpopulations of sex, intelligence, and parental encouragement in which social class differences in college plans are eliminated.

The multivariate cross-tabular data presented in Table 4 give the percentages of males and females planning on college, by socioeconomic status, intelligence, and parental encouragement. The separate relationships of socioeconomic status, intelligence, and parental encouragement to college plans can be examined from the marginals in this table. Each of these relationships is positive, monotonic, and statistically significant. The relationship of socioeconomic status to college plans, controlling only for intelligence, can be examined from the columns marked "Total" under the four intelligence categories. The control for intelligence reduces but does not eliminate the social class differences in the college plans of males and females in each category of intelligence. Similarly,

TABLE 4

PERCENTAGES OF STUDENTS WHO PLANNED ON COLLEGE, BY SOCIOECONOMIC STATUS, MEASURED INTELLIGENCE, AND PERCEIVED PARENTAL ENCOURAGEMENT, SEPARATELY FOR MALES AND FEMALES

SOCIOECONOMIC STATUS	PERCEIVED PARENTAL ENCOURAGEMENT											
	Males						Females					
	%	N	%	N	%	N	%	N	%	N	%	N
	Low Intelligence											
	Low*		High*		Total*		Low*		High		Total*	
Low.....	1.1	353	16.8	77	4.0	430	1.1	459	17.0	53	2.7	512
Lower middle...	0.8	234	24.3	111	8.4	345	3.7	296	32.2	90	10.4	386
Upper middle...	4.6	174	34.1	138	17.6	312	4.1	170	33.3	108	15.5	278
High.....	7.6	52	40.6	96	29.0	148	10.7	56	38.3	94	28.0	150
Total.....	2.2	813	29.8	422	11.7	1,235	3.0	981	31.8	345	10.5	1,326
	Lower Middle Intelligence											
	Low		High*		Total*		Low*		High*		Total*	
Low.....	4.2	216	31.4	105	13.0	321	1.6	317	23.0	61	5.0	378
Lower middle...	3.4	208	40.3	159	19.4	367	7.5	255	34.8	135	16.9	390
Upper middle...	4.8	126	40.2	184	25.8	310	6.3	206	45.4	165	23.7	371
High.....	9.6	52	57.8	213	48.3	265	6.6	75	59.1	186	44.0	261
Total.....	4.4	602	44.5	661	25.4	1,263	4.9	853	45.0	547	20.6	1,400
	Upper Middle Intelligence											
	Low		High*		Total*		Low*		High*		Total*	
Low.....	8.7	138	41.3	92	21.7	230	3.6	224	36.4	55	10.0	279
Lower middle...	9.4	127	50.2	185	33.6	312	6.8	176	42.2	147	22.9	323
Upper middle...	15.6	109	59.6	248	46.2	357	6.4	186	47.6	191	27.3	377
High.....	18.0	50	77.5	289	68.7	339	21.6	60	74.0	311	65.5	371
Total.....	11.8	424	61.8	814	44.7	1,238	7.0	646	57.2	704	33.2	1,350
	High Intelligence											
	Low		High*		Total*		Low		High*		Total*	
Low.....	13.0	77	53.2	92	34.9	169	11.9	109	53.8	52	25.4	161
Lower middle...	17.7	96	66.8	178	49.6	274	11.7	128	59.0	122	34.8	250
Upper middle...	12.5	48	73.0	271	64.0	319	19.8	101	64.8	219	50.6	320
High.....	32.0	25	88.4	468	85.6	493	21.0	62	78.6	458	71.7	520
Total.....	16.6	246	77.3	1,009	65.4	1,255	15.2	400	70.7	851	53.0	1,251
	Total											
	Low*		High*		Total*		Low*		High*		Total*	
Low.....	4.4	784	36.3	366	14.6	1,150	2.8	1,109	32.1	221	7.7	1,330
Lower middle...	5.7	665	47.9	633	26.3	1,298	6.6	855	42.5	494	19.8	1,349
Upper middle...	8.1	457	55.5	841	38.8	1,298	7.8	663	50.4	683	29.4	1,346
High.....	14.5	179	75.0	1,066	66.4	1,245	14.6	253	70.2	1,049	59.4	1,302
Total.....	6.5	2,085	58.6	2,906	36.9	4,991	6.2	2,880	55.6	2,447	28.9	5,327

* The χ^2 for each column designated is significant beyond the .05 level.

from the bottom part of Table 4, the relationship of socioeconomic status to college plans continues to be positive, monotonic, and statistically significant when only parental encouragement is controlled. However, since the purpose of this multivariate cross-tabular analysis is to specify the subgroups in which the influence of social class on college plans is either markedly pronounced or markedly reduced, only the columns showing a simultaneous cross-tabulation of socioeconomic status, intelligence, and parental encouragement will be discussed here. Several observations can be made from these data.

First, the dictum—that the higher the level of socioeconomic status the higher the level of educational aspirations—is generally true, even after sex, intelligence, and parental encouragement are controlled. Except for some slight reversals in the two middle categories of socioeconomic status, the relationship between socioeconomic status and college plans is generally positive and monotonic. While only about 1 per cent of males and females with low intelligence and low parental encouragement from the low socioeconomic status category planned on college, 88.4 per cent of the males and 78.6 per cent of the females with high intelligence and high parental encouragement from the high socioeconomic status category planned on college. The proportions planning on college in the remaining socioeconomic status categories, by intelligence and parental encouragement, fall within this range. However, the difference in the percentage of students planning on college from the bottom and the top socioeconomic status categories of these subgroups varies over a wide range—from a minimum of 5 per cent to over 35 per cent.

Second, the socioeconomic status differences in the college plans of the seniors are almost four times as great for those who perceived parental encouragement as for those who did not. Further, these differences are generally greater for those who are in the two upper categories of intelli-

gence than for those in the two lower categories of intelligence. Thus, differences in the levels of both intelligence and parental encouragement seem to increase the socioeconomic status differences in the college plans of youth. In other words, the socioeconomic status differences in college plans of youth are greater among the most able and the most encouraged than among the least able and the least encouraged.

Third, in most categories of socioeconomic status, intelligence, and parental encouragement, the proportion of students planning on college is greater for males than for females. This indicates the important influence of sex-role expectations on the college plans of youth. However, sex-role expectations seem to bear more heavily on those who are high in intelligence than on those who are low in intelligence. The greater proportions of females than of males planning on college in some of the subgroups within the two lower categories of intelligence support this conclusion.

Fourth, the socioeconomic status differences in college plans of the seniors in both categories of parental encouragement are greater among those who are most intelligent than among those who are least intelligent. On the one hand, among those who did not perceive parental encouragement and who are least able, only about 1 per cent of males and females from the low socioeconomic status category planned on college as against 7.6 per cent of males and 10.7 per cent of females from the high socioeconomic status category. On the other hand, among those who did not perceive parental encouragement but who are most able, 13.0 per cent of males and 11.9 per cent of females from the low socioeconomic status category planned on college as against 32.0 per cent of males and 21.0 per cent of females from the high socioeconomic status category. Similarly, among those who perceived parental encouragement and who are least able, about 17 per cent of both males and females from the low socioeconomic status category planned on college as

against 40.6 per cent of males and 38.3 per cent of females from the high socioeconomic status category. Among those who perceived parental encouragement and who are most able, about 53 per cent of males and females from the low socioeconomic status category planned on college as against 88.4 per cent of males and 78.6 per cent of females from the high socioeconomic status category. Thus, ability continues to accentuate the social class differences in aspirations of both males and females, regardless of whether or not they perceive parental encouragement to plan on college.

Finally, in each category of socioeconomic status and intelligence, the proportion of males and females planning on college is greater among those who perceived parental encouragement than among those who did not. In particular, in all categories of intelligence, the proportion of males and females planning on college is greater among the low socioeconomic status seniors who perceived parental encouragement than among the high socioeconomic status seniors who did not perceive parental encouragement. Consequently, parental encouragement seems to be a powerful factor in encouraging seniors who are low in socioeconomic status but high in ability to plan on college. In general, however, parental encouragement appears to have its strongest effect on the college plans of males and females who score relatively high on intelligence and come from families occupying relatively high socioeconomic positions.

In addition to providing the reader with an opportunity to see the effects of the several variables on college plans in familiar percentage terms, the multiple cross-tabular analysis tends mainly to emphasize and reinforce what was already known from the correlation analysis; namely, that (1) there are large differences between the socioeconomic status categories in college plans; (2) even though these differences are reduced when sex, intelligence, and parental encouragement are controlled, there are still large and important socioeconomic sta-

tus differences in college plans, especially in the top two intelligence groups where college plans are most relevant in any case; (3) where parental encouragement is low, relatively few students, regardless of their intelligence or socioeconomic status levels, plan on college (even highly intelligent students with high social class origins who are not encouraged by their parents are not likely to plan on college); (4) where parental encouragement is high, the proportion of students planning on college is also high, even when socioeconomic status and intelligence levels are relatively low. Thus, it may be concluded that while social class differences cannot be entirely explained by differences in parental encouragement (or intelligence) among the various socioeconomic classes, parental encouragement makes an independent contribution to social class differences in college plans of both males and females; (5) the effects of sex-role expectations are such that girls' educational aspirations are generally lower than those of boys and are somewhat more sensitive to socioeconomic background than to ability or parental encouragement.

CONCLUSIONS

The correlational, causal, and cross-tabular analyses in this study substantiate, on the whole, the claim made by other investigators using less rigorous methods and less representative samples that parental encouragement is a powerful intervening variable between socioeconomic class background and intelligence of the child and his educational aspirations. While parental encouragement does not "explain" social class differences in aspirations, it contributes to the explanation of these differences. Because parental encouragement is a social-psychological variable, it is presumably subject to modification by means of programs of counseling directed at parents or parents and children, whereas the child's intelligence and family socioeconomic status are likely to be more difficult to influence at this point in the child's development.

At the same time there is still a good deal of variance in college plans of the socioeconomic classes that is not explained either individually or jointly by parental encouragement and intelligence. This leads to the question of what other factors may help to explain social class differences. Within the complex which is subsumed under socioeconomic status, the economic resources available for the support of college education must be an important determinant, and none of the studies reported to date have adequately assessed this aspect of socioeconomic level. Information regarding the economic resources of the families of the seniors under study is being currently collected from public sources which will make

such an analysis possible. Other variables that should be considered include the student's knowledge of available opportunities for scholarships, loans, and jobs, and the student's self-conceptions—including his assessment of his chances for success in college, his reference groups, and various contextual influences such as the value climate and the opportunity structures of his school and community. All of these factors are in need of further study for increasing and strengthening the knowledge of the factors involved in social class differences in educational aspiration and for understanding more fully the contribution of nonintellectual factors to educational aspiration.

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