DOCUMENT RESUME

ED 028 286 VT 008 074

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Educational and Occupational Adjustment of Wisconsin Male Youth. Bulletin 586.

Wisconsin Univ., Madison. Coll. of Agricultural and Life Sciences.
Pub Date Jan 68
Note-30p.
Available from-Department of Agriculture and Extension Education, University of Wisconsin, 208 Agriculture Hall, Madison, Wisconsin 53706 (without charge)
EDRS Price MF-$0.25 HC-$1.60
Descriptors-Academic Performance, *Agricultural Occupations, *Decision Making, Educational Guidance, *Educational Interest, Family Background, High School Students, Longitudinal Studies, Males, *Occupational Choice, *Occupational Guidance, Rural Urban Differences, Student Ability, Vocational Adjustment
Identifiers-Wisconsin

The original purpose of this longitudinal study was to determine oppc unities existing in farming and current methods of getting established in farming. However, the purpose was subsequently broadened to a study of the nature of student decision-making. Factors which were considered to be associated with decision-making include family background, individual ability and school performance. Over a 7-year period, data were collected primarily by questionnaires from two groups of participating students. The initial group of 764 graduating seniors first completed questionnaires in the spring of 1956. In the fall of 1957, a second group of 1,107 male matriculating freshmen in the same 31 high schools located in five geographically distributed Wisconsin counties, participated in the project. The resulting data presented in a series of tables help the understanding of why students make certain decisions. (CH)

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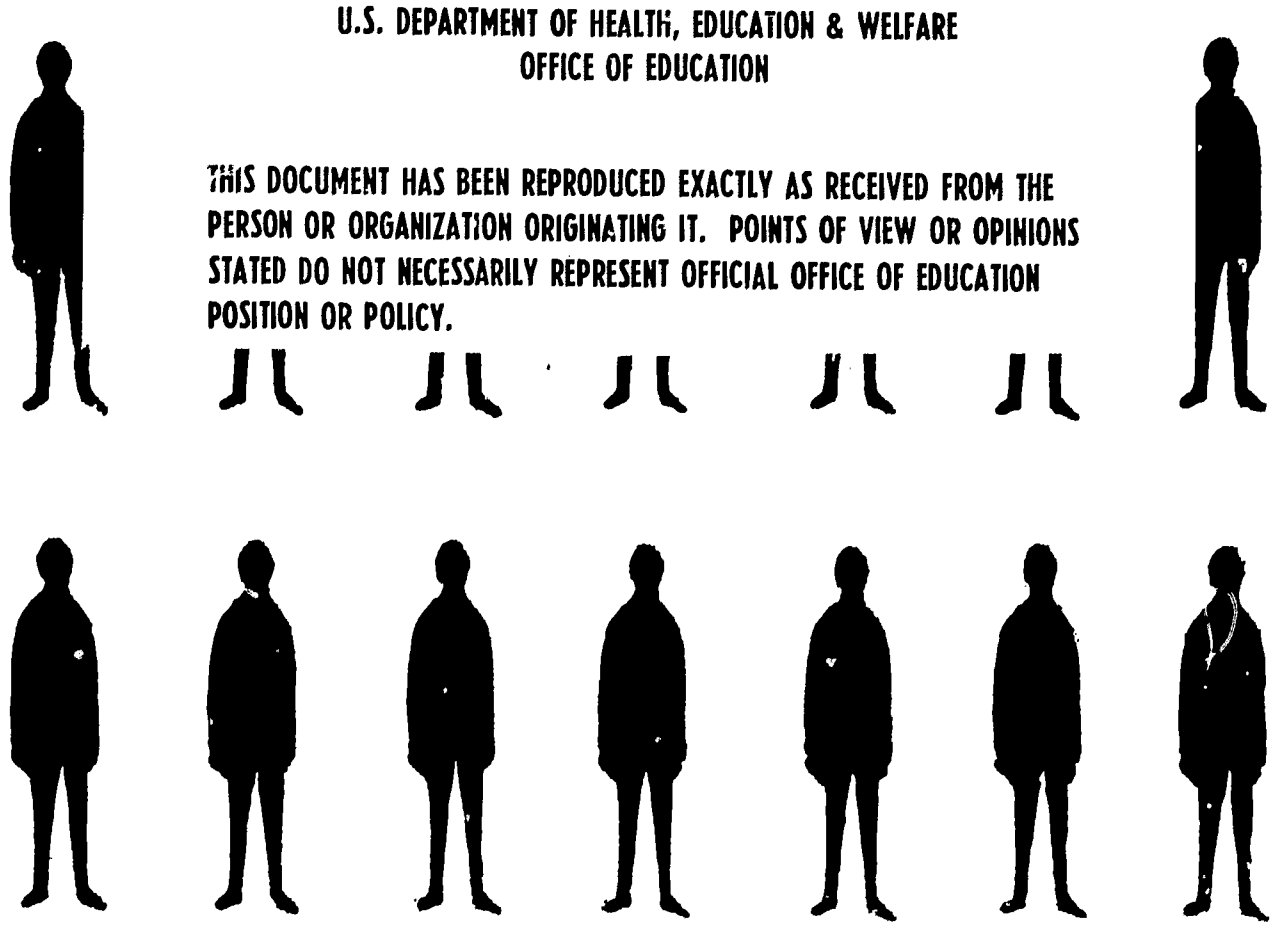
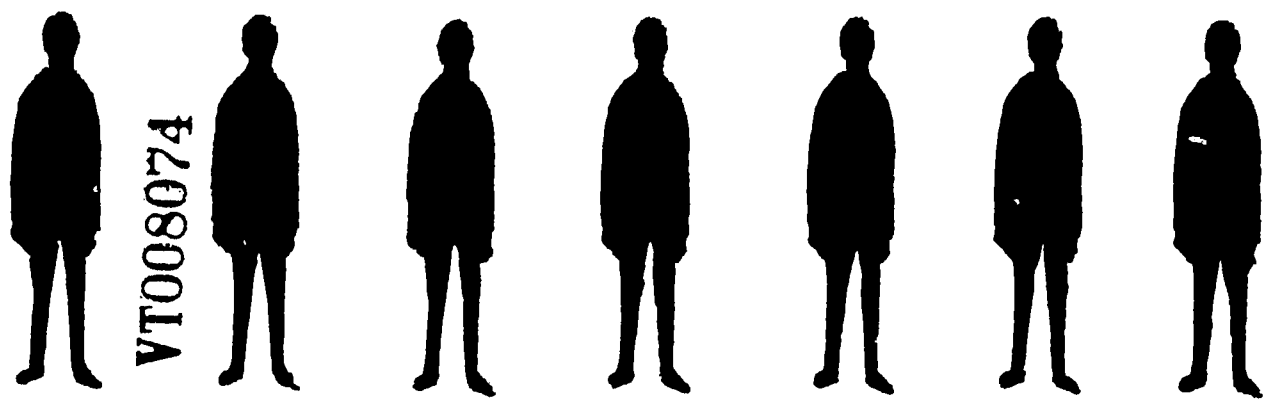


EDUCATIONAL AND OCCUPATIONAL ADJUSTMENT OF WISCONSIN MALE YOUTH

BULLETIN 586 • RESEARCH DIVISION • COLLEGE OF AGRICULTURAL AND LIFE SCIENCES • UNIVERSITY OF WISCONSIN • JANUARY 1968



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EDUCATIONAL AND OCCUPATIONAL ADJUSTMENT OF WISCONSIN MALE YOUTH

Walter T. Bjoraker and George W. Sledge*

Youth Make Decisions

A Report of Findings from a Continuing Longitudinal Study on Wisconsin Male Youth in Several Counties to Explore How Youth Make Occupational and Educational Decisions

Every year many high school students choose occupations without a realistic assessment of available job opportunities. The vast scope of today's job market and the array of post high school educational choices are enough to confuse any high school student. Studies are currently in progress at the University of Wisconsin dealing with many of these problem areas. In 1956 the Department of Agricultural and Extension Education initiated Project 985. The original objective of the study was to determine opportunities existing in farming and current methods of getting established in farming. Once into the project, researchers discovered that the process of getting started in farming also involved analysis of other occupations. Many related factors were found to affect youths' decision-making in choosing any occupation. The scope of Project 985 broadened.

Trying to unlock and analyze the process of student decision-making, then determine how students were able to attain their goals, is hardly a simple task. In the last few years, theories have developed and hypotheses are being tested to help students isolate vocational choices consistent with their abilities, desires, and chances of success.[1] Project 985 was not designed around one theory, rather it explores

* Professor of Agricultural Education and Chairman, Dept. of Agricultural and Extension Education; and Professor of Agricultural Education and Associate Dean, Resident Instruction. The authors are indebted to Mrs. Ann Feyerharm for the editorial service in developing this manuscript, including abstracting the findings from the various theses contributing to this project.

[1] G. W. Sledge and D. G. Marshall, "Farm Male Replacement in Wisconsin, 1940–1980," Dept. of Agricultural and Extension Education and the Dept. of Rural Sociology, University of Wisconsin, Madison, 1963.

many factors, such as family background, individual ability, and school performance, associated with certain choices. The resulting statistics help the understanding of why students make certain decisions.

Source of Data and Design of the Study

The original population for this project was defined as all male high school seniors in 5 Wisconsin counties. The counties were selected on the basis of the following criteria:

1. Geographical distribution.
2. Varied types of farming, size of farm and farm value.
3. Agriculture education programs in operation.
4. Number of schools.
5. Cooperation from personnel in counties.
6. Heterogeneous and homogeneous population.
7. Low, medium, and high farm income.

In the 5 selected nonmetropolitan counties (Adams, Iowa, Manitowoc, Polk, and Price) a total of 31 high schools cooperated with the study. Counties selected were representative of the total nonmetropolitan state in respect to (1) percent of total population in labor force, (2) percentage of total labor force in manufacturing, (3) average median schooling, and (4) median family income. To assure continued representation this comparison was repeated using 1960 census data. The findings were very similar to the comparison made when the study originated.[2]

[2] H. D. Beals, "Educational and Occupational Plans and Attainments of Wisconsin's Rural Youth," Unpublished Ph.D. dissertation, University of Wisconsin, Madison, Wisconsin, 1965.

Data were collected from two different groups of participating students in Project 985. The initial group of 764 graduating seniors first completed questionnaires in the spring of 1956. In the fall of 1957, a second group of 1,107 male matriculating freshmen in these same schools participated in the project, and data were first collected from them during 1957–58. Those students who graduated from high school in the spring of 1956 will be referred to as the "G" group. The "M" group are those students who were matriculating high school freshmen in the fall of 1957. During the 7-year period since this study was begun, intermittent contacts have been made with all or part of this sample population in order to collect information. The data, with the exception of only a few personal interviews and school records data, were gathered by questionnaires.

A longitudinal approach was taken of the nature of student decision-making. Plans alter as different problems are encountered and as attitudes and interests change. The studies in Project 985 do not depend on recall by study participants; the effect of time, of economic changes, and other factors can be studied as they occur.

Limitations

Inherent in longitudinal studies are certain restrictions. At the time Project 985 was initiated, 5 selected counties were representative of nonmetropolitan Wisconsin in terms of economic and educational characteristics. A recent study showed them still representative in 1960. However, due to redevelopment programs in economically depressed areas, new agricul-

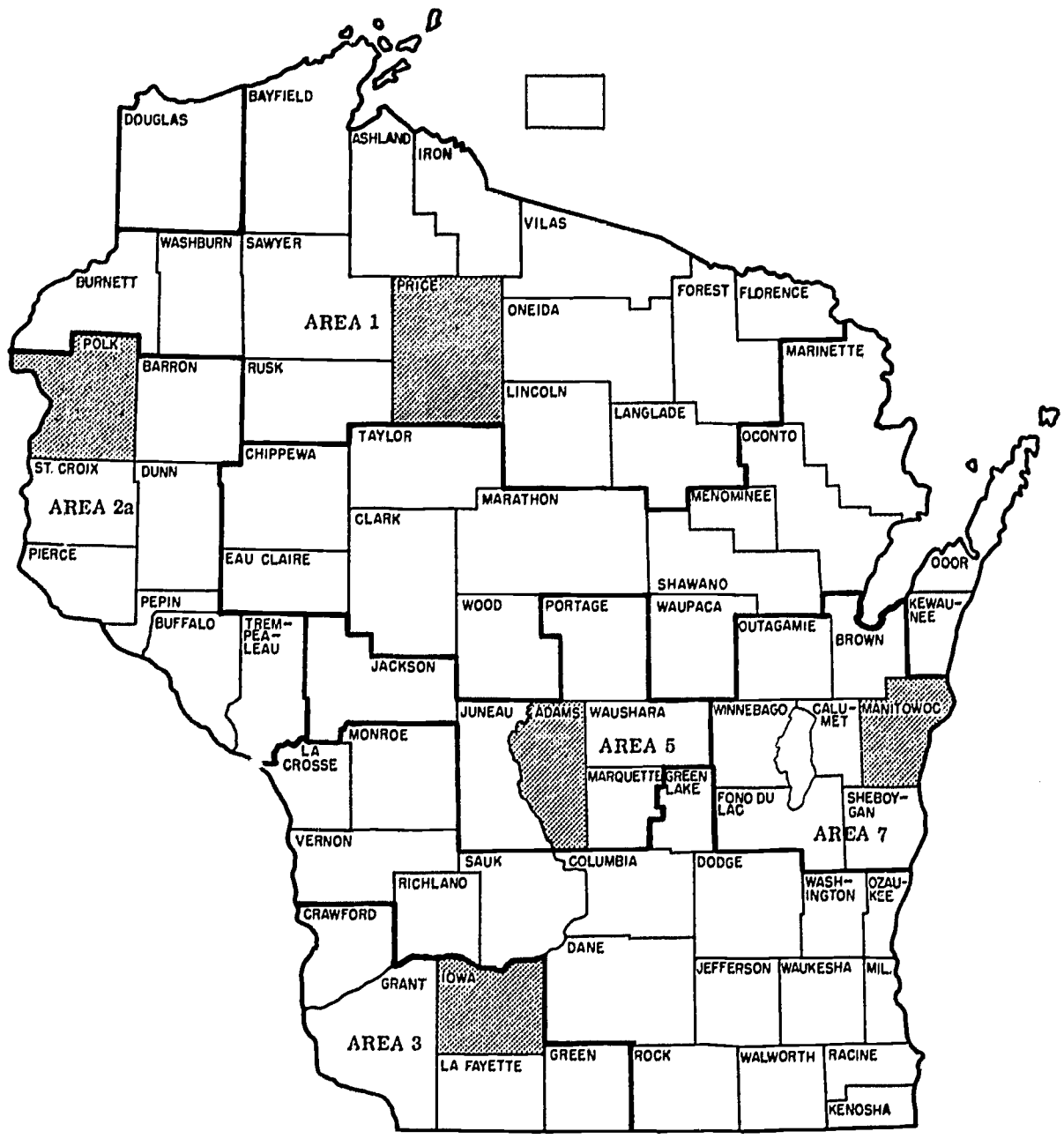

Fig. 1: Economic Areas of the Five Selected Wisconsin Counties.

tural techniques in areas of former low productivity, and reorganization of school facilities, educational and occupational opportunities may change within these areas.

Over an 11-year period, some of the initial study participants have moved leaving no forwarding address, some died, and some have requested severance from the project. But by 1965, more than 90% of the "M" group and about 70% of the "G" group were represented.[8]

The use of mailed questionnaires provides even more difficulties. In the lag between the time questionnaires were first sent out and the last received, some respondents could have changed their occupational or educational position. Responses were lim-

[8] *Ibid.*, p. 19.

ited in 4 of the studies.[4] Because of this, some of the classifications were grouped together; significant findings may have been lost in the combination. The rest of the studies included in Project 985 have a fairly high return of questionnaires, from 85 to 100%.

Student ability levels were measured throughout the project by Henmon–Nelson test scores and high school grades. Although universities and colleges in Wisconsin no longer use this particular test as part of admissions, many state high schools still use Henmon–Nelson scores for their own records and counseling purposes. Depending on the prospective college or university, students take the Scholastic Aptitude Test or American College Test during their junior or senior year. In addition, some are required to take the College Qualification Test. Henmon–Nelson scores were not available on a few of the students participating in Project 985. Therefore, participants in studies measuring student abilities are slightly reduced. High school grades are also difficult to utilize, especially when criteria for grades and systems vary widely. Tests such as Henmon–Nelson are designed to measure academic abilities. At the present, there is no test used in Wisconsin which measures abilities and skills necessary to go into farming.

Throughout Project 985 it is important to remember the study involves only nonmetropolitan Wisconsin. No inferences are drawn here to apply limited findings to the entire state. Some general trends may emerge although the conclusions may only be pertinent to the counties involved in the study.

[4] *Ibid.*

Educational and Occupational Decision-Making

Formal and Informal Guidance

Helping students discover their potential, analyze their situations, and decide on education or an occupation for the future, is more than the responsibility of a high school guidance counselor. Youth leaders, teachers, parents, ministers and friends in the community all share the task of guiding youth. The basic need is to let youth know the opportunities available, both educationally and occupationally. In the end, each individual must make his own decision. Often youth most in need of guidance do not receive it, as in the case of students of lower intellectual ability who might be less aggressive. Part of Project 985 was concerned with examining the effectiveness of present guidance among Wisconsin male high school students.

Studies were completed on both the "M" and "G" study groups to determine who students thought exerted the greatest influence upon them in making occupational decisions (Table 1).[5] In a follow-up study concerning the most influential guidance source

[5] R. O. Uttech, "Educational and Occupational Guidance of Male High School Students of Five Selected Wisconsin Counties With Special Emphasis on Influencing Factors," Unpublished Master's Thesis, University of Wisconsin, Madison, Wisconsin, 1962.

Table 1. Most Influential Guidance Sources

Source of Guidance	Residence Classification: Rural N=347 %	Rural Non-Farm N=101 %	Urban N=424 %	Total N=872 %
School				
School Administrator	1.4	-----	1.2	1.2
Guidance Director	0.9	4.0	2.6	2.1
Agricultural Teacher	26.5	2.0	0.9	11.2
Other Teachers	14.1	25.7	29.2	22.8
No One	48.1	57.4	55.7	52.9
No Response	8.9	10.9	10.4	9.9
Total	100	100	100	100
Family				
Parents	59.1	49.5	51.4	54.2
Other Relatives	4.0	7.9	5.0	4.9
Close Friend	5.8	10.9	8.3	7.6
No One	23.9	24.8	25.2	24.7
No Response	7.2	6.9	10.1	8.6
Total	100	100	100	100
Organization or Society				
Minister, Priest, etc.	11.2	7.9	9.4	10.0
4-H Club Agent	12.1	2.0	0.7	5.4
County Agent	2.0	1.0	0.2	1.0
Other	6.1	9.9	8.0	7.5
No One	56.2	67.3	67.5	63.0
No Response	12.4	11.9	14.2	13.2
Total	100	100	100	100

R. O. Uttech, "Educational and Occupational Guidance of Male High School Students of Five Selected Wisconsin Counties, With Special Emphasis on Influencing Factors," Thesis, M. S., The University of Wisconsin, Madison, 1962, p. 27.

within the categories of school, family, friend, and organization,[6] parents were found to have the greatest influence upon freshmen in high school. During students' sophomore and junior years, parental influence decreased. Later during the senior year, parents again showed great influence.

After parents, as a chief source of influence, were aptitude tests and literature read by students. The aptitude test merely shows student performance, it does not distinguish between interest and genuine ability. Teachers rated high when grouped together as one source. Close friends were also important influences. The

[6] *Ibid.*

agriculture teacher was considered the most influential source of guidance among rural youth. The agricultural teacher, a close friend, and local businessmen were more influential for lower *academic-achieving* students. Among organizational and societal guidance sources, the clergy was the most influential person.

Guidance directors had the most influence on higher intellectual and academically capable students, and those planning to attend college. Their most valuable contribution, as indicated by youth, was the occupational and educational information they made available for students. Urban youth considered guidance directors and teachers almost twice as influential as rural and rural non-farm youth did.[7] Among rural students who had vocational agriculture, it was found the vo-ag instructor was the most influential in their occupational decisions. At the time of this study only 1 in 5 of the participating high schools employed a full-time guidance director. This is one of the reasons they exerted such a small influence.

Cooperative-extension workers, 4-H club agents and county agents all were rated as having little influence.[8] Since the time of this segment of the project, many of these people have been given special training to help in the guidance function.

Not all youth receive guidance. A high percentage of freshmen students felt deprived of any guidance. (This could be a misunderstanding or lack of knowledge of what guidance is.) It does present an opportunity for a greater effort to be extended by school staff members earlier in youths' careers. Sons of farmers, farm managers, operational and kindred workers and laborers received less guidance than students whose fathers were in professional occupations.

In the "M" group, 166 youth in 5 fields of study were compared on the basis of whom they felt was most influential in occupational decision-making (Table 2). The largest contribution of all 4 influence groups was to the technical-sciences area of study. In the "G" group, it was found that overall differences between youth in the several fields of study do not differ greatly in terms of whom they felt was most influential in occupational decision-making. National interest in space experiments and concern for adequate education in the sciences, which developed in the 1950's, are among possible causes for emphasis on science in high schools.

The Decision to Attend College

Almost one-third of the youth from combined study groups, (twice as many nonfarm as farm youth) planned for college. Approximately, the same number did attend. Once in school, farm youth achieved as well as nonfarm youth; nearly the same percent graduated.

State universities near the 5 counties received the highest proportion of 1957 high school graduates (Table 3) followed by the University of Wisconsin. Nearly 80% of the Wisconsin college freshmen within the "G" group in 1957, attended schools within the state. Private colleges received the highest number of students in out-of-state enrollments.

Predicting Success in College

The population pressure on higher education facilities forces either great expansion of facilities or limiting the

[7] Twice as many nonfarm youth as farm youth attend college.

[8] Since the merger between the University Extension and the Cooperative Extension in 1966, Cooperative Extension workers are referred to as University-Extension workers.

Table 2. Major Field of Study in Higher Education Compared to Sources of Influence in Occupational Decision-making

Major Field	Sources of Influence: Teachers N=52 %	Parents N=88 %	Relatives N=10 %	Friends N=16 %
Technical science, pharmacy, medicine	36.5	42.1	50.0	43.7
Agriculture	15.4	7.9	10.0	18.8
Commerce and law	11.5	25.0	10.0	6.2
Liberal arts	21.2	6.8	20.0	12.5
Education	15.4	18.2	10.0	18.8
Total	100	100	100	100

H. D. Beals, "Educational and Occupational Plans and Attainments of Wisconsin's Rural Youth," Ph.D. Thesis, The University of Wisconsin, Madison, 1965, p. 264.

Table 3. Type and Location of College Attended

Type	In-state No.	In-state %	Out-of-state No.	Out-of-state %	Total No.	Total %
University of Wisconsin	40	25.16	0	0.00	40	20.20
State Universities	66	41.51	2	5.13	68	34.34
Private College	24	15.09	27	69.23	51	25.76
Non-degree Granting	8	5.03	8	20.51	16	8.08
University Extension	18	11.32	0	0.00	18	9.09
County Normal	3	1.89	2	5.13	5	2.53
Total	159	100.00	39	100.00	198	100.00

W. L. Schroeder, "Educational and Occupational Plans and Present Position of 1957 High School Graduates in Five Selected Wisconsin Counties with Special Emphasis on Factors Influencing College Attendance," M. S. Thesis, University of Wisconsin, Madison, 1958, p. 70.

enrollment of students. Selecting good college students would be more efficient if it was known what factors relate to academic success. This, in turn, helps individuals set more realistic goals. Success generally leads to a rise in the level of aspiration. The results of the following study may give more basis for encouraging some students to attend college, and can give counselors more confidence.

Collegiate academic success was measured in Project 985 by first year total overall grade point averages and

in specific course areas.[9] Selected background factors were compared with grade points to discern which had predictive value. One hundred eighty-one individuals from the "G" group, who had attended college for a minimum of one year, participated in the study. Several types of higher institutions were represented.

High school achievement was generally found to be the best predictor of college achievement. College math, social sciences, technical achievement, and college agriculture predictions were exceptions to the rule. High school grade point averages did not correlate significantly with averages in college agriculture or technical courses. The Henmon–Nelson Centile Rank was the best predictor of math and social science achievement. Both high school achievement and Henmon–Nelson Centile Rank were poor predictors of technical achievement. The Henmon–Nelson also proved an inadequate predictor of college language achievement.

Achieving in a specific course area in high school was no predictor of success in that area in college. In fact, no single high school course area average could be used as a predictor of over-all and course area achievement in college.

Personal or motivational factors (the value a student places on a course, the time he makes his educational or occupational decisions, what his 10-year occupational choice is, etc.) are better college achievement predictors than family background factors. High school students who show an interest in pure science and/or math courses, and believe they are most beneficial, have relatively high overall collegiate achievement potential. Those students who prefer vocational-agriculture courses have relatively low over-all collegiate achievement potential.

How a student feels his interest is aroused in a high school course is also an indication of later achievement in college. If the course is "challenging and stimulating" to him, he has a better chance of enjoying success in college. Those students who liked their high school courses because they were "different, explorative, or current," were significantly inferior to other groups in terms of college grade point mean. Because a student expressed interest in a particular high school course area, and felt it was valuable, did not insure the student would achieve in a similar course area in college.

To summarize indicators of collegiate success:

a. Henmon–Nelson Centile Rank is not an accurate *sole* indicator of overall achievement in college.

b. Henmon–Nelson Centile Rank is the best predictor of math and social science achievement in college.

c. Henmon–Nelson Centile Rank is a poor indicator of collegiate achievement in technical, agricultural, and language areas.

d. Predicting collegiate success in specific course areas is quite different from predicting overall college achievement.

e. A student's indicated interest and achievement in certain high school courses does not guarantee him success in comparable college courses.

[9] W. L. Schroeder, "Factors Related to the Academic Success of Male College Students From Five Selected Wisconsin Counties," Unpublished Ph.D. dissertation, University of Wisconsin, Madison, Wisconsin, 1962.

Factors Associated with Choosing a Major Field of Study

Attracting capable students to college is only part of the struggle to give educational opportunity to those competent. Keeping students in college is another matter. In one of the Project 985 studies, it was discovered that the largest number of dropouts were among students who had not selected a major field of study.[10] How does a student go about selecting a major field? What differentiates the agriculture student from the law student? Similar studies were conducted on both the "G" and "M" groups, that were categorized into the following areas of study:

a. Technical science including math and engineering, pharmacy, medicine
b. Agriculture
c. Commerce and law
d. Liberal arts
e. Education

A greater difference was noted between the "G" and "M" study groups than among geographic areas in the choice of a major field of study. In the "G" group, 50% or more from each county enrolled in agriculture, while only 13.2% or less from any one county had entered the technical science field. The "M" group had a maximum of 20% in agriculture and a minimum of 35% in any one county enrolled in technical sciences.

A youth's residence, whether farm or nonfarm, affected his choice of study, in an interesting way. In the "G" group, youth raised on farms accounted for about 4 times the number of enrollees in technical science, pharmacy, and medicine, than nonfarm youth. The nonfarm youth contributed a higher percentage to agriculture as a field of study than the farm group, 57.3% to 42.1%. The "M" group reversed each trend. The technical sciences, pharmacy, and medicine category attracted 41.5% of the nonfarm youth and 30.7% of the farm youth. In all 27.7% of the farm youth and 3.6% of the nonfarm youth who had decided on a major field of study, chose agriculture.

In comparing students on the basis of mental ability in different majors, there was a complete reversal of trends within the 4 year period of time between study groups. In the earlier "G" group, 48% of the youth ranking between the 68th and 100th percentile of their class were studying agriculture, and 8.2% were in the technical science category. Corresponding percentages for the "M" group were 8.6% and 48.8%.

In both groups, only minor differences were observed between youth in the 5 areas of study in terms of who they believed influenced them most in making a choice of a major field of study.

A relationship was found to exist between 3 of the 5 majors areas of study and pregraduate plans for college among the "M" group (Table 4). As a major field of study, agriculture attracted a disproportionately greater percentage of youth who had not planned for college 1 year earlier.

Consistency of Plans For College

Comparable studies were not carried out on both the "G" and "M" groups to determine realization of their college plans. As previously stated, almost one-third of the youth from the combined study groups planned for college. College plans and their attainment appeared more realistic than occupational plans, in-

[10] Beals, *op. cit.*

cluding farming. Depending upon the year, plans for college were realized in 50–70% of the cases. Only one-quarter of the youth in college had not planned to attend. In the "G" group, 68.6% who planned for college were in attendance the first year, 60.4% the second year, and 50.6% the third year.

In the "M" group, 21.6% of the farm youth planned for college. Two years later, 18.7% were in attendance. Slightly more than 30% of the rural nonfarm and about 42% of the urban youth planned to attend. Two years after high school and 5 years after educational plans were expressed, 21.8% of rural nonfarm and 34.3% of urban youth had enrolled in college.

Differences between farm and nonfarm youth who planned for college and actually attended did not carry over to college achievement. Nearly 20% of both groups earned the Bachelor's degree.

Table 4. Major in College Compared to Twelfth Grade Plans for College N = 202

Major Field of College Study	Pregraduate Plans for College: Plans to Attend N=155 %	Pregraduate Plans for College: No Plans to Attend N=47 %
Technical science, pharmacy, and medicine	43.2	34.0
Agriculture	7.7	23.4
Commerce and law	20.7	8.5
Liberal arts	10.3	14.9
Education	18.1	19.2
	100.0	100.0

Beals, *op. cit.*

Unrealized Plans, The College Dropout

Examining student decisions that were never carried out is also a way of uncovering the process of decision-making. The sense of personal failure youth may feel when dropping out of school may affect self-confidence for many years. The type of job he is able to find and his promotions in it may be dependent on the level of education he attained. If lack of ability is not the cause of many college dropouts (withdrawals), then perhaps counselors and high school administrators can foresee possible failure by knowing some of the factors directly related to leaving college.

In a 3-year follow-up study on 1956–7 graduating seniors, approximately 44% of the farm group and 33% of the urban group had dropped out of college during the 3 years.[11] The overall dropout rate was 37.6%. Many studies have been carried out on different student populations to try and determine some sort of national average, and 37.6% is less than any of the figures.

High school seniors planning to attend college realized their pregraduate plans to a higher degree the 3 years following graduation than those with plans of going into farming or occupations related to farming, entering the armed forces, and those entering occupations not related to farming. High school farm graduates choosing agriculture as a major remained in college to a greater degree than did any other group. The largest number of dropouts were among those who had not selected a major field of study.

[11] S. J. Johnson, "Factors Influencing College Dropouts of the 1957 High School Graduates of Five Selected Wisconsin Counties," Unpublished Master's Thesis, University of Wisconsin, Madison, Wisconsin, 1960.

Students achieving a grade average of "C" in high school withdrew at a higher rate than those achieving grades of "A" and "B" combined (Table 5). The higher the scholastic average in high school, the better chance a student has for success in college.

In contrast to these findings, almost half the high school graduates entering college who ranked below the 50th percentile on the Henmon–Nelson were still enrolled 3 years after high school graduation. This evidence again should discourage guidance counselors and college entrance examiners from relying too heavily on high school Henmon–Nelson scores.

Participation in high school and college extra-curricular activities had a positive correlation with persistency in college, as did the educational level of the parents. The more years of education the parents had, the more persistent students were. Contrary to popular opinion, married students dropped out at a higher rate than single students.

Table 5. Average High School Grades of College Dropouts (Withdrawals) and Enrolled Students N = 231

High School Grade Average	Students Entered College: Withdrew From Attendance N=87 %	Students Entered College: Persisted in Attendance N=144 %
A	4.6	23.6
B	42.5	53.5
C	52.9	22.2
D	0	.7
Total	100.0	100.0

Johnson, *op. cit.*

When students who withdrew were asked through mailed questionnaires their reasons for leaving, the largest single factor stated was lack of money (Table 6). Low grades ranked second. It is difficult to get valid data on this type of question from such an impersonal instrument. There may be a valid need for more scholarships, or perhaps this was a convenient response.

Table 6. Reason for Leaving College as Revealed by Students Who Withdrew N = 58

Reasons Given	Total %
Not enough money	25.9
Did not care for college	8.6
No benefit from college education	6.9
Courses too difficult	6.9
Low grades	13.8
Needed at home	5.2
Others	10.3
Combination of reasons	17.2
No response	5.2
Total	100.0

Johnson, *op. cit.*

The method of financial support students had while in college had little influence on their persistence. If lack of money was a valid reason for withdrawing, it is strange that practically the same percentage of dropouts as persistent students had loans (Table 7).

The type of college attended was related to drop out rate (Table 8). State colleges near the 5 counties received the highest proportion of 1957 high school graduates. They also showed a higher dropout rate. The convenient location of the state colleges may have tempted the less persistent student.

Table 7. Source of College Financial Support Compared to College Persistency

Percentage of Support	Parents %	Self %	Scholarship %	Loan %	Others %
Students Who Withdrew from Attendance N=75					
0–10	44.0	30.7	85.3	97.3	94.7
20–30	9.4	12.0	9.4	1.3	0.0
40–50	18.6	17.4	4.0	1.3	0.0
60–70	9.3	13.3	1.3	0.0	0.0
80–90	6.7	8.0	0.0	0.0	0.0
100	12.0	18.7	0.0	0.0	5.3
Total	100.0	100.0	100.0	100.0	100.0
Students Who Persisted in Attendance N=138					
0–10	37.7	18.8	86.2	96.4	94.2
20–30	13.0	15.2	8.0	2.1	2.9
40–50	21.7	23.9	3.6	1.4	0.7
60–70	13.0	10.1	1.4	0.0	0.7
80–90	4.4	16.0	0.0	0.0	0.7
100	10.1	15.9	0.7	0.0	0.7
Total	100.0	100.0	100.0	100.0	100.0

Johnson, *op. cit.*

Table 8. Dropout (Withdrawal) Rate by Type of College Attended N = 213

Type of College	Total Number Attended	Percent of Students Who Withdrew
University of Wisconsin	73	23.3
State Universities	68	48.5
Private college	42	28.6
Non-degree granting	14	35.7
University extension	10	60.0
County normal	6	33.3

Johnson, *op. cit.*

Choosing an Occupation

What Influences Occupational Choice

Understanding why and how youth are attracted to certain occupations can be of great help to anyone doing vocational counseling. Supported by several of the Project 985 studies, occupational decisions are largely influenced by an individual's home background and his peculiar high school experience.[12, 13, 14] Various factors are analyzed in each of the studies.

In one of the studies carried out in 1965, the high school curriculum chosen by ninth and tenth grade students in the "M" group was found to affect their choice of occupation, although which comes first, choice of future occupation or choice of type of education is open to question. Those choosing a professional area listed a high school college preparatory course of study in 50% of the cases. A general type of high school course was associated with most occupational choices. The farm group listed vocational-agriculture in half of the cases and the clerical group chose a commercial type of program.

College plans of 9th and 10th grade students were highly correlative with occupational choice. Sixty-four percent of aspiring professionals intended to go to college, and 60% of the prospective farmers and 68% of prospective operatives employees said they would not attend college.

In 1965, data were collected from 1960 and 1961 male high school graduates to determine the effect high school vocational education courses had on their later employment.[15] The 310 respondents were from 9 counties in the northeast region of Wisconsin,[16] and had received less than 2 years of a college education and 6 months or less of active military service. All the participants had taken one or more units of high school vocational education or agriculture shop.[17] Only 1 in 5 were enrolled in an educational course beyond high school, although half wanted additional vocational training within the next 5 years.

What effect did taking this particular high school course have on choice of occupation and job experience? The highest percentage of respondents rated mathematics as having the greatest value among their high school studies in preparing them for

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[12] G. F. Schroeder, "Consistency of Occupational Choice of Students Between the Ninth and Tenth Grade Levels in Five Counties of Wisconsin," Unpublished Master's Thesis, University of Wisconsin, Madison, Wisconsin, 1961.

[13] J. W. Zimpel, "A Study of Characteristics and Conditions Surrounding High School Dropouts in Wisconsin," Unpublished Master's Thesis, University of Wisconsin, Madison, Wisconsin, 1960.

[14] H. D. Beals, "Educational and Occupational Plans and Attainments of Wisconsin's Rural Youth," Unpublished Ph.D. Thesis, University of Wisconsin, Madison, Wisconsin, 1965.

[15] G. R. Matteson, "Vocational Education Completed by East Central Wisconsin Male Graduates and Selected Employment Factors". Unpublished Ph.D. dissertation, University of Wisconsin, Madison, Wisconsin, 1966.

[16] Counties: Door, Outagamie, Manitowoc, Kewaunee, Winnebago, Fond du Lac, Brown, Calumet, Sheboygan.

[17] In general, the more units of vocational agriculture taken by the students, the lower was their Henmon–Nelson test score. Class rank was also lower as the number of vocational agriculture course units increased. One-third of the fathers of graduates were farmers. The occupations of practically all of the fathers fell in the middle range of the occupational prestige scale.

employment or success in it. Following, in order, were: industrial arts, English, vocational agriculture, and commercial subjects. No relationship existed between the type of employment or wages earned and the number of vocational education units taken in high school. However, the fewer the vocational courses taken by students, the higher the prestige rating of their later occupation.

The majority of these 1960–1961 graduates were satisfied with their present jobs. Seventy percent of them had found full-time employment upon high school graduation. Their occupations, like their fathers, were in the middle range of the occupational prestige scale[18] although three-quarters were not in the same occupation as their fathers. Two-thirds of the graduates whose fathers were farmers did not enter that occupation.

In the latest study, several background factors were compared with 5 occupational categories (professional, technical, managerial; farming; clerical and sales, craftsmen and operatives; service workers and laborers) to determine which factors were associated with selection of an occupation. Data was collected from both the "G" and "M" groups in 1964.[19]

Twelfth Grade Plans

Nearly 60% of the "G" group who had plans for college when they graduated in 1958, were employed in the professional and technical job classification 6 years later. Some 54% of those who planned to farm were employed as craftsmen-operatives.

In the "M" group, near equal percentages of those who planned for college and those that did not plan for college were employed in the service worker-unskilled laborer fields. Twice as many noncollege planners as those who planned to attend college became farmers.

Residential Classification

Farm-reared youth were found in greater proportion than nonfarm youth in farming and craftsmen-operative categories, which was consistent with previous findings.

High School Achievement

In the second study concerned with occupational selection factors, high school grade point averages were compared with the students' occupation 6 years out of high school (Table 9).

Comparable data were obtained from both the "G" and "M" groups in terms of occupational selection and measured mental ability. More than four times the percentage of those in the 68–100th percentile range entered the professional-technical-managerial occupational class than any other classification. Three-quarters of those in the 0–33th percentile range entered either the craftsmen-operative, service worker, or unskilled labor categories.

Fathers' Educational Level

More than 40% of youth whose fathers had either finished high school or college were employed in the professional category. Forty percent of the youth whose fathers had not finished high school were employed in the craftsmen-operatives classification.

The Decision to Enter Farming

Getting started in farming, then continuing until establishment in farming is reached, necessitates a long term commitment on the part of youth. Making a start in farming is fairly easy, but moving into the established or farm operator stage

[18] Matteson, *op. cit.*, p. 122.
[19] Beals, *op. cit.*

Table 9. Occupations of Youth 6 Years Out of High School Compared to High School Grade Averages
N = 322

1963 Occupation	High School Grade Point Average: Below Average (D or F) N	%	Average (C) N	%	Above Average (A or B) N	%
Professional, technical, and managerial	0	0.0	34	19.3	60	46.9
Farming	1	5.6	9	5.1	1	.8
Clerical and sales	1	5.6	23	13.1	16	12.5
Craftsmen and operatives	10	55.5	62	35.2	36	28.1
Service workers and laborers	6	33.3	48	27.3	15	11.7
Totals	18	100.0	176	100.0	128	100.0

$X^2 = 56.4466$.
Beals, *op. cit.*, p. 282.

usually involves four important characteristics:[20]

- Adequate volume of business to meet the income needs of the farm family.
- Managerial control.
- Operator's equity in the farm operating capital large enough to insure continuation of the farm financial structure.
- Reasonable security of tenure on the land.

The career pattern a youth follows in getting established in farming is affected by several factors.[21] First, youth must have intensive interest and motivation toward making farming an occupation. Secondly, his parents must have the ability to aid materially in providing an opportunity for him to begin farming. This is necessary if youth is going to become more than moderately involved in farming. Research in this part of Project 985 showed that a lack of interest in farming indicated a general lack of intensive interest in any type of occupation. The career pattern that developed was motivated by providing for current material desires.

Some youth become farmers when they lack interest in any other occupation and their parents offer material aids such as shares of the farm business or moderate wages. In some farm homes there is an unspoken intention of the parents to gradually work their son into the farm business in future years. If the parents strongly object to youth exploring various ways and means of earning a living and want him home, or if youth lacks initiative, it's likely that he will remain in farming. In fact, he will probably do so until the point of irreversibility is

[20] F. J. Reiss, "Getting Established in Farming—With and Without Family Help," Prepared for Technical Committee on Regional Research Project NC-15, (Mimeograph report of), North Central Regional Publication, p. 9.

[21] S. H. Gretebeck, "A Career Pattern Study of Seventy-six Youth Farming Who Were 1957 High School Graduates in Five Selected Counties in Wisconsin," The University of Wisconsin, Madison, Wisconsin, 1960.

reached in occupational choice or change.

Almost without exception, youth indicated that the opportunities to start farming rely heavily on the amount of economic and psychological encouragement provided by their parents. Many youth interested in farming do not want to become financially involved in farming by using borrowed funds.

Who Chooses Farming?

Two of the studies in Project 985 attempt to relate certain background factors with the choice of farming as an occupation.[22, 23, 24] Data for the following results were gathered from a study done in 1957 on the "G" group. Youth planning to farm usually make their plans earlier and less often include college as part of their plans. The mental ability of those choosing farming provides part of the answer as to why few choose additional education beyond high school. The majority of those youth choosing farming are of average to below average intelligence (Table 10). The largest percentage of those in the high intelligence span choose occupations other than farming.[25]

The scholastic achievement of those youth indicating farming as an occupation, follows the same trend as the mental ability factor. Those who choose farming got higher grades in vocational-agriculture courses, but achieve lower in mathematics, science, social science, language, and vocational subjects other than agriculture. Lack of ability may be only part of the cause. A larger percentage of boys whose parents had 8 years or less of school tended to choose farming than did boys whose parents completed more than 8 years of school.

The attitude youth's fathers have toward farming seems to influence their son's choice of occupation. A larger percentage of boys who choose occupations not related to farming, had parents who were dissatisfied with farming.

Other characteristics of those youth choosing farming include: present residence on a farm, plans to stay in the home county, and partnership with their fathers as a method of getting started in farming.

Several factors were found to have no significance with the choice of farming as a career, such as:

- Extra-curricular activities in high school
- Number of brothers
- Parents' ownership of the farm
- Number of years parents have been farming
- Size of the home farm

Seven years after the first study dealing with the choice of farming as an occupation, a report was completed in 1964 on the "M" group. At that time 45 full-time and 55 part-time farmers participated in the study. About half of the total respondents had decided to farm as ninth graders, slightly more than one-third were undecided. Eleven percent of the part-time farmers who had stated they definitely would not farm, were farming 3 years out of high school. None of the full-time farmers

[22] R. O. Uttech, "Educational and Occupational Guidance of Male High School Students of Five Selected Wisconsin Counties, With Special Emphasis on Influencing Factors," Unpublished Master's Thesis, University of Wisconsin, Madison, Wisconsin, 1962.

[23] A. F. Richter, "A Study of Youth in Part and Full-Time Farming in Five Wisconsin Counties," Unpublished M.S. Thesis, University of Wisconsin, Madison, Wisconsin, 1964.

[24] Beals, *op. cit.*

[25] The Henmon–Nelson test is not designed to measure skills and abilities necessary to go into farming.

Table 10. Measured Mental Ability Compared to Occupational Choice (Farm and Nonfarm boys*) N = 596

Occupational Choice	Intelligence Quotient 110–129 No.	%	90–109 No.	%	70–89 No.	%	Total
Farming	12	15.0	47	58.8	21	26.2	80
Related to farming	18	26.5	44	64.7	6	8.8	68
Not related to farming	155	34.6	256	57.1	37	8.3	448

*42 non-respondents.
J. W. Apps, "Characteristics of Youth Choosing Farming as an Occupation in Five Selected Counties in Wisconsin," Thesis, M. S., The University of Wisconsin, Madison, 1957, p. 44.

had responded negatively. Part-time farmers were more interested in good working conditions than full-time farmers. The latter were ready to accept their present working conditions to work toward their goals of establishment in farming. In both part-time and full-time groups, youth agreed that the largest single problem in becoming established in farming is financial.

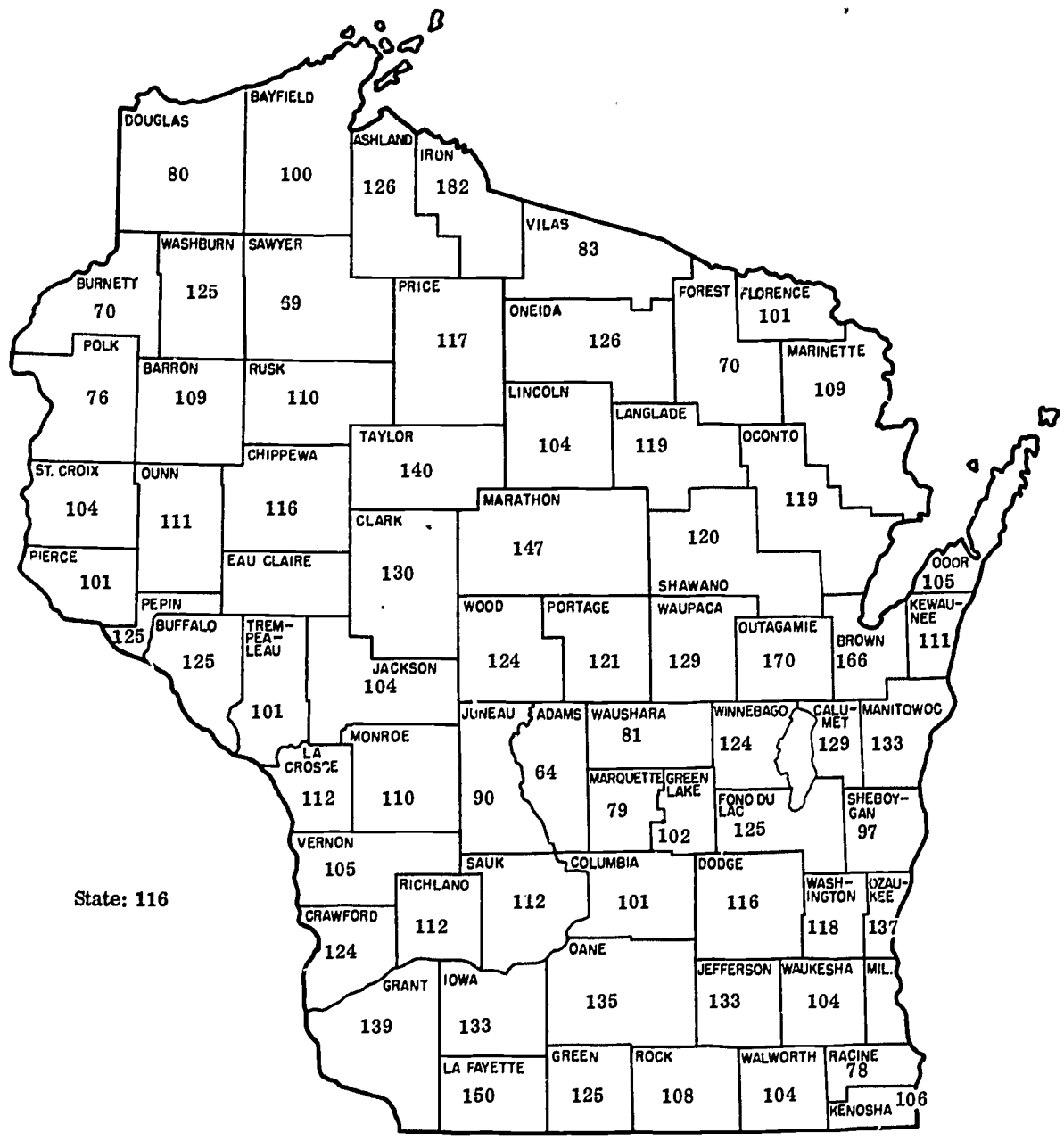
The concept of part-time farming has changed over the last few years. For many it is the desired end, rather than the means of eventually becoming a full-time farmer. The financial security of a part-time job may allow greater enjoyment of farming. Part-time work opportunities appear more commonly near industrial centers, such as certain areas of Polk and Manitowoc counties.

Why The Low Realization Rate of Farming as an Occupation?

Few youth who as seniors plan to farm, actually attain their initial goal over the long period necessary to become established in farming. One year out of high school about 9% of both the "G" and "M" populations were actually farming, but here the propensity between the two groups ends. Fifty percent of the "G" group who had planned to farm were so employed, only 30% of the "M" group had realized their plans to farm.

Why the difference in realization: Deteriorating farm price and a general decrease in the number in farming during the 4 years separating the study groups accounts for some of the difference. Certainly, farming opportunities are decreasing, as illustrated by the over-abundance of youth with a farm background available to enter farming as older farmers reach retirement or die. Figure 2 shows the replacement situation in each individual county. It does not consider net migration to or from an area. Youth available for replacement were considered if they reached age 25 in the decade and have been reared on a farm.

It is not a coincidence that those counties losing farming population, such as Polk, Price and Adams counties, have real problems in achieving viable production. Price county, in particular, has been the object of many studies delving into its eco-



State: 116

Fig. 2: Wisconsin Farm Population Replacement Ratio, 1960–1970.

Source: G. W. Sledge and D. G. Marshall "Farm Replacement in Wisconsin." The University of Wisconsin, Madison, 1963.

nomic status.[26] Polk county loses many of its youth to a nearby metropolitan area of Minneapolis–St. Paul.

Another reason for the low realization rate in farming is that many youth seem to farm on a temporary basis, awaiting other occupational opportunities. Farming tends to become a stop-gap means of employment for these particular youth. Other factors include the competition for land and necessity of extensive credit. Becoming established in farming is not the quickest way for youth to enjoy financial rewards. Many youth, who 20 years ago would have considered only farming, are now becoming interested in the nonfarm *agribusiness* occupations.

[26] J. A. Doerflinger and D. G. Marshall, *The Story of Price County*, Bulletin 220, Agricultural Experiment Station and Agricultural Extension Service, University of Wisconsin, Madison, Wisconsin, June 1960.

Growing Opportunities in Nonfarm Agriculture Occupations

When youth do not choose production farming as a source of future employment, they must look toward other job areas. *Balancing the job market in the broad field of agriculture are the increasing employment opportunities in nonfarm agriculture occupations.* In 1966 a study was carried out in the 5 counties used throughout Project 985, and an additional 3 counties—Eau Claire, Shawano and Washington, to determine the competencies needed for employment in nonfarm agricultural occupations with implications for curriculum development.[27] These 3 additional counties represent each of the remaining economic areas in Wisconsin.[28] All the nonfarm *agribusinesses* in the areas were classified into 5 occupational groups: agricultural machinery sales and service; agricultural supplies; services and equipment; livestock; crops, forestry and conservation; and ornamental horticulture.[29]

Employers in nonfarm *agribusinesses* anticipate an increase in the number of persons employed in their businesses of 18.1% by 1970 and 50% by 1975 (Table 11). Businessmen anticipate the greatest increase in agricultural machinery and the smallest expansion in livestock.

Employers considered some high school subjects more important than other subjects as preparation for initial employment and promotion. The most valuable subjects listed for both employment levels were mathematics, English, and economics. Those considered of little value were foreign language, history and geography. All agreed that most academic subjects were of greater value for promotion than initial employment. The importance of mathematics and science differed for various employers. Algebra and geometry were especially important for employers in agricultural machinery and conservation, crops and forestry. Biology, chemistry and physics were important for livestock, ornamental horticulture and agricultural supply groups.

Business knowledge and skills were considered most important from the employers' viewpoint as a prerequisite for initial employment and promotion. These skills include employees' ability to make decisions accurately, to diagnose problems and consult, to estimate cost and purchases, and to keep records and accounts.

Of lesser emphasis, but of some value to employers were the employees' ability to advertise, to budget and handle money, to operate office machines, and to use filing procedures.

Collectively and individually, employers emphasized public relations skills and knowledges more than other knowledge or skills included in other variables. Receiving high value were:

- Employees' ability to communicate with farm people
- Ability to communicate with businessmen
- Salesmanship and leadership ability

Of lesser value, but still important were:

- Ability to supervise and train personnel
- Ability to communicate with nonfarm people other than businessmen

[27] H. R. Matteson, *op. cit.*
[28] *Ibid.*, p. 20.
[29] *Ibid.*, pp. 22–23.

Table 11. Growing Employment Needs in Agribusinesses

Type of Business	1965	1970	(Percentage Increase)	1975	(Percentage Increase)
Machinery sales, service	501	787	(57.1)	1213	(142.1)
Agriculture supplies	830	1053	(26.9)	1290	(55.4)
Livestock	1701	1945	(14.3)	2238	(31.6)
Conservation, crops, forestry	1493	1640	(9.9)	2006	(34.4)
Ornamental horticulture	69	94	(36.2)	111	(60.9)
Totals	4594	5425	(18.1)	6858	(49.2)

H. R. Matteson, "Determining the Competencies Needed for Employment in Non-Farm Agricultural Occupations with Implications to Curriculum Development," Ph.D. Thesis, University of Wisconsin, Madison, 1966, p. 74.

Employers disagree as to the value of farming experience. It was of least importance to ornamental horticulture and conservation, crop, and forestry businesses. The rest of the employers thought it was of some value, but not essential. Vocational-agricultural courses taken in high school were also considered of value.

Realization of Occupational Plans

The value of a longitudinal study is apparent when measuring the fullfilment of occupational plans. Beginning in 1958, and continuing intermittently through the present, studies are being completed comparing occupational plans with present job status.

In one study, a comparison was made of the occupational position in 1963 of the "G" group with 10-year occupational goals expressed in 1958 when the youth were 1 year out of high school. The professional classes had reached their goal in 40% of the cases. Managerial classes had a 60% goal realization. More youth had entered sales, skilled and service workers and unskilled labor categories than had planned to 5 years earlier. Only 6 youths had planned to become unskilled workers, but by 1958 and again in 1963, 12 times that number were so employed.

Another method of measuring attainment of occupational plans was by comparing the "M" group's occupational position in 1963 when they were 2 years out of high school and their 10-year occupational goals expressed in that year with their initial occupational plans stated in 1959.

The number of youth who planned to enter professional and managerial classes increased from 2 to 5 times between the sophmore year of high school and 1 year following graduation. The number of youth in sales, skilled and semi-skilled, and service workers classes had a very low realization of earlier plans for those occupations. Thirty percent of youth who expressed a desire as sophmores to become farmers were thus employed 4 years later in 1963. Sixty-three percent of those who expressed in 1963 a 10-year goal of farming were farming in 1963. The unskilled labor category attracted few youth as sophmores, but 151 were so employed in 1963. Fifty percent of those in unskilled labor planned to hold the same type of job in 1973.

Comparisons can also be made between the "G" and "M" groups and the actual occupational opportunities in the United States (Table 12). The "G" group has exceeded or is approaching national distribution in professional, skilled and semi-skilled, farming and unskilled labor categories. With 8% still in higher education, this group could surpass the 1970 projected national distribution. In the "M" group, the percentage of youth employed in all occupational categories except farming and unskilled labor, is less than the national distribution of workers. The percentage in farming and unskilled labor is three times greater than the national distribution. The "G" group, being 4 years older, has had time to become established in higher status jobs, or those requiring more education or training. In the farming category it must be remembered, Wisconsin is more an agricultural state than many which contributed to national distribution.

In general, occupational plans were fulfilled in about 50% of the cases, with variation between individual occupational classes. High school youth tend to be somewhat unrealistic in their plans. More youth plan to attain higher ranking occupational classes than is possible. Few plan for the unskilled labor classification. Occupational plans are more realistic when made following high school graduation, judging by the number in higher education presumed to be a pathway to entry into professional, managerial, and to some extent sales and clerical. At the same time, half the youth working as unskilled laborers expressed, as a 10-year goal, their desire to remain in that occupational area.

Table 12. Occupations of Project 985 Study Groups

Occupational Distribution	Respondents in Occupation "G" Group N=536 %	Respondents in Occupation "M" Group N=794 %	Distribution of White Workers %[a]	Projected 1970 Occupational Distribution %[b]
Professional, technical and kindred	14.0	1.2	12	17.0
Managers, officials, proprietors	5.2	1.3	11	13.5
Sales and clerical	8.9	2.0	22	28.0
Skilled and semi-skilled	26.7	8.2	33	39.75
Service workers	3.0	.9	8	10.0
Farmers and farm managers	7.1	12.1	4	3.25
Unskilled labor	13.1	19.0	7	7.0
Armed forces	14.0	16.5	--	-----
Further education	8.0	38.8	--	-----
Totals	100.0	100.0		

Beals, *op. cit.*
[a]United States Department of Labor, *Manpower: Challenge of the 1960's*, p. 20.
[b]Computed on the basis of present distribution in each occupation.

Implications and Recommendations

The task of helping youth make realistic decisions for themselves changes with each generation and even within a given year. Keeping pace with developing job markets and changing student plans often leaves parents and educators lagging behind. People's attitudes are not easily altered. Broadening a school administrator's and vocational agriculture teacher's concept of agriculture to include *agribusiness* along with production farming requires time and thought. It is difficult to objectively mesh a son's abilities with current job opportunities. Often it may mean admitting that keeping him on the family farm is not a realistic decision. Employment in an *agribusiness* occupation might be appropriate. Community townspeople, businessmen and rural families necessarily need to begin recognizing new educational needs. New staff and new programs reflect new work opportunities only after sufficient pressure motivates their development.

Youth Makes Decisions

Studies in Project 985 all deal with the analysis of youth decision-making. They attempt to relate various demographic factors with educational and occupational choices. Using this information to modify present attitudes and educational programs takes significant effort. Earlier detection is needed of those students who should continue their education after high school graduation. Early identification would give the student time to develop his interest in attending college, as well as time to guide him into major field selections based on his capabilities. Project 985 studies discovered several aids to avoid making faulty assumptions as to student plans.

- High rank on Henmon–Nelson mental ability tests should not be used by college entrance boards as the major prerequisite to enrollee acceptance.
- Encouragement of high school students to pursue a given collegiate field should be prompted by more than the students' indicated interest and achievement in high school courses comparable to the field.
- Guidance personnel should exercise caution in accepting as final occupational choices at the ninth grade level and thus possibly place students in the wrong vocational or academic fields.
- Professional choices seem to originate particularly in high school, while farm choices are established more often prior to high school entrance.

Further investigation should be conducted to see why students indicating agriculture as their most interesting high school course achieve poorly in college. The vocational agriculture curriculum may need to incorporate more of a college preparatory function. Some students may be better guided toward the pursuit of vocational or technical diplomas.

The effectiveness of the high school guidance director might be improved if he is used by other teachers as a resource person to help them carry out their guidance responsibilities.

Entering Agricultural Occupations

The second area of implications to develop from the Project concerns the decision of youth to enter agriculture. Changing job opportunities in this field call for a new assessment of needed abilities to be a successful farm manager, worker, or agribusinessman. Farming is only one aspect of many jobs in which agricultural skills and interests are used. Greater emphasis should be placed on occupational information and less on occupational decision-making so that unhappy premature decisions are avoided. Parents, educators, and leaders of youth organizations should encourage youth to explore and experience various occupations in which they are interested.

Farm-reared youth plan for and attend college at only half the rate of their nonfarm counterparts. Once enrolled there is little difference in their rate of success. Since parents were found to be of greatest influence with the farm-reared group, the implication is evident that a primary guidance opportunity and responsibility lies with the parents.

If it is realistic for a youth to work on the family farm, other ways of beginning farming should be explored besides the traditional wage or allowance. The possibility of partnership or incorporation may be reasonable, depending on the age of the parents. More emphasis should be placed on the importance of education beyond high school as preparation for the occupation of farming.

Nonfarm *agribusiness* employers did not place high value on farming experience as a prerequisite for employment. Students seeking vocational agricultural courses to prepare them for the broad field of agriculture may not all be from farm backgrounds. Vocational agriculture teachers need to be sensitive to all students' needs. To prepare his students for realistic job opportunities, the vocational agriculture teacher will have to identify types of jobs available in his community and the competencies students will need to become employed, then enlarge and diversify the agricultural program to fit the job market.

Individuals responsible for vocational education programs development should consider the possibility of providing high school courses which would serve the needs of students in all areas of vocational training including agriculture. Courses such as public relations, business management, and mathematics might more efficiently and economically be taught in the public high school under the auspices of vocational education training rather than any one specific vocational field. A joint effort by educators in each of the vocational fields would be necessary to develop courses.

Care should be taken that the vocational agriculture instructor devote time equitably to those youth going into full-time farming and those interested in part-time farming, especially in areas where part-time farming is more prevalent. The agricultural curriculum should be examined to make sure it meets the needs of the part-time farmer.

Another consideration in vocational agriculture curriculum revision is student ability level. In general, students who enroll in high school vocational education programs tend to have lower than average academic ability. Consideration of this fact should be made during the development and operation of a vocational education program, both at the high school and post-high school level.

Developing Post-High School Vocational Education

In view of increased pressures in the labor market for technically trained individuals, findings indicate a sufficient proportion of today's youth are not being reached with present technical and vocational education.

The organization of vocational districts in Wisconsin is a step in the right direction. Already 1- and 2-year programs are being developed in such fields as dairy equipment, farm machinery, and feed and seed, in several Wisconsin communities. In all of these districts, however, there is need for a study to evaluate the availability and nature of training and the manpower needs. The study should be conducted by the agencies concerned with vocational, technical and adult education in each district, under the leadership of the area school administration. The results should provide better training programs for more people.

Conclusion

Every effort must be made to make youth aware of the necessity for post high school education, and its availability in or near their community. More is needed than high school vocational guidance; awareness is equally important to individuals presently employed. Word of this possible additional training must be made known to individuals whose employment situation does not presently meet their vocational and technical educational needs. Today's youth must realize that their future job opportunities depend on the special skills and education they choose to possess.

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Jon A. Doerflinger and Douglas G. Marshall, *The Story of Price County*, Research Bulletin 220, Agricultural Experiment Station and Agricultural Extension Service, University of Wisconsin, Madison, Wisconsin, June, 1960.

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Appendix

Agribusiness Occupational Groups

1. Agricultural Machinery, Sales and Service
   a. Farm machinery dealer
   b. Sales and service (parts)
   c. Farm machinery repair
   d. Tractor repair

2. Agricultural Supplies, Services, Equipment
   a. Fertilizer, seeds and lime
   b. Feedmill and sales
   c. Dairy equipment supply
   d. Poultry supplies
   e. Trucking
   f. Agricultural supplies
   g. Gardening supplies and equipment
   h. Orchard supplies
   i. Grain elevator
   j. Production credit agent

3. Livestock—including Dairy, Beef, Swine, Poultry, Sheep
   a. Veterinarian
   b. Dairy plants
   c. Cheese factories
   d. D.H.I.A.
   e. Auctioneer
   f. Stockyards
   g. Butcher
   h. Poultry farmer

4. Crops, Forestry and Conservation
   a. Soil conservation service (excluding jobs requiring college degree)
   b. Tree farms
   c. Pulpers
   d. Truck crop farms
   e. Building materials and lumber yards

5. Ornamental Horticulture
   a. Florists
   b. Landscaping
   c. Nurseries
   d. Orchard care

From:

H. R. Matteson, "Determining the Competencies Needed for Employment in Non-Farm Agricultural Occupations with Implications to Curriculum Development," Unpublished Ph.D. dissertation, University of Wisconsin, Madison, 1966, pp. 21–22.

Longitudinal Design of Wisconsin Ag. Expt. Station Proj. 985 Progression of Research Schedule

1956–57	1957–58	1958–59	1959–60	1960–61	1961–62	1962–63	1963–64	1964–65
	GAQ—Group Administered Questionnaires SR—School Records MQ—Mailed Questionnaires PI—Personal Interviews NDC—No Data Collection				F—Farm RNF—Rural Nonfarm NF—Nonfarm OS—Out of School			
764 Males 12th Graders Forms A & C GAQ, SR	1st Yr. OS Form 1-G57 MQ	2d Yr. OS MQ-NF, RNF PI-F Form 2-G57	3d Yr. OS MQ 3-G57 3-C-G-57	4th Yr. OS NDC	5th Yr. OS MQ-NF, RNF PI-F 5–G57	6th Yr. OS MQ 6-G57	7th Yr. OS NDC	Interview Employee
	1,107 Male 9th Graders Form 9-M57 GAQ	10th Grade Form 10-M57 GAQ, SR	11th Grade Form 11-M57 GAQ, SR	12th Grade PI, SR Form 12-M57	1st Yr. OS. MQ Form 13-M57	2d Yr. OS MQ 14-M57	3d Yr. OS NDC	

H. D. Beals, "Educational and Occupational Plans and Attainments of Wisconsin's Rural Youth," Thesis, Ph.D., The University of Wisconsin, Madison, 1965, p. 350.