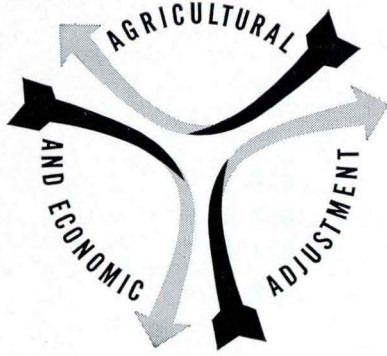# Occupational Plans Of Iowa Farm Boys

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AGRICULTURAL AND HOME ECONOMICS EXPERIMENT STATION
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CONTENTS

SUMMARY

This bulletin reports the findings of an exploratory study of the long-range occupational plans of Iowa farm boys in their senior year of high school. The primary objectives of the study were: (1) to relate the theory of choice to occupational planning, (2) to describe the occupational plans of the boys, (3) to determine the characteristics which differentiate boys who plan to farm from boys who plan nonfarm careers and (4) to appraise the relative importance of factors influencing farm-nonfarm occupational plans.

Application of the theory of choice to occupational planning resulted in three general hypotheses to explain why some farm boys plan to farm while others plan nonfarm occupations. These hypotheses involved individual differences in (1) occupational satisfaction functions (preference systems), (2) available resources and (3) the results expected from using given resources in farm and nonfarm employments. Various operational hypotheses derived from the general hypotheses were evaluated on the basis of evidence obtained from a state-wide sample of senior farm boys attending Iowa high schools in rural areas and cities under 25,000 population in the spring of 1959.

Of the 870 boys included in the sample, 38 percent were planning to enter farming; 58 percent were intending to enter a variety of nonfarm occupations; and nearly 1 percent were expecting to combine farming with a nonfarm job. Only 3 percent indicated that they had not given any thought to a life career. About 13 percent of the group considered their plans "certain," while 58 percent viewed their plans as "fairly certain." On the other hand, about 22 percent indicated that their plans were "fairly uncertain," and 7 percent considered their plans as "very uncertain." In general, boys who were planning to farm were more certain of their plans than were boys who were planning nonfarm occupations.

Two-fifths of the boys stated that they first decided on their career plan during the twelfth grade. Career plans were formed by 29 percent during the eleventh grade and by 11 percent during the tenth grade. Nearly one-fifth said they arrived at their decision before entering the tenth grade. Boys who were planning to farm formulated their career plans earlier than those who were planning nonfarm occupations.

The evidence supported the hypothesis that farm boys who plan to farm value the nonincome characteristics associated with farming more highly than those associated with nonfarm occupations, while the boys who plan nonfarm careers have opposite valuations. In response to a series of questions on employment preferences at different levels of relative income in farming, 89 percent of the boys planning to farm indicated that they would prefer farming to nonfarm employment at equal incomes, whereas only 28 percent of the boys planning nonfarm careers had this preference.

In general, boys who planned to farm more frequently indicated a preference for working conditions and community characteristics associated with farming than did boys who planned nonfarm careers. A larger portion of the boys planning to farm favored work out-of-doors, physical work, much use of machines and tools, little contact with people and work in a small organization. Boys planning to farm also attached relatively more importance to freedom on the job and employment security (attributes generally thought to be more fully realized in farming than in most nonfarm occupations) than did boys planning nonfarm careers. In addition, a larger proportion of the boys who planned to farm preferred living close to relatives and a considerable distance from neighbors.

As was expected, boys who planned to farm owned more financial resources and were anticipating more parental assistance to finance entry into farming than were boys who planned nonfarm careers. A higher percentage of boys planning to farm also indicated that they had an opportunity to begin farming with their fathers. The families of these boys were better able to provide financial assistance than those of boys planning nonfarm futures. Average family net worth was $40,195 for boys planning to farm compared with $29,085 for boys planning nonfarm occupations. The difference in financial capacity was even larger among boys who were "certain" of their occupational plans.

While plans to attend college varied directly with parental net worth, boys who planned to farm had lower educational aspirations than had those who planned nonfarm careers. Nearly 49 percent of the boys with nonfarm plans were expecting to go to college, whereas only 17 percent of the boys planning to farm intended to take college work. Boys who planned to farm had a slightly lower mean intelligence score, a moderately lower mean achievement score and a moderately lower grade point than the boys with nonfarm plans. Boys planning to farm also participated less frequently in school activities. As rated by their high school instructors, 14 percent of the boys planning to farm were rated in the high leadership group compared with 26 percent of the boys planning nonfarm careers.

The data from this study were consistent with the hypothesis that differences in income-earning expectations help to explain farm-nonfarm differences in occupational plans. Boys who planned to farm were more optimistic about future relative income-earning opportunities in farming than were boys who planned nonfarm careers. Higher returns for labor and capital in farming than in nonfarm employments in 1965 were anticipated by 38 percent of the boys with plans to farm but by only 21 percent of the boys with nonfarm plans. Boys planning to farm also were more optimistic about 1965 incomes on small and medium-sized farms than were boys planning nonfarm careers. On the average, boys who planned to farm indicated that, under current conditions, 232 acres of cropland and $17,500 of capital in machinery and livestock

were needed for a "satisfactory" income as a tenant.

On the basis of a small sampling, the level of occupational information appeared to be somewhat higher for boys planning nonfarm careers than for those planning to farm. While there was little difference in knowledge of farm industry characteristics, boys planning nonfarm occupations were better informed about the characteristics of a selected list of occupations than were boys planning to farm. Most farm boys had reasonably accurate knowledge of average farm size and the trend in farm numbers. Only two-fifths of the group, however, were aware of the trend in the percentage of national income contributed by the farm sector.

In response to a direct question, nearly 69 percent of all respondents reported that they expected to have difficulty in entering the occupation of their choice. Boys planning to farm anticipated difficulty as frequently as did boys planning nonfarm occupations. Financial difficulties were mentioned most frequently by both groups. Over 40 percent of the boys planning to farm expected difficulty in getting the capital needed to get started, and 27 percent of the boys planning nonfarm careers anticipated difficulty in financing their training.

As reported by their sons, the parents of the boys with farming plans had lower educational aspirations for their sons than had the parents of the boys with nonfarm plans. Only one-third of the boys planning to farm indicated that their fathers felt they should take additional training beyond high school, whereas 56 percent of the boys planning nonfarm careers expressed this view. However, a large proportion of the boys in both groups (51 percent for boys planning to farm and 36 percent for boys planning nonfarm occupations) reported that their fathers had never said much about additional training.

When variables measuring nonincome preferences for farming, relative income expectations in farming and family resources were related to farm-nonfarm occupational plans in a cross-classification, it was found that high nonincome preferences, high relative income expectations in farming and high family net worth combined to produce a high proportion (94 percent) of farm plans and a low pro-portion (6 percent) of nonfarm plans. Low nonincome preferences, low relative income expectations in farming and low family net worth combined to produce a low proportion (4 percent) of farm plans and a high proportion (96 percent) of nonfarm plans. When heterogeneity was reduced for two of the three "independent" variables, the relative frequency of farm and nonfarm plans varied with the level of the third variable. Over the range of variation reflected in the measurements of the three "independent" variables, the level of nonincome preferences for farming appeared to have the greatest influence on occupational plans. The findings support the generalization that nonincome preferences for farming, available resources and relative income-earning expectations in farming are important variables influencing the occupational plans of farm boys.

The Iowa evidence indicates that the supply of farm-boy entrants in farming covers a range of relative incomes (ratios of income in farming to income in nonfarm employment) well above and below 1.0. Also, this supply appears to be quite elastic. When measured from a base relative income of 1.0, a decrease of 11 percent in relative income in farming was associated with a decrease of 14 percent in the number of boys preferring farming to nonfarm employment. And an increase in relative income of 12 percent was associated with an increase of 16 percent in the number of boys preferring farming to nonfarm employment.

If the supply of entrants in farming is as elastic as these figures suggest, long-range programs that raise relative incomes in farming without reducing the supply of entrants (shifting the supply curve to the left) are likely to cause a relatively large increase in the number of farm boys who seek entry into farming. Unless such programs are accompanied by additional restrictions on entry, they would tend to be self-defeating over the long run, since an increase in the number of entrants would likely reduce relative incomes in farming. In the short run, however, this effect is likely to be comparatively small, because even a large increase in the number of entrants would have a relatively small impact on the total number of farm operators.

Occupational Plans of Iowa Farm Boys[1]

by Donald R. Kaldor, Eber Eldridge, Lee G. Burchinal and I. W. Arthur[2]

Each year thousands of boys from American farms complete their formal education and enter the labor force in search of satisfying employment. For many years, a declining number have selected farming as the best way of achieving their occupational objectives. Today, most farm boys enter nonfarm occupations. This was not always true, however.

During an earlier period, the majority of young men born and raised on farms followed the occupation of their father. This was a time when occupational alternatives were fewer and less attractive than they are today, and entry into farming was relatively easy. Land was abundant and cheap. Capital requirements were small, and labor played a much larger role in farm production than it does today.

Economic growth and the forces associated with it have been largely responsible for this change. These forces have greatly reduced the demand for labor in farming. At the same time, they have increased the demand for labor in the nonfarm economy. By changing the number and relative attractiveness of employment opportunities, these shifts in demand have induced striking changes in the utilization of labor in American agriculture.

Trends in National Farm Employment

At the beginning of the last century, more than 80 percent of the labor force in the United States was engaged in farming. By 1920 the proportion had fallen to 27 percent. The figure in 1959 stood at 8 percent. Although the trend in the proportion of the labor force employed in farming has been downward for at least 150 years, the number of workers on farms continued to increase until about World War I. Since then, the number has declined almost without interruption. The changes in farm employment by 10-year periods since 1920 are shown in table 1.

Over the 1920-59 period, the number of farm workers decreased by 4.8 million, or about 45 percent. There was a moderate decline of 0.6 million workers during the decade of the 1920's. Although the depression slowed the decline during the early 1930's, the reduction over the decade as a whole amounted to 1.2 million workers, twice the drop during the relatively prosperous 1920's. The early years of World War II saw a rapid decline in farm employment as workers left farms for jobs in defense industries and the armed forces. However, the end of the war and demobilization was accompanied by an increase in the farm labor force. By 1948 farm employment stood at the same level as in 1943. Still, there was a net decrease of 1 million farm workers between 1940 and 1949. During the 1950's, farm employment fell by 2 million. By the end of the 1950's, the number of farm workers was 20 percent less than at the beginning of the decade.

The downward trend in national farm employment has involved both family and hired workers. In recent years, the rate of decline has been greater for family workers than for hired workers. Between 1950 and 1959, the number of family workers fell nearly 25 percent, whereas the number of hired workers dropped 8 percent. For the most part, the reduction in family workers reflects a decline of nearly 20 percent in the number of farm operators.

The rapid decline in the number of farm operators in recent years has been largely the result of (1) a decline in the rate of entry into farming, (2) an increase in the rate at which operators have quit farming and taken nonfarm jobs and (3) a higher rate of retirement. Retirement has been accelerated by the inclusion of farm operators in

Table 1. Absolute and percentage change in United States farm employment, by decades, 1920-59.

Period	Change over the period	
	Number	Percent
	(million)	
1920-29	−0.6	−4.5
1930-39	−1.2	−8.9
1940-49	−1.0	−9.1
1950-59	−2.0	−20.5
1920-59	−4.8	−45.0

Source: United States Department of Agriculture, Agricultural Marketing Service. Agricultural outlook charts, 1958 and 1959.

the social security system. The other changes have been encouraged by a decline in the number and relative attractiveness of income-earning opportunities in farming.

The drop in the number of farm workers represents only part, although the larger part, of the total shift of labor from farm to nonfarm employments. The number of farm operators working off farms also has been rising. Although fewer people operated farms in 1954 than in 1929, the number of operators employed off farms 100 days or more in 1954 was nearly 80 percent greater than in 1929. In 1954, 28 percent of all farmers worked off farms 100 days or more. By 1959 this figure had increased to 30 percent. There also has been an upward trend in the number of farm wives engaged in nonfarm work. While much of this reflects an increase in the number gainfully employed, it also reflects some reduction in the amount of labor devoted to farm work.

Trends in Farm Employment in Iowa

Trends in labor utilization in Iowa agriculture have been similar to those in the nation as a whole. Estimates of the number of workers on Iowa farms indicate a drop of nearly 22 percent between 1940 and 1954.[3] This is almost as large as the reduction in national farm employment over this period. Apparently, less of the decline in Iowa has been associated with the fall in the number of farm operators. Between 1940 and 1954, the number of farm operators in Iowa fell about 10 percent, whereas the national decline amounted to almost 20 percent.

In line with the national trend, more Iowa farm operators have been working off farms. Between 1940 and 1954, the number employed 100 days or more off farms increased by about 55 percent. An additional increase of 12 percent occurred between 1954 and 1959. Likewise, an increasing number of farm operators' wives in Iowa has been gainfully employed off farms.

Factors Affecting Trends in Farm Employment

The trends in the utilization of labor in agriculture in the United States represent, in large part, an adjustment to the changing pattern of income-earning opportunities induced by the forces of economic growth. Because the demands for most nonfarm goods and services have been more responsive to changes in income, rising per-capita income in the economy has increased the demands for nonfarm products faster than the demands for farm products. Inasmuch as the demand for labor is based on the demands for the products to be produced, this has created a more rapid increase in the demand for labor in nonfarm industries than in agriculture. As a result, these industries have been able to provide more attractive employment opportunities. Thus, they have been able to outbid the farm industry for the use of labor.

The demand for labor within the farm industry has been subject to strong downward pressure as a

consequence of rapid advances in farm technology and a growing relative scarcity of labor in the United States economy. Both of these forces have been particularly potent since 1940. Advances in farm technology have reduced the demand for labor in agriculture by raising the relative productivity of capital inputs and by contributing to a rapid expansion in farm output and lower farm prices and incomes.

Most of the improvements in technology leading to greater mechanization have been labor-saving in their effects. By increasing the productivity of capital in the form of mechanical power and machinery, these improvements have encouraged the substitution of capital for labor, thus reducing the demand for labor in farming.

Although the labor force in the United States economy has expanded greatly since 1940, labor is a relatively more expensive production input today than it was 20 years ago. Since 1940, wages of farm labor have risen much more than the prices of farm capital goods and the rate of interest on farm operating-capital loans. The relative cheapening of farm capital goods likewise has encouraged substitution of capital for labor and a lower demand for human effort in farming.

The changing pattern of resource productivities and input prices has made previous combinations of land, labor and capital on individual farms obsolete, because they no longer permit production at minimum cost. Today, the well-organized farm typically uses much more capital, more land and very little more labor than its counterpart of 50 years ago. The growing capital requirements in farming have become an important obstacle to getting started in farming.

Because efficient use of modern power and equipment in combination with operator and family labor has required more land, there has been increasing pressure to enlarge the land base on individual farms. The total area of cultivated land in the United States, however, has been relatively stable. As a result, farm enlargement has been closely associated with a reduction in the number of farms and farm operators. The growing demand for land to enlarge farms has made it increasingly difficult for new operators to obtain control of sufficient land for an economic unit.

Improvements in technology also have had important output-increasing effects. High-yielding varieties, better soil management, more effective agricultural chemicals and fertilizers, more efficient feeding, improvements in livestock breeding and more timely tillage and harvesting operations have made a large direct contribution to greater farm output. Since World War I, the substitution of mechanical power for animal power has freed more than 80 million acres of cropland for human consumption, and greater use of mechanical power in crop production has freed labor for livestock production. Improvements in labor and management skills also have contributed to the productive capacity of the farm plant.

By expanding farm output and encouraging the use of new kinds of inputs, advances in technology

[3] M. W. Trautwein. Differential rates of resource adjustment within Iowa agriculture. Unpublished M. S. thesis. Iowa State University Library, Ames. 1958.

have contributed to a rapid growth of farm supply and processing industries. Many tasks formerly done on the farm have been transferred to nonfarm firms. As a result, the decline in farm employment has been accompanied by an expansion in employment in industries processing farm products and supplying farmers with purchased inputs.

During much of the period since World War I, there has been a strong tendency for farm output to grow more rapidly than the demand for farm products. At times, the rapid increase in farm production has exerted heavy downward pressure on farm prices and income-earning opportunities. This has been especially true during the past decade. The full impact of these developments, however, has not been reflected in lower farm prices and incomes because of government support programs. Even so, income-earning opportunities in farming have dropped sharply relative to those in the rest of the economy. This also has contributed to the decline in farm employment.

OBJECTIVES OF THE STUDY

Comparatively little is known about the characteristics of people who enter and leave the farm labor force or the factors inducing these decisions. It is clear, however, that: (1) A large part of the decline in farm labor force has involved farm operators. (2) Much of the reduction in the number of farm operators has come via a decline in the number of new entrants. (3) The typical beginning farmer in Iowa is a young man with a high school education who was born and raised on a farm.

Therefore, the occupational decisions of high school farm boys play a critical role in determining the future rate of adjustment in labor-management input in farming. This adjustment, in turn, has an important bearing on the long-run organizational structure of the farm industry, the relative earnings of labor in farming and the efficient use of the nation's manpower. Moreover, the future welfare of these young men is associated with the occupational choices they make. Their job satisfaction will depend on how wisely they choose. For these reasons, occupational planning and decision-making by farm boys is a significant field of inquiry.

This exploratory study focuses on the occupational plans of Iowa farm boys who are high school seniors. Its primary objectives are: (1) to relate the theory of choice to occupational planning, (2) to describe the occupational plans of farm boys who were high school seniors in the spring of 1959, (3) to determine the characteristics which differentiate boys who were planning to farm and those who were planning nonfarm occupations and (4) to appraise the relative importance of factors influencing occupational plans. A follow-up study will examine the employment experience of the same group of boys after they have been out of high school for 3 years.

THEORY OF OCCUPATIONAL PLANNING

Occupational planning may be viewed as a rational process by which an individual arrives at a tentative decision about the kind of work he expects to do for his life career. The problem of each youth is to select from a number of alternative occupational plans the one expected to provide the greatest satisfaction.

In solving this problem, the individual might be expected to formulate a set of expectations for each occupation under consideration. These expectations would relate to the various factors he believes relevant to his choice. On the basis of these expectations, he would arrive at some judgment about the potential level of satisfaction associated with each plan. After some allowance for uncertainty, he then would select the plan offering the greatest expected satisfaction. This selection, however, would be tentative, since it would be based on a specific set of expectations, and these expectations may change over time.

Students of the problem are not in complete agreement about the extent to which actual occupational planning fits this mold. A large majority, however, seem to agree that the occupational choices which people make do involve important elements of rationality.[4]

There is evidence that the process of occupational choice, as distinct from the determinants, involves subjective role-taking activity on the part of the individual.[5] A person imagines himself engaged in various occupations and then reacts to his expectations of the consequences of being in each occupational role. In this way, he explores alternatives, rejecting some and retaining others, until finally a tentative choice is made.

Likewise, there is evidence that the process follows an increasingly complex developmental pattern extending from childhood to maturity.[6]

Fantasy choices are characteristic of young children. As numerous learning experiences occur, the child becomes more aware of the realities of adult life. His occupational thinking moves out of the fantasy realm, and he begins to consider more realistic alternatives. He becomes aware of an increasing number of occupational possibilities. As he matures, he rejects many of these possibilities and, thus, narrows the range of his choice. Finally, at some point during or after his educational experiences, a tentative choice is made, and the individual enters the trial-stable period of occupational selection. A specific job is taken on a trial basis. If it meets the individual's expectations, he enters a period of occupational stability. Otherwise, he searches for a different job—one that is expected to provide greater occupational satisfaction.

Insofar as occupational planning is a rational process, the theory of choice can provide some insights into the determinants of occupational plans.[7]

[4] See for example: W. L. Slocum. Some sociological aspects of occupational choice. Amer. Jour. Econ. and Soc. 18: 139-147. 1959.

[5] Ibid; Walter Coutu. Role-taking versus role-playing. Amer. Soc. Rev. 16:180-187. 1951; Ralph H. Turner. Role-taking, role standpoint, and reference group behavior. Amer. Jour. Soc. 61:316-328. 1956; Donald E. Super. The psychology of careers. Harpers and Brothers, New York. 1957.

[6] Eli Ginzberg et al. Occupational choice. Columbia University Press, New York. 1951.

[7] For a discussion of the nature of preference and choice and the assumptions underlying the theory, see: Kenneth J. Arrow. Social choice and individual values. John Wiley and Sons, New York. 1951.

It can suggest various hypotheses to explain individual differences in plans.

In this section, some ideas from the theory of choice are applied to the problem of occupational planning under simplified conditions. Several general hypotheses are formulated to explain why some farm boys plan to farm and other farm boys plan nonfarm occupations. In the later sections of this study, these and related hypotheses are checked against evidence collected from a statewide sample of farm boys who were high school seniors.

Occupational Satisfaction Function

It seems clear that people want different collections of things from their chosen occupation. Some may want the same kind of things, but in different proportions; others may want different kinds of things. The level of occupational satisfaction reflects the extent to which an individual gets the things he wants in the proportion in which he wants them.

Conceptually, the level of occupational satisfaction may be considered a function of a set of variables which the individual believes relevant to his choice. The set might include the level of beginning earnings, the rate of increase in earnings, the stability of earnings, the amount of vacation and other fringe benefits, the ratio of mental to physical activity, the level of occupational status, certain characteristics of the workers with whom he will be associated, the amount of freedom and rsponsibility to make decisions and so forth.

The individual's value system determines (1) the variables relevant to his choice and (2) how these variables relate to his occupational satisfaction. His value system, in turn, is the product of his socialization experience.[8]

The concept of an occupational satisfaction function may be clarified by considering a hypothetical case. Suppose the level of occupational satisfaction of a given individual were an increasing function of only two variables—the level of occupational status (prestige) and the level of beginning earnings. An increase in the level of occupational status, other things being equal, would add some positive increment to his occupational satisfaction. The same would be true for an increase in the level of beginning earnings. If each variable were continuous, there would be a continuous substitution relationship between occupational status and beginning earnings. If the level of occupational status were increased by a small amount, the level of beginning earnings could be reduced by some amount without changing his total occupational satisfaction. The ratio of the decrease in beginning earnings to the increase in occupational status would measure the marginal rate of substitution of occupational status for beginning earnings.

Each of these variables may be considered subject to diminishing additional satisfaction. In other words, increases in the level of either one, other

[8] For instance, see: H. K. Schwarzweller. Value orientations in educational and occupational choices. Rural Soc. 24: 246-256. 1959; and H. K. Schwarzweller. Values and occupational choice. Social Forces 39:126-135. 1960.
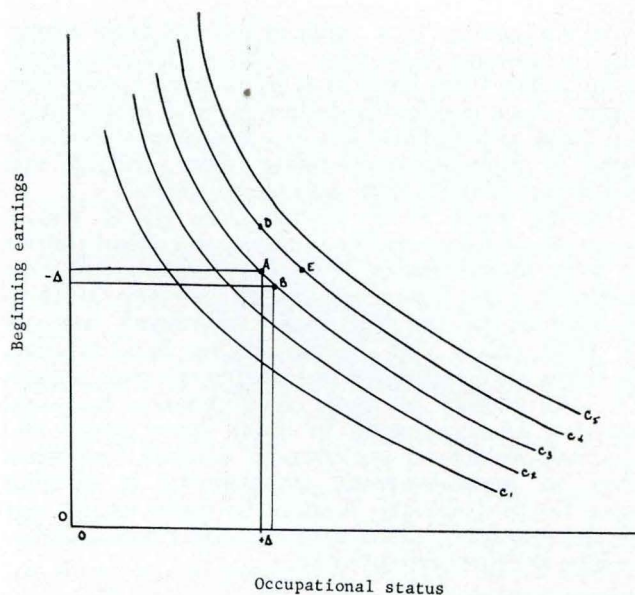
Fig. 1. Individual's hypothetical preference map for beginning earnings and occupational status.

things being equal, would add smaller and smaller increments to occupational satisfaction. This would mean a diminishing marginal rate of substitution between the two variables. As more and more occupational status were substituted for beginning earnings, total occupational satisfaction remaining constant, the rate at which occupational status substituted for beginning earnings would decrease as the substitution continued. These ideas are presented graphically in fig. 1.

In this diagram, the level of beginning earnings is measured along the y axis, and the level of occupational status is measured along the x axis. The curve C_3 represents various combinations of beginning earnings and occupational status to which the individual is indifferent, since they all provide the same level of occupational satisfaction. In moving from point A to point B on C_3, occupational status is substituted for beginning earnings. The ratio of the decrement in beginning earnings to the increment in occupational status measures the marginal rate of substitution of occupational status for beginning earnings. This rate diminishes as occupational status is substituted for beginning earnings—the curve is drawn concave to the origin.

Higher levels of occupational satisfaction are represented by curves C_4 and C_5, whereas lower levels are represented by C_1 and C_2. Point D on C_4 involves the same amount of occupational status and a higher level of beginning earnings than point A. Point E involves the same level of beginning earnings and a higher level of occupational status than point A. If occupational satisfaction is an increasing function of both social status and beginning earnings, points D and E must represent a higher level of satisfaction than point A. All points on C_4 are equivalent to points D and E in terms of total satisfaction. The optimum occupational plan, as viewed by the individual, may be

defined as that plan which he expects will put him on his highest indifference curve.

In practice, some of the variables entering the occupational welfare function may be discontinuous. A few may even be of an "all or none" kind. In this case, there will be no marginal rate of substitution. Substitution may be limited to the presence or absence of one variable and large changes in some other variable.

Because of differences in individual preference systems, a given combination of, say, beginning earnings and occupational status will give rise to different levels of occupational satisfaction and to different marginal rates of substitution. Individual A may attach a high total utility to the level of beginning earnings and a low total utility to the level of occupational status. On the other hand, individual B may attach a high total utility to both. As a result, total satisfaction will be different.

Moreover, individual A may attach a low marginal utility to the level of beginning earnings and a high marginal utility to the level of occupational status, whereas B may attach a high marginal utility to beginning earnings and a low marginal utility to the level of occupational status. This means that A's marginal rate of substitution of occupational status for beginning earnings will be larger than that of B's. As shown later, such differences can cause variation in individual occupational plans.

Resources and Entrance Requirements

At the time occupational plans are considered, the individual has certain resources at his disposal. These include, among other things, his intellectual and physical capacities, his acquired knowledge and skills, his capacity for leadership, certain personality characteristics, his financial net worth, his borrowing capacity and perhaps some financial resources from his family. Some of these resources may be transformed into other resources by a process of investment. For example, financial resources may be transformed into acquired knowledge and skills by investment in education and training. In this way, the quantity and/or quality of resources that an individual brings to a job can be increased or made more productive.

Under given conditions, the optimum amount and form of investment is likely to vary among occupations. Total investment may be large in some occupations and small in others. In some occupations, a large proportion of total investment may be in the form of training. In others, a relatively large proportion may be in the form of tools and other aids to production. Entrance requirements may place a lower limit on total investment in some occupations. Also, they may largely determine the form of investment. However, the optimum level of investment in a given occupation may be larger than that needed to meet entrance requirements, depending on costs and returns.

Furthermore, various occupations are likely to have different entrance requirements. There may be minimum requirements, more or less exact, with respect to intellectual and/or physical capacities, acquired knowledge and skills, personality characteristics, leadership, tools and other aids to production and so forth. Some of these may be determined by technological and market conditions. Others may be imposed by law. Still others may be established by the occupational group's membership.

In general, the number of possible occupational plans a person may consider is likely to be determined both by his own resources and by the entrance requirements of different occupations. An occupation will be open to the individual if his resources are sufficient, when optimally utilized, to meet entrance requirements. Some occupations may be closed because the individual cannot satisfy one or more of the entrance requirements. Medicine is not a possible alternative for the individual unable to finance the investment in training needed to become a medical doctor. Likewise, a person who is unable to cope with higher mathematics cannot realistically expect to become a professional engineer.

In practice, the number of alternative occupations considered by the individual is almost certain to be smaller than the number open to him. For one thing, an individual's knowledge of alternative occupations and available resources may be extremely limited. Even when knowledge is quite adequate, there will be pressure to reduce the number to a manageable level. On first examination, some possible alternatives may be dropped from consideration because the chances of satisfying entrance requirements are judged to be small. Or, the level of occupational satisfaction associated with some occupations may be considered unacceptable. Here, however, attention is focused on possibilities.

Differential Occupational Opportunities

Given the individual's occupational satisfaction function and the resources at his disposal, each possible occupation presents a potential opportunity to achieve some level of occupational satisfaction. Under given conditions, however, different occupations provide different opportunities.

For each possible occupation, there is some optimum way of utilizing the individual's resources. When resources are utilized in this way, occupational satisfaction is at the highest level permitted by the particular occupation. Among other things, this means an optimum amount and pattern of investment for each occupation, including investment in training, tools and other aids to production.

Under given employment conditions, the optimum utilization of the individual's resources in each possible occupation implies some set of values for the variables entering his occupational satisfaction function. In general, one or more of the values in each set will be unique. For example, teaching may give a high level of occupational status and a low level of beginning earnings. Bricklaying, on the other hand, may give a moderate level of occupational status and a moderate level of beginning earnings. Or, farming may provide

a high level of freedom and responsibility to make decisions and a low level of earning stability, whereas clerical work may give a high level of earning stability and a low level of freedom and responsibility to make decisions.

This is illustrated in fig. 2. In the upper diagram, the points labeled engineering, farming, teaching and truck driving represent hypothetical combinations of occupational status and beginning earnings which the individual would obtain with the optimum use of his resources in these employments. Here it is assumed that teaching would give the highest level of occupational status and that engineering would provide the highest level of beginning earnings. In the lower diagram, the points represent various combinations of earning stability and freedom and responsibility to make decisions. In this case, it is assumed: that farming provides the greatest freedom and responsibility to make decisions and the lowest level of income stability; that teaching gives the highest earning
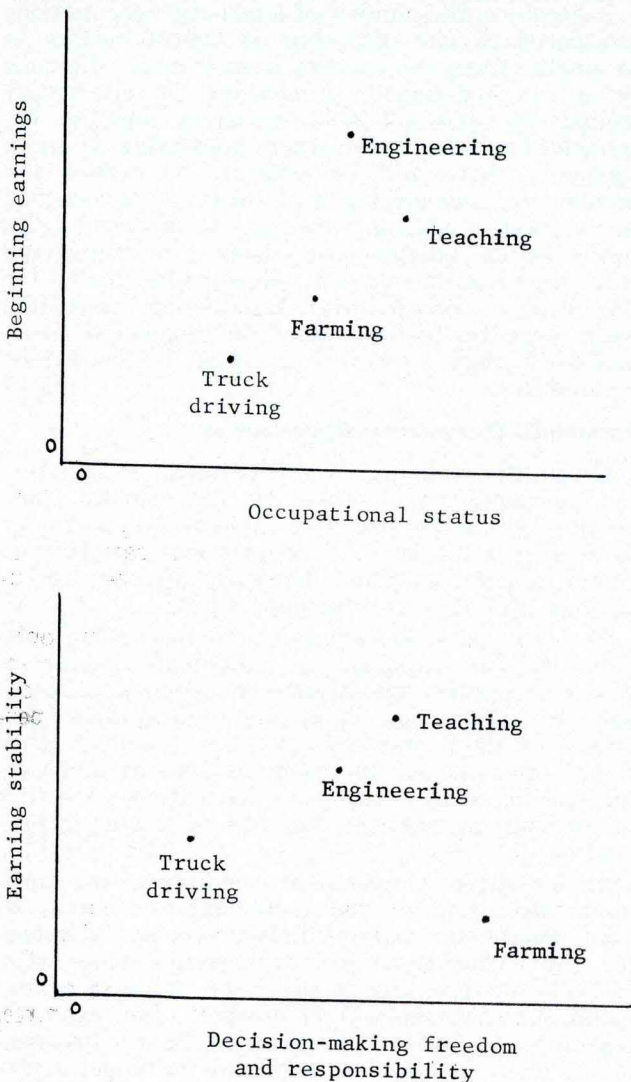
stability; and that truck driving gives the least amount of freedom and responsibility to make decisions.

Occupational differences in the values of the variables entering the occupational satisfaction function reflect the differential effects of numerous psychological, physical, technological, economic and social factors. Some operate via the individual; others operate via the occupation. The levels of variables related to income are likely to be associated with both the individual's resources and the specific occupation in which the resources may be employed. On the other hand, nonincome variables are likely to be influenced more by strictly occupational factors.

The effective input which an individual brings to a particular job depends on such things as his intellectual and physical capacities, his knowledge and skills, his initiative and certain other personality characteristics. These are affected by various physical, psychological and sociological factors, including the amount and kind of education, technical training and experience. Some of these, in turn, are influenced by hereditary factors; others are affected by cultural and economic factors.

Even with an optimum amount and pattern of investment for each possible occupation, there are likely to be important differences in the individual's performance in various occupations. Some of his resources may be better suited to some occupations than others. For example, psychological and physical attributes are not likely to be equally well adapted to all occupations. These attributes are likely to provide a comparative advantage in some jobs. This will be reflected in differences in the quantity and/or quality of service that can be performed.

Occupational differences in the levels of the variables entering the occupational satisfaction function also may arise because of variation in the relative scarcity of different occupational services. The prices of some services may be relatively high because of a large demand, a small competitive supply offered by other individuals or both. On the other hand, the prices of other services may be relatively low because of a small demand and/or a large competitive supply. Temporal and intertemporal differences in relative scarcity give rise to occupational differences in beginning earnings and rates of increase in earnings. These differences also influence the levels of fringe benefits in various occupations.

Differences in the relative scarcity of various occupational services are affected by a complex set of technological, economic and social factors. Demands are influenced by such things as population, national income and its distribution, consumer preferences, opportunities to substitute other inputs, the prices of these inputs and various institutional arrangements for administering resources. Supplies of competing services are affected by past income-earning opportunities in the occupation and by various restrictions on occupational entry and departure.

Fig. 2. **Hypothetical values of occupational satisfaction variables associated with selected occupations.**

Likewise, a complex set of factors determine occupational differences in the levels of the non-income variables. Such things as differences in technology, economic organization and bureaucracy contribute to occupational differences in freedom and responsibility to make decisions, the combination of mental and physical exertion, degree of job confinement, social status and other variables that may enter the occupational satisfaction function.

Optimum Plan

Given the values of the satisfaction variables associated with each possible occupational plan, the optimum plan is that plan which maximizes the occupational satisfaction function. Under certain conditions, there may be more than one optimum plan, since two or more plans may provide the same level of occupational satisfaction. In this case, the individual presumably would be indifferent in choosing between such plans.

The selection of the optimum plan is illustrated in fig. 3, where it again is assumed that the individual's satisfaction function contains only two variables—beginning earnings and occupational status. This figure combines the elements presented earlier in figs. 1 and 2. Five different occupational plans are assumed possible. When the individual's resources are utilized in an optimum way for each occupation, the resulting combinations of beginning earnings and occupational status are represented by the points labeled engineering, teaching, farming, clerical and truck driving. A portion of this particular individual's preference map for beginning earnings and occupational status is represented by the indifference curves C_1, C_2, C_3, C_4 and C_5.
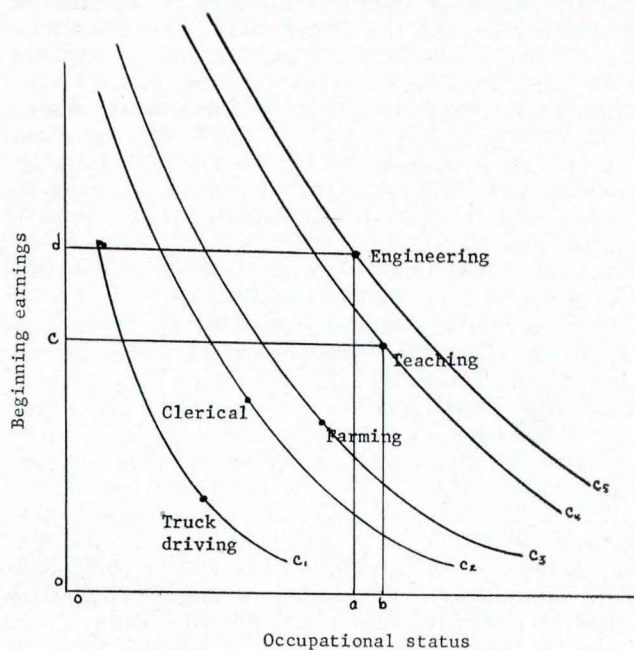
Fig. 3. Determination of the optimum occupational plan under hypothetical conditions.

In this illustration, it is assumed that teaching gives the highest level of occupational status and that engineering gives the highest level of beginning earnings. Farming, clerical work and truck driving are assumed to provide lower levels of both beginning earnings and occupational status. Under these assumptions, teaching is the preferred occupational plan on the basis of occupational status, whereas engineering is the preferred plan on the basis of beginning earnings. While the individual would prefer to have the level of occupational status associated with teaching and the level of beginning earnings associated with engineering, possible alternatives do not permit this. He must choose between a collection with more occupational status and less beginning earnings and one with more beginning earnings and less occupational status.

In selecting engineering over teaching, he would lose **ab** of occupational status and gain **cd** of beginning earnings. In selecting teaching over engineering, he would gain **ab** of occupational status and lose **cd** of beginning earnings. Does he place a higher value on the difference in occupational status or on the difference in beginning earnings?

According to the individual's preference map, he attaches a higher value to the difference in beginning earnings than to the difference in occupational status. For in moving from the point labeled teaching to the point labeled engineering, he also moves to a higher indifference curve, representing a higher level of occupational satisfaction. In other words, the increase in occupational satisfaction from having an additional **cd** of beginning earnings is greater than the decrease in satisfaction from having **ab** less of occupational status. Therefore, engineering is his optimum occupational plan.

Variation in Occupational Plans

Why may the occupational plans of individuals differ? The preceding analysis points to three broad factors. It suggests that plans may differ because of individual differences in (1) occupational satisfaction functions (preference systems), (2) available resources and (3) the results expected from employing given resources in various occupations. These factors are hypothesized to be among the primary determinants of an occupational plan. Behind these primary determinants, of course, lie numerous secondary factors that cause differences in the primary factors. The secondary factors exert their influence on occupational plans indirectly by affecting the primary determinants.

It will be shown, for example, that a difference in preference systems may induce a difference in occupational plans. Preference systems, however, are the products of socialization experiences. Differences in family, school, church and community environments contribute to differences in preference systems. The resulting differences in preference systems may cause differences in occupational plans. Thus, a complete explanation of variation in individual occupational plans requires an explanation of the variations in the primary determinants of these plans. In this study, the main focus is on the primary determinants.

Effect of a Difference in the Occupational Satisfaction Function

The effect of a difference in the occupational satisfaction function on occupational choices is shown in fig. 4. Here, it is assumed that the resources available and the anticipated results from employing them in particular occupations are identical for two individuals—A and B. Thus, the same occupations (farming and engineering) and the same combinations of variables (beginning earnings and decision-making freedom and responsibility) are applicable to both A and B. These are represented by the points labeled farming and engineering.

It also is assumed that the occupational satisfaction functions of A and B contain only two variables—beginning earnings and decision-making freedom and responsibility. However, the relationships between these variables and the level of occupational welfare are assumed to be different. C_1 and C_2 represent a portion of the preference map of A, and C'_1 and C'_2 represent a portion of B's map. These curves have been drawn so that the importance attached to beginning earnings in relation to decision-making freedom and responsibility is greater for A than for B. In other words, the ratios of the marginal utility of beginning earnings to the marginal utility of decision-making freedom and responsibility (the marginal rates of substitution of decision-making freedom and responsibility for beginning earnings) are higher for A than for B.

Under these assumptions, the optimum occupational plan for A is engineering and that for B is farming. Individual A values the difference in beginning earnings between engineering and farming more highly than the difference in decision-making freedom and responsibility. On the other hand, B values the difference in decision-making freedom and responsibility more highly than the difference in beginning earnings. As a result of the difference in the occupational satisfaction function, A and B would plan to enter different occupations.

Differences in occupational satisfaction functions may be why some farm boys plan to farm and others plan to enter nonfarm occupations. Boys planning to farm may have satisfaction functions that place a large weight on certain variables which have a relatively high level in farming and a small weight on other variables which have a relatively low level in farming. In contrast, boys planning nonfarm occupations may have satisfaction functions that place a small weight on certain variables which have a relatively high level in farming and a large weight on other variables which have a relatively high level in nonfarm occupations. One of the general hypotheses of this study is that **boys who plan to farm have different satisfaction functions than boys who plan nonfarm occupations.** It is considered in more detail in a later section.

Effect of a Difference in Available Resources

Resource differences may involve such things as intellectual and physical attributes, acquired skills and knowledge, personality characteristics and personal and family financial status. There are a number of ways whereby such differences may induce different occupational plans. Only two are mentioned here for illustrative purposes.

Perhaps the simplest case is where resource differences give rise to different occupational possibilities. For example, A's resources may be such that when optimally utilized he could satisfy entrance requirements in a large number of occupations, including many with highly restrictive requirements. On the other hand, B's resources may be such that he could meet entrance requirements in comparatively few occupations. Occupations requiring a large input of financial resources or an unusually high level of mentality, or both, may be closed to him. As a result, A's optimum plan may involve an occupation that is not open to B, even though both individuals may have similar occupational satisfaction functions and similar expectations about the consequences of employing given resources in various occupations.

Suppose that the same occupations are open to A and B and that they have identical occupational satisfaction functions and similar expectations about the consequences of employing given resources in these occupations. Still, they may have different optimum plans because of different resource pecularities. This is illustrated in fig. 5 where it is assumed that the psychological and physical resources at the disposal of A and B are not equally suited to engineering and farming. A has a comparative advantage in engineering, and B has a comparative advantage in farming. In this case, the occupational satisfaction functions of both individuals are assumed to contain the variables beginning earnings and the rate of increase

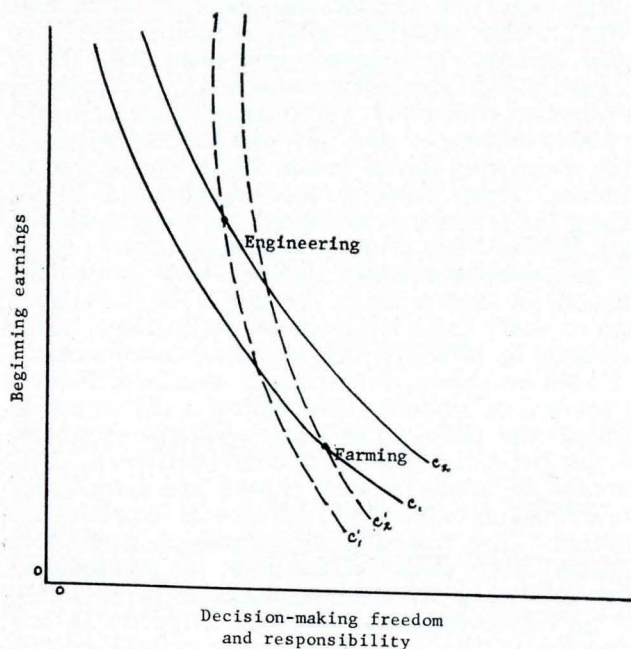**Fig. 4. Hypothetical effect of a difference in the occupational satisfaction functions on the optimum occupational plan.**
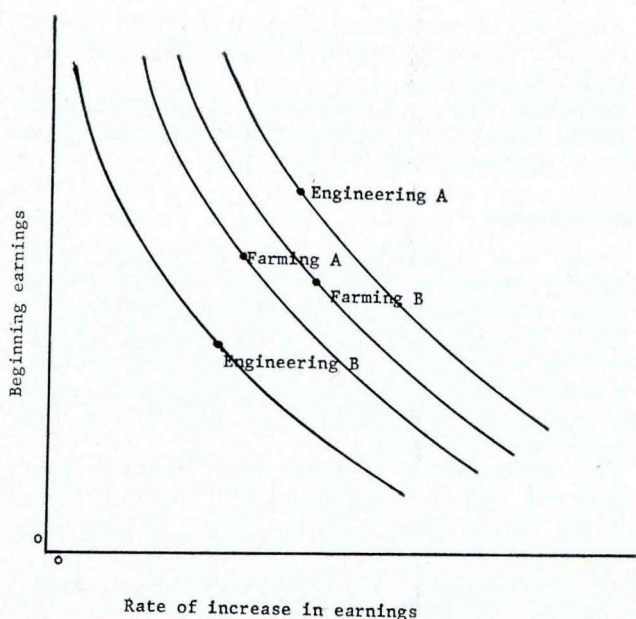
Fig. 5. Hypothetical effect of a difference in resources on the optimum occupational plan.

in earnings. With these assumptions, A's optimum plan is engineering and B's optimum plan is farming. Thus, resource differences may cause a difference in occupational plans.

This suggests a second general hypothesis; namely, **that boys who plan to farm have different resource characteristics than boys who plan nonfarm occupations.** Largely because of data limitations, however, only one aspect of this general hypothesis receives special attention in this study. This aspect concerns differences in financial resources.

Farming is neither the most difficult nor the easiest occupation to enter. There are no highly restrictive training requirements as in many professions. Entry is possible by persons representing a wide range of skills, knowledge and social and personality characteristics. However, technological and market conditions, as well as institutional arrangements, do give rise to important, although variable, financial obstacles.

To farm, an individual needs some amount of land. The ability to acquire needed land is closely related to the financial position of the individual or that of his family. This is obviously true if land is acquired by purchase, gift or inheritance. It is also true, however, if land is rented, because landlords generally prefer tenants with much capital to those with little capital, if other things are equal. In the competition for rented land, capital position is an important factor determining the distribution of this land among prospective tenants.

While an individual could enter farming with very little land, relative financial success is usually correlated with the size of the land base. Under given price conditions, the return which the prospective operator can expect from his labor-management input depends to a considerable extent on the effective input of land and capital. Within limits,

the more land and capital he can combine with his labor and management the larger will be the return. Thus, the financial resources available to the individual partly determine his capacity to acquire land and capital inputs and these, in turn, partly determine the return he can expect from his labor and management.

Of course, adequate financial resources are essential for entry and/or success in many nonfarm occupations, too. Some require long periods of heavy expenditure for training or large outlays for tools or other aids to production. There are also, however, many nonfarm occupations where entry and/or labor earnings are not as heavily dependent on large financial outlays as in farming. In many of these occupations, tools and other aids to production are furnished not by the individual employee but by the owners of the firm. In some, part of the investment in training also may be company financed.

As a consequence, it might be expected that the occupational plans of farm boys would be influenced by the availability of financial resources. Other things being equal, boys with extremely limited financial resources might be expected to chose farming less frequently than boys with more abundant financial resources. However, the relation of financial resources to occupational plans is complicated by a number of other factors, such as the relative importance of family and personal resources, the role of the parents in the boy's occupational decision-making process and the claims of brothers and sisters on family resources.

Effect of a Difference in Anticipated Results From Employing Given Resources

A difference in occupational plans may also arise because individuals expect different results from employing given resources in various occupations. Suppose A and B have identical occupational satisfaction functions and the same resources. Assume that A expects engineering to provide the highest level of beginning earnings and the highest rate of increase in earnings, whereas B expects farming to give the highest beginning earnings and the highest rate of increase in earnings. This situation is presented in fig. 6.

Under these assumptions, A's optimum plan is engineering, and B's optimum plan is farming. On the basis of A's expectations, engineering will provide a higher level of occupational satisfaction than farming. But on the basis of B's expectations, farming will provide a higher level of occupational satisfaction than engineering. Of course, both sets of expectations cannot be realized inasmuch as they are inconsistent. If, **ex post,** A's expectations are realized, B's expectations will be in error. On the other hand, if B's expectations are realized, A's expectations will be wrong.

Differences in the anticipated results of employing given resources in different occupations may result from differences in information or in the interpretation of the same information. Differences in information may also influence the range of oc-
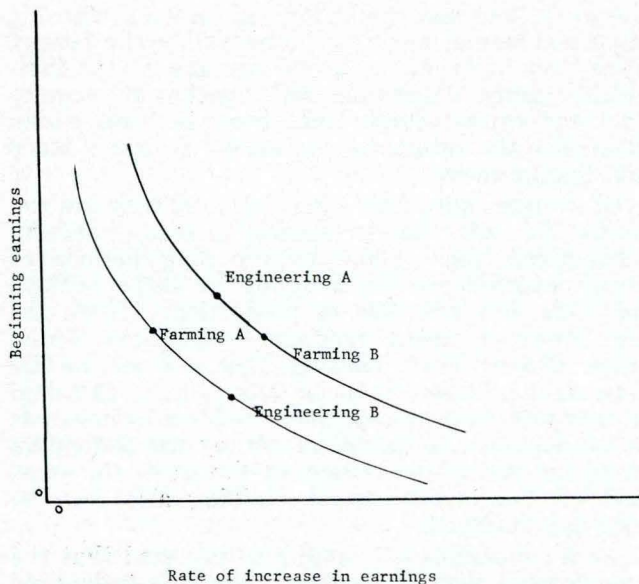
Fig. 6. Hypothetical effect of a difference in anticipated results from employment of resources in farming and engineering on the optimum plan.

cupational alternatives considered by individuals and, thus, induce a difference in plans.

A difference in plans, likewise, may arise if individuals react differently to the uncertainties associated with their expectations. For example, suppose A and B both expect a higher modal value and a greater dispersion for beginning earnings in farming than in teaching. A may select teaching because he is less willing to run the risk of a departure from the modal value, whereas B may select farming because he is more willing to run this risk.

These considerations suggest a third and final general hypothesis for this study—**that boys planning to farm have more optimistic expectations about the relative results of employing resources in farming than boys planning nonfarm occupations.** The evidence bearing on this hypothesis is examined in a later section.

EMPIRICAL BASIS OF THE STUDY

All farm boys with senior classification in Iowa high schools located in towns or communities of less than 25,000 population were included in the universe sampled. County superintendents and high school superintendents supplied data for the high schools in these towns. The data compiled were: (1) the number of students in high school, (2) the number of rural farm children in high school and (3) the number of farm boys in the senior class. After this information was gathered for all the high schools in the state, each high school was located on a map, with the number of senior farm boys in each high school designated.

Definition of Terms

Farm: A tract of land on which 25 crop-acres were harvested annually.

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Farm boy: A senior high school boy who lived as a member of the household of the family operating a farm as defined.

Sampling unit: A collection of geographically adjacent high schools which supplied an accumulated total of approximately 50 farm boys.

Sample Design

Iowa was subdivided into 10 strata, each stratum consisting of a sufficient number of high schools to include approximately 600 farm boys.

Each stratum was further subdivided into 12 sampling units, with each sampling unit containing a sufficient number of high schools to supply approximately 50 farm boys. A total of 116 high schools were involved.

The 12 sampling units in each stratum were numbered, and two sampling units were drawn at random within each stratum. Thus, 20 sampling units were drawn from a possible 120, giving a 16.6-percent sample. The final sample was planned to contain approximately 1,000 senior farm boys. The location of the strata and sampling units is shown in fig. 7.

Questionnaire

The purpose of the questionnaire was to obtain, as accurately and as completely as possible, selected information relating to the occupational plans of Iowa farm boys. The schedule was divided into six sections. The initial section was designed to yield data on the boy's family background and the boy's employment experience, school activities and educational plans. Information on the boy's occupational plans and the persons and events he associated with his plans was obtained in section B. Section C attempted to discover the boy's judgements regarding current and future income opportunities in farming and nonfarm occupations. Data relating to the resource characteristics of the boy and his family were obtained in section D. Section E contained questions concerning the boy's knowledge of the characteristics of various occupations. And section F was devoted to information on occupational and community preferences.

Fig. 7. Location of strata and sampling units.

Administering the Questionnaire

Field operations were performed by experienced interviewers after a 1-day training session on administering the questionnaire. An appointment schedule was arranged with school administrators, and the 116 schools were visited by eight interviewers within a 2-week period. The school administrators cooperated in having the boys assembled in a room to complete the question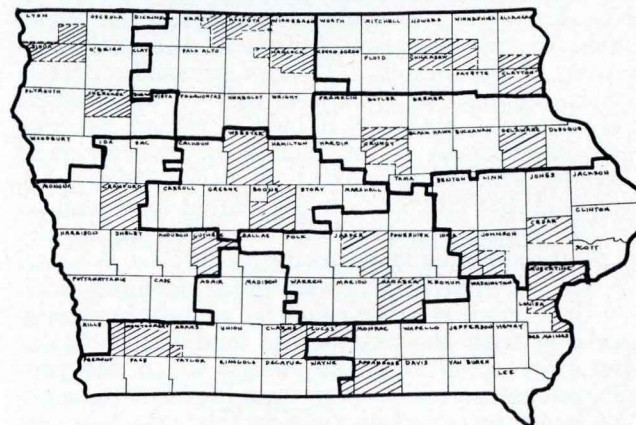naire. After receiving brief instructions from the interviewer, the boys were allowed approximately 1 hour to complete the schedule. When the questionnaires were completed, the interviewers edited them immediately to assure completion. Questionnaires were collected according to schedule in all but approximately 10 schools. In these cases, the collection of data was disrupted by a severe snow storm. Questionnaires were left with a school official who administered them to the absentees at a later date and forwarded them to the interviewer. No attempt was made to obtain information from boys who missed school because of illness on the day the questionnaire was administered.

Each interviewer reported the expected number of farm boys at the school, the actual number of farm boys who completed questionnaires and the reasons for any discrepancy. A total of 975 farm boys were expected in the 20 sampling units based on preliminary estimates supplied by county school superintendents. The interviewers found that 940 farm boys attended senior class in the schools located within the 20 sampling units. Of this number, 932 farm boys were given the questionnaire. After editing, 62 questionnaires were discarded because of incompleteness or failure to meet the definitions of a farm boy adopted in this study. This reduced the number of completed questionnaires retained for use in the study to 870.

The methods used in estimating group means, differences between group means and variances of differences between group means are given in the Appendix.[9]

DESCRIPTION OF OCCUPATIONAL PLANS

In this section, the occupational plans of the boys are described. Subsequent sections examine the factors that may explain these plans.

Nearly two-fifths of the senior farm boys in Iowa nonmetropolitan high schools in the spring of 1959 were planning to become farmers. Of the 870 boys completing usable questionnaries, 330, or 37.9 percent, indicated they planned to farm as a life career.[10] Nonfarm careers were planned by 506, or 58.2 percent. Slightly more than 1 percent

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[9] Resources were not sufficient to make tests of significance in all cases where these appeared to be desirable. A sample of comparisons covering a range of differences was tested to provide evidence of the variation in sampling errors and their relation to the size of group differences. In cases where a test was not made but the differences appeared to be significant on the basis of the sample information, a statement of probable significance is made in the text.

[10] In subsequent discussion, boys who planned to farm are frequently referred to as "farm-plan boys" and boys who planned nonfarm careers are referred to as "nonfarm-plan boys."

Table 2. Occupational plans of Iowa high school senior farm boys.

Occupational plan	Number	Percent
Plan to farm	330	37.9
Plan a nonfarm job	506	58.2
Plan a combination of farm and nonfarm jobs	10	1.2
No occupational plans	24	2.7
Total	870	100.0

Table 3. Distribution of nonfarm occupational plans of farm boys.

Occupational plan	Number	Percent
Professions	216	42.7
Craftsmen	110	21.7
Military career	23	4.5
Clerical	23	4.5
Managers and officials	19	3.8
Laborers	15	3.0
Operatives	14	2.8
Service	9	1.8
Sales	3	0.6
Nonfarm unspecified	74	14.6
Total	506	100.0

were expecting to combine farming with a nonfarm job such as mechanic or truck driver. Only 2.7 percent of the group said that they had not given any thought to a life career (table 2).

A wide variety of careers were planned by the 58.2 percent expecting to enter nonfarm occupations. Nearly 43 percent of this group were planning a career in one of the professions, such as law, medicine, engineering or teaching. About 22 percent said they intended to become craftsmen. The occupations most frequently mentioned in this category were carpenter, electrician, mechanic, machinist and radio-TV repairman. Careers in the clerical fields were planned by less than 5 percent. The same number were planning military careers. Almost 15 percent said they were definitely planning a nonfarm career but had not selected a specific occupation (table 3).

Uncertainty of Plans

Occupational plans, like other plans, may be held with varying degrees of confidence. Each boy was asked to indicate the degree of uncertainty that he attached to his occupational plan. Four categories were listed on the questionnaire: (1) "certain," (2) "fairly certain," (3) "fairly uncertain" and (4) "very uncertain."

Of the 870 boys providing usable questionnaires, 801 gave information on plan uncertainty. Twenty-four boys had no specific occupational plans, and 45 boys with occupational plans gave no information on this item. All of the latter group were boys planning nonfarm careers.

About 13 percent of the group providing information on uncertainty considered their occupational plans "certain." Slightly more than 58 percent viewed their plans as "fairly certain." About 22 percent indicated their plans were "fairly uncertain," and 7 percent considered their plans "very uncertain" (table 4).

Boys planning to farm were more certain about their occupational plans than boys planning nonfarm careers. Of the 330 boys planning to farm, almost four-fifths of the group viewed their plans as either "certain" or "fairly certain." However, only two-thirds of the boys planning nonfarm jobs indicated that their plans were this certain.

Table 4. Degree of uncertainty attached to occupational plans by farm boys, classified by occupational plan.

Plan uncertainty class	Occupational plan							
	Planning to farm		Planning nonfarm job		Farm-nonfarm combination		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Certain	59	17.8	44	9.5	1	10.0	104	13.0
Fairly certain	202	61.2	239	56.2	7	70.0	468	58.4
Fairly uncertain	51	15.4	121	26.2	2	20.0	174	21.7
Very uncertain	18	5.4	37	8.1	0	0.0	55	6.9
Total	330	100.0	461	100.0	10	100.0	801	100.0

Time Plan Formed

When did the respondents formulate their occupational plans? Of the 836 boys specifying farm or nonfarm occupational plans, 768 provided information on the time their plans were formed. About 40 percent of this group stated they first decided on their plan during the twelfth grade. Plans were formed by 29 percent during the eleventh grade and by 11 percent during the tenth grade. Nearly 20 percent said they arrived at their decision before entering the tenth grade.

Boys planning to farm formulated their occupational plans earlier than boys planning nonfarm careers. One-third of the boys planning to farm made their plans to farm before entering the tenth grade, whereas only 9 percent of the boys planning nonfarm jobs reached their decisions that early. About four-fifths of the boys planning nonfarm careers formulated their plans in either the eleventh or twelfth grades in contrast to only 54 percent of the boys planning to farm (table 5).

For both groups, there was an apparent direct relationship between the uncertainty of occupational plans and the length of time plans were held. Of the boys planning to farm who considered their plans as "certain," 58 percent had formulated their plans before entering the tenth grade. Only 22 percent of this group had arrived at their plans during the eleventh and twelfth grades. On the other hand, 89 percent of the farm-plan boys in the "very uncertain" group made their plans during the eleventh and twelfth grades. Only 1 of the 18 boys in this group had formulated his occupational plan before entering the tenth grade.

A similar tendency was found among boys planning nonfarm careers. About 94 percent of the boys in this group who considered their occupational plans "very uncertain" made their plans during the eleventh and twelfth grades. On the other hand only 72 percent of those who viewed their plans as "certain" made them in that period. About 18 percent of the boys whose plans were

"certain" formulated them before entering the tenth grade, whereas only 3 percent of the "very uncertain" group had arrived at their plans this early.

CHARACTERISTICS DIFFERENTIATING BOYS PLANNING TO FARM AND BOYS PLANNING NONFARM OCCUPATIONS

The application of the theory of choice to the problem of occupational planning provided three general hypotheses to explain differences in the occupational plans of farm boys. These involved individual differences in (1) occupational satisfaction functions (preference systems), (2) available resources and (3) the results expected from employing given resources in farm and nonfarm occupations.

In this section, various operational hypotheses derived from these general hypotheses are evaluated on the basis of evidence obtained from the Iowa sample of high school senior farm boys. Preference, resource and income expectation characteristics of boys planning to farm are compared with those of boys planning nonfarm jobs to determine whether differences exist and whether these differences are consistent with the hypotheses formulated.

Occupational Preferences

The general hypothesis relating to differences in occupational preferences was as follows: Boys who plan to farm attach a larger weight (higher value) to variables that have a relatively high level in farming and a smaller weight (lower value) to variables that have a relatively low level in farming than do boys who plan nonfarm careers. The evidence bearing on this hypothesis was obtained in response to four sets of questions on occupation-related preferences. One set, the most comprehensive, attempted to measure the nonincome preferences for farming and nonfarm employment. Two

Table 5. Time occupational plans were formulated by farm boys, classified by occupational plan and plan uncertainty.

Occupational plan and time formulated	Plan uncertainty class									
	Certain		Fairly certain		Fairly uncertain		Very uncertain		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Planning to farm										
Grade 12	9	15.2	54	27.0	27	54.0	15	83.2	105	32.1
Grade 11	4	6.8	55	27.5	13	26.0	1	5.6	73	22.3
Grade 10	12	20.4	25	12.5	2	4.0	1	5.6	40	12.2
Before grade 10	34	57.6	66	33.0	8	16.0	1	5.6	109	33.4
Total	59	100.0	200	100.0	50	100.0	18	100.0	327	100.0
Planning nonfarm jobs										
Grade 12	12	30.0	108	41.6	65	59.6	19	59.4	204	46.2
Grade 11	17	42.5	88	33.8	34	31.2	11	34.4	150	33.9
Grade 10	4	10.0	36	13.8	7	6.4	1	3.1	48	11.1
Before grade 10	7	17.5	28	10.8	3	2.8	1	3.1	39	8.8
Total	40	100.0	260	100.0	109	100.0	32	100.0	441	100.0

sets of questions involved preferences for selected working conditions, and the fourth set related to community preferences.

If the amount and time distribution of income to be earned in a job were the only determinants of the level of occupational satisfaction, individuals would chose among alternative occupational plans entirely on the basis of income characteristics. Individuals then would be indifferent between occupations with the same income attributes. It is widely recognized, however, that occupational choices also are influenced by other factors. Individual occupational satisfaction functions contain both income and nonincome variables. If the nonincome characteristics of farming and nonfarm occupations are different, individual differences in nonincome preferences may produce different occupational plans.

Nonincome Preferences

It is hypothesized that boys who plan to farm tend to value the nonincome characteristics associated with farming more highly than those associated with nonfarm occupations. On the other hand, boys who plan nonfarm careers tend to value the nonincome characteristics associated with nonfarm occupations more highly than those associated with farming. Therefore, on nonincome grounds, a larger proportion of farm-plan boys (the boys planning to farm) prefer farming, and a larger proportion of nonfarm-plan boys (the boys planning nonfarm careers) prefer nonfarm occupations.

Support for this hypothesis is provided by the responses to a series of questions designed to measure the nonincome preferences of farm boys for farm and nonfarm occupations. The initial question in this series relates to job preferences under conditions of equal income. If an individual prefers job A to job B when both jobs have similar income characteristics, it may be assumed that he anticipates more satisfaction from the nonincome characteristics of job A than from those of job B.

Each boy was asked the following question:[11] "Suppose your income was $4,000 per year in both farming and your best nonfarm job opportunity. Which would you prefer? Farming——Best nonfarm job——Doesn't matter——." The results are summarized in table 6.

Of the 836 boys with occupational plans, 434, or 52 percent, preferred farming; 333, or 40 percent, preferred the best nonfarm job; and 69, or 8 percent, indicated it did not matter. Apparently, about half of the boys valued the nonincome characteristics of farming more highly than those of nonfarm employment, whereas the other half either valued the nonincome characteristics of nonfarm employment more highly than those of farming or attached about the same value to both.

Table 6. Occupational preferences assuming $4,000 annual income in both farming and best nonfarm job, classified by occupational plan.

Preference at equal incomes	Boys planning to farm		Boys planning nonfarm jobs		Total	
	Number	Percent	Number	Percent	Number	Percent
Farming	294	89	140	28	434	52
Best nonfarm job	17	5	316	62	333	40
Doesn't matter....	19	6	50	10	69	8
Total	330	100	506	100	836	100

A breakdown of the responses by occupational plan reveals large differences. Of the 330 boys planning to farm, 294, or 89 percent, preferred farming with equal incomes of $4,000 per year. Only 5 percent of this group preferred nonfarm employment, and 6 percent said it did not matter. In sharp contrast, only 140, or 28 percent, of the 506 boys planning nonfarm occupations preferred farming at equal incomes, whereas 62 percent preferred the best nonfarm job, and 10 percent said it did not matter.

Of the 434 boys specifying an occupation who preferred to farm at equal incomes, 68 percent were planning to farm, and 32 percent were planning nonfarm jobs. Nearly 95 percent of the 333 boys specifying an occupation who preferred nonfarm employment at equal incomes were planning to enter nonfarm occupations. Only 5 percent of this group were planning to farm. Thus, a much larger proportion of the group who preferred to farm at equal incomes were planning an occupation other than farming compared with the group who preferred nonfarm employment. Apparently, this difference reflected more favorable income expectations in nonfarm occupations by a larger proportion of the boys who preferred to farm at equal incomes.

If only those boys who indicated they were "certain" or "fairly certain" of their occupational plans are considered, the differences are increased. Of the 214 farm-plan boys who were "certain" or "fairly certain" of their plans, 88 percent preferred farming at equal incomes, whereas 71 percent of the 297 nonfarm-plan boys who fell in these uncertainty classes preferred nonfarm employment at equal incomes.

Strictly speaking, these differences apply only at the income level of $4,000 per year. They would tend to vary with the level of income if some nonincome characteristics were related to the level of income and these relationships were different in farm and nonfarm employments. It appears, however, that many nonincome characteristics are not closely associated with the level of income and those characteristics that are may have similar relationships in farm and nonfarm employments.

If an individual prefers job A to job B at equal incomes, he may still prefer A to B at some sacrifice of income. The maximum amount of income he would be willing to sacrifice to have job A is a measure of the differential importance he attaches to the nonincome characteristics of A over those of B. This idea was used in attempting to measure the intensity of the nonincome job preferences of farm boys.

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[11] The question was preceded by the following statement: "In the following question, we would like to have you indicate your preference between farming as an occupation and what you consider to be your best nonfarm opportunity. Farm income includes the value of farmhouse rent and farm products consumed in the home. Consider incomes in both jobs (farming and nonfarm work) to be equally steady over the years."

Following the question about job preferences at equal incomes, the boys were asked a series of questions involving increasing income differentials to determine the size of the differential that would cause a shift in job preference. Boys who preferred farming at equal incomes of $4,000 per year were asked a series of questions in which the income in their best nonfarm job increased by $500 increments up to a maximum differential of $2,500. The same questions were asked of boys who preferred nonfarm jobs at equal incomes, except that the income in farming was increased by $500 increments.

The maximum income differential of $2,500, however, was too small to cause all boys to shift their job preferences. Nearly 16 percent of the 836 boys specifying occupational plans indicated that, at an income differential of $2,500, they would still prefer the jobs they selected under the condition of equal incomes. Sixty-nine boys who preferred farming at equal incomes said they would still farm even if they could earn $2,500 more in a nonfarm job. Exactly the same number of boys who preferred nonfarm jobs at equal incomes indicated that they would prefer nonfarm jobs even if their income in farming were $2,500 greater.

These results indicate that Iowa farm boys have strong nonincome job preferences. On the average, boys who preferred farming at equal incomes reported that they were willing to forego about $1,700 of annual income before they would shift their job preferences from farming to nonfarm employment (table 7). This figure assumes that boys who still preferred farming at a differential of $2,500 in favor of best nonfarm job would have shifted their preferences at a differential of $3,000. Roughly speaking, an income of $5,700 in nonfarm employment was needed, on the average, to compensate these boys for the differential value attached to the nonincome characteristics associated with farming at an income of $4,000.

The intensity of the nonincome preferences of the 334 boys who preferred nonfarm employment at equal incomes was about as great for nonfarm jobs. These boys indicated a willingness to forego about $1,750 of annual income before they would shift their job preferences from nonfarm work to farming. Again in rough terms, an income of $5,750 in farming was needed, on the average, to compensate these boys for the differential value that they attached to the nonincome characteristics of nonfarm employment at an income of $4,000.

As might be expected, nonincome preference intensities differed for boys planning to farm and boys planning nonfarm jobs within each job preference group based on equal incomes. Among boys who preferred to farm at equal incomes, those who planned to farm had stronger nonincome preferences than those who planned nonfarm jobs. The mean income differential needed to shift job preferences from farming to nonfarm employment was about $1,900 for boys planning to farm compared with about $1,280 for boys planning nonfarm jobs. Apparently, the boys planning nonfarm jobs expected to earn, on the average, at least $1,280 more in nonfarm employment than in farming.

A similar difference was found among boys who preferred nonfarm jobs at equal incomes. The mean income differential needed to shift job preferences from nonfarm employment to farming was $1,784 for boys planning nonfarm jobs and $1,270 for boys planning to farm. Among boys who preferred nonfarm employment at equal incomes, nonincome preferences for nonfarm jobs were stronger for boys who planned nonfarm occupations than for those who planned to farm. Apparently, the boys planning to farm expected to earn, on the average, at least $1,270 more in farming than in nonfarm employment.

Table 8 shows the variation in farm and nonfarm job preferences for the different income situations. These findings point to strong but widely different nonincome job preferences among Iowa farm boys. The fact that only about half of the group indicated a clear preference for farming at equal incomes suggests that the nonincome preference pattern was not heavily weighted toward farming. Apparently, about 40 percent of the boys would seek nonfarm jobs even if income opportunities in farming were as attractive as in nonfarm employments. Moreover, the nonincome preference intensities of boys who preferred nonfarm

Table 7. Mean income differentials needed to cause a shift in farm and nonfarm job preferences at equal incomes of $4,000 per year, classified by preference at equal incomes and occupational plan.

Job preferences	Number	Mean income differential
Boys who preferred farming at equal incomes....	434	$1,698
Boys who planned to farm..............	294	1,904
Boys who planned nonfarm jobs.................	140	1,281
Boys who preferred nonfarm jobs at equal incomes..........	334	1,752
Boys who planned nonfarm jobs..............	316	1,784
Boys who planned to farm..............	17	1,270

Table 8. Distribution of indicated preferences for farming and nonfarm jobs under specified income conditions.

Boys who prefer farming at equal incomes[a] ($4,000 base income in farming)					Boys who prefer nonfarm job at equal incomes[b] ($4,000 base income in nonfarm job)				
	Job preference					Job preference			
Income in nonfarm job	Farming		Nonfarm job		Income in farming	Nonfarm job		Farming	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
$4,000	439	100	0	0	$4,000	347	100	0	0
4,500	406	93	33	7	4,500	310	89	37	11
5,000	292	67	147	33	5,000	236	68	111	32
5,500	191	44	248	56	5,500	164	47	183	53
6,000	98	22	341	78	6,000	90	26	257	74
6,500 and over...................	69	16	370	84	6,500 and over...................	69	19	280	81

[a] Includes five boys who indicated they had given no thought to a life career.
[b] Includes 13 boys who indicated they had given no thought to a life career.

jobs at equal incomes were about as strong as those of boys who preferred farming. The pattern of change in job preferences associated with variation in the income differential was very similar for both groups.

Do these findings mean that value orientations traditionally associated with rural communities have become less sharp and distinct? What lies behind the wide variation in nonincome job preferences of boys with farm backgrounds? What accounts for the large differences in preference intensities? These are some of the questions that remain for future study.

Relationship Between Job Preferences and Relative Income in Farming

How might Iowa farm boys shift their job preferences in response to changes in relative income in farming? Some light is shed on this question by the data presented in table 9, showing farm and nonfarm job preferences at different levels of relative income in farming.

In arriving at these figures, it was assumed that the 74 boys who were indifferent between farming and nonfarm employment at equal incomes would prefer farming if the income in farming exceeded the income in nonfarm jobs by $500 or more; they would prefer nonfarm jobs if the income in nonfarm employment exceeded the income in farming by $500 or more. At equal incomes (relative income in farming of 1.00), the boys who were indifferent were divided between farming and nonfarm employment in the same proportion as boys who were not indifferent.

On this basis, the estimates indicate that, when the ratio of income in farming to income in nonfarm employment (relative income in farming) was 1.50 ($6,000 in farming and $4,000 in nonfarm job), 90 percent of the 860 boys providing information preferred farming to nonfarm jobs. As relative income in farming declined, the proportion who preferred farming decreased, and the

Percent preferring farming   Percent preferring nonfarm employment

Fig. 8. Apparent relationships between relative income in farming and farm and nonfarm employment preferences.

proportion who preferred nonfarm employment increased. When the ratio was 0.67 ($6,000 in nonfarm job and $4,000 in farming), 89 percent of the group preferred nonfarm employment, whereas only 11 percent preferred farming (fig. 8).

A 20-percent increase in relative income in farming from the base of 1.00 was associated with a 25-percent increase in the number of boys preferring farming and a 32-percent decrease in the number preferring nonfarm employment. On the other hand, a 20-percent decrease in relative income in farming from the base of 1.00 was associated with about a 39-percent decline in the number preferring farming and about a 49-percent increase in the number preferring nonfarm employment. This suggests that the job preferences of farm boys may be quite responsive to changes in relative income in farming.

Working Condition Preferences

On the basis of the general hypothesis, it was anticipated that boys who planned to farm would prefer working conditions more characteristic of farming than of nonfarm occupations, whereas boys who planned nonfarm careers would have opposite preferences. To examine this hypothesis, each respondent was asked the following question: "If you had to make a choice between two jobs which were the same in all respects except the one listed below, which would you prefer?" Seven pairs of working conditions were specified. These were selected so that one paired element was more

Table 9. Apparent relationship between occupational preference and relative income for Iowa farm boys.[a]

Relative income[b] (Ratio of income in farming to income in nonfarm job)	Job preference				Total	
	Farming		Nonfarm job			
	Number	Percent	Number	Percent	Number[c]	Percent
1.62 and over..	793	92	67	8	860	100
1.50	770	90	90	10	860	100
1.37	696	81	164	19	860	100
1.25	624	73	236	27	860	100
1.12	550	64	310	36	860	100
1.00	480	55	380	45	860	100
0.89	406	47	454	53	860	100
0.80	292	34	568	66	860	100
0.73	191	22	669	78	860	100
0.67	98	11	762	89	860	100
0.62 and less....	69	8	791	92	860	100

[a] Estimates are based on the assumption that the 74 boys who were indifferent between farming and nonfarm jobs at equal incomes would prefer farming if the income in farming exceeded the income in nonfarm jobs by $500 or more. They would prefer nonfarm jobs if the income in nonfarm employment exceeded the income in farming by $500 or more. At a relative income of 1.00, boys who were indifferent were divided between farming and nonfarm employment in proportion to the division of boys who were not indifferent at equal incomes.
[b] Ratio of 1.00 is based on equal incomes of $4,000 per year. Ratios exceeding 1.0 are based on an income in nonfarm jobs of $4,000 and successive increments of $500 in income in farming. Ratios less than 1.0 are based on an income in farming of $4,000 and successive increments of $500 in income in nonfarm jobs.
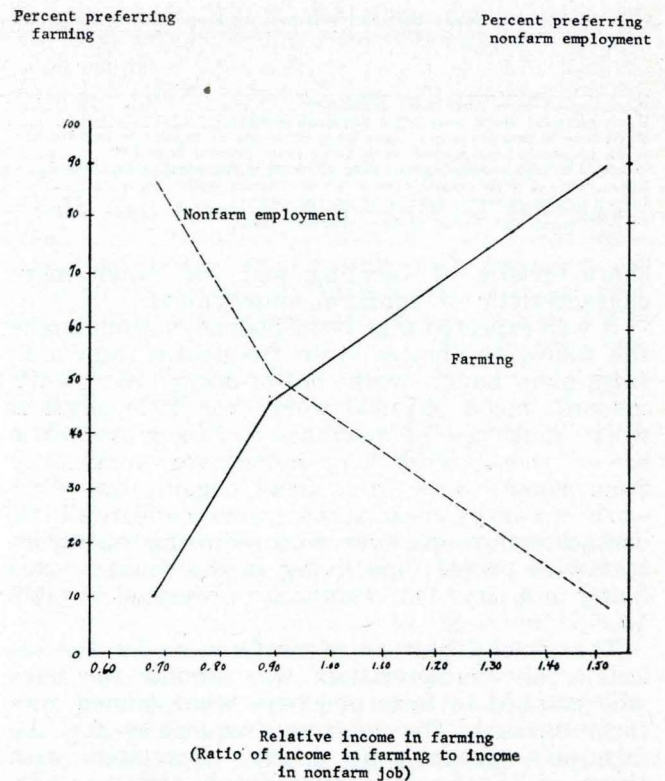[c] Includes 24 boys with no occupational plans.

Table 10. Choices made between selected working condition characteristics in paired comparisons, classified by occupational plan.

Choice	Percent making choice	
	Farm-plan boys n = 330	Nonfarm-plan boys n = 506
Work out-of-doors over work indoors**	97.6	78.1
Much physical work over little physical work**	92.7	68.3
Much use of machines and tools over little use of machines and tools**	92.1	68.6
Work in present town over work away from present town**	83.9	60.3
Work in a small organization over work in a big organization**	60.0	41.3
Little contact with people over a lot of contact with people	34.8	20.4
Living in the country over living in the city**	96.7	81.0

** Difference significant at the 1-percent level.

characteristic of farming and the other more characteristic of nonfarm employment.

It was expected that farm-plan boys would make the following choices more frequently than non-farm-plan boys: work out-of-doors over work indoors; much physical work over little physical work; much use of machines and tools over little use of these; work near home over work away from home; work in a small organization over work in a large organization; work requiring little contact with people over work requiring much contact with people; and living in the country over living in a city. The results are presented in table 10.

The general pattern of preferences for the selected job characteristics was similar for boys who planned to farm and boys who planned non-farm careers. The relative frequencies for the farm-plan group were highly correlated with those of the nonfarm-plan group (rho = 0.8). Undoubtedly, this similarity reflects the common elements in the rural orientation of farm boys. Within the context of general agreement, however, there were significant group differences. Without exception, these differences were in the direction hypothesized.

These group differences partly explain the differences in nonincome preferences described in the preceding section. Apparently, many of the boys who preferred farming to nonfarm employment at equal incomes did so because they attached a higher value to the working conditions which differentiate farm and nonfarm jobs. Likewise, many of the boys who preferred nonfarm employment did so because they attached a higher value to the working conditions more characteristic of nonfarm occupations.

Farming is typically viewed as an occupation that provides more freedom to make decisions and more employment security than most nonfarm jobs. Boys who place a relatively high value on decision-making freedom and employment security may be more attracted to farming than are boys who place a relatively low value on these job characteristics. Therefore, it might be expected that

the proportion of boys who attach more importance to decision-making freedom and employment security than to other job characteristics would be larger for the farm-plan group than for the non-farm-plan group.

Some evidence on this point is provided by the responses to another set of questions on job preferences. Five general job characteristics were identified as follows: (1) security to keep the job as long as you wanted (employment security), (2) steadiness of income from year to year, (3) amount of income you can make over a 10-year period, (4) opportunity for advancement and (5) amount of freedom you have on the job to be your own boss. These characteristics were presented in randomly arranged pairs on the questionnaire. Respondents were asked to indicate which member of each pair they considered most important in choosing an occupation.

The need for simplicity in the structuring of these questions prevented a clear-cut measurement of differences in preferences. Ideally, each boy should have been asked to select between combinations involving different amounts of each variable—decision-making freedom, employment security, income stability, etc. If the same combinations were used for all boys, differences in the preferences of farm-plan boys and nonfarm-plan boys would be reflected in differences in the proportions of each group selecting particular combinations. Unfortunately, some of the variables could not be quantified in simple terms. In failing to specify the levels of the variables, the questions involved an ambiguity. Consequently, the results may reflect a confounding of preference differences and other differences. Still, they are reasonably consistent with the hypothesis (table 11).

With one exception, that between job security and amount of income, the paired-comparisons between freedom on the job or employment security and other characteristics showed moderate to large differences between the preferences of the farm-plan and nonfarm-plan groups. In the case of employment security versus amount of income to be earned over a 10-year period, the group dif-

Table 11. Choices made between selected job characteristics in paired comparisons, classified by occupational plan.

Choice	Percent making choice	
	Farm-plan boys n = 330	Nonfarm-plan boys n = 432ᵃ
Freedom on the job over steadiness of income**	83	68
Freedom on the job over opportunity for advancement**	44	24
Freedom on the job over amount of income*	77	66
Job security over steadiness of income*	68	55
Job security over opportunity for advancement*	44	35
Job security over amount of income	76	75

ᵃ Includes only those boys reporting plans to enter a specific nonfarm occupation.
* Difference significant at the 5-percent level.
** Difference significant at the 1-percent level.

ference was small enough to be highly questionable on grounds of sampling error.

On the basis of these data, it appears that farm-plan boys attached relatively more importance to freedom on the job and employment security (attributes generally thought to be more fully realizable in farming than in most nonfarm occupations) than did nonfarm-plan boys.

Community Preferences

If community characteristics are associated with particular occupations, an individual's community preferences may influence his choice of occupational plan. Other things being equal, he might be expected to select the plan associated with the preferred set of community characteristics. However, few occupations appear to be associated with a unique set of community attributes.

Most jobs are carried on in a large number of communities exhibiting a wide range of environmental conditions. In many cases, variations in community characteristics seem to be as large or larger within occupations as between occupations. This is less true of farming than of most nonfarm occupations. Despite the impact of important homogenizing forces, farm communities still retain certain distinctive features. Depending on individual preferences, these differentiating characterisitics may make farm communities more or less attractive in relation to nonfarm communities.

If community preferences influence the occupational plans of farm boys, the preference patterns of farm-plan boys and nonfarm-plan boys might be expected to differ with respect to some of the attributes which differentiate farm and nonfarm communities. To investigate the possible effect of community preferences upon occupational plans, each respondent was asked to rate the importance of six community characteristics as factors influencing his choice of a place in which to live and work. Characteristics were selected which appeared to differentiate rural and nonrural communities. The rating scale consisted of three categories: "very important," "important" and "not important." The answers by farm-plan boys and nonfarm-plan boys are summarized in table 12.

Apparently boys who plan to farm attach more importance to nearness to relatives and living a considerable distance from neighbors than do boys who plan nonfarm careers. Nearly 62 percent of the farm-plan boys rated nearness to relatives as very important or important compared with only 45 percent of the nonfarm-plan boys. Forty-four percent of the farm-plan boys, compared with

32 percent of the nonfarm-plan boys, attached very important or important ratings to living a considerable distance from neighbors. The differences for other characteristics were so small as to be of doubtful significance.

Respondent's Resource and Educational Characteristics

This section examines the resource and educational characteristics of farm-plan boys and nonfarm-plan boys. Information was collected on financial resources, intelligence, academic achievement, leadership capacity and educational interests and plans. Only in the case of financial resources was a specific hypothesis formulated. Other characteristics were of interest in relation to selectivity effects which may influence the attributes of the future population of Iowa farmers.

Financial Resources

An earlier section of this report developed the hypothesis that boys who plan to farm have more financial resources available to them than have boys who plan nonfarm careers. Especially relevant to this hypothesis are the boy's financial resources and those of his family. At this point, data on the boy's assets are examined; data on family resources are discussed in a later section.

Each boy was asked to list and place a market value on his own financial assets. A sum was computed for each boy, and the totals were classified by occupational plan. Most of the assets consisted of livestock, crops, automobiles and cash.

The mean value of assets owned by boys planning to farm was $2,750 (table 13). The comparable figure for boys planning nonfarm occupations was $1,420. Although the difference was statistically significant and consistent with the general hypothesis, the average value of assets owned by both groups was relatively small in relation to the amount of capital required to start an efficient farming operation. For this reason, the amount of owned capital probably was not an important factor influencing the occupational plans of most boys.

Apparently, it was more important, however, among boys who were "certain" of their occupational plan. In this group, the mean value of owned assets was $5,070 for farm-plan boys compared with $1,720 for nonfarm-plan boys. A boy with $5,000 or more of assets probably has enough to give him considerable encouragement in the direction of farming. Farm-plan boys who were "certain" of their plans had more than twice as much assets as those who were "fairly certain"

Table 12. Percent of farm-plan boys and nonfarm-plan boys rating selected community characteristics as "very important" or "important" in choosing a place to live and work.

Community characteristics	Farm-plan boys	Nonfarm-plan boys
Short distance from relatives	61.7	45.4
Living a considerable distance from neighbors	43.7	31.5
No traffic congestion	74.8	70.7
Short distance from friends	79.7	81.7
Many entertainment and recreation facilities	72.6	76.9

Table 13. Average value of assets owned by farm-plan boys and nonfarm-plan boys, classified by occupational plan uncertainty.[a]

Plan uncertainty class	Farm-plan boys (n = 329)	Nonfarm-plan boys (n = 503)
Certain	$5,070	$1,720
Fairly certain	2,480	1,460
Fairly uncertain	1,310	1,460
Very uncertain	2,140	1,430
Total	2,750	1,420[b]

[a] Computed to the nearest hundred dollars.
[b] Includes 45 boys who failed to give information on uncertainty.

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and almost four times as much as those who were "fairly uncertain."

Intelligence and Academic Achievement

Do farm boys who plan to farm have lower measured intelligence scores than those who plan nonfarm careers? The evidence from this study suggests an affirmative answer. The participating high schools provided the intelligence test scores of all respondents. The mean intelligence score of farm-plan boys was somewhat lower than that of nonfarm-plan boys. While the difference was statistically significant, it was not large, however. Boys who planned to farm had a mean score of 102.2, whereas those who planned nonfarm occupations had a mean score of 107.0 (table 14).

Among boys who were "certain" of their occupational plans, the mean intelligence score for the farm-plan group was 101.0 compared with 108.1 for the nonfarm-plan group. Among boys who were "very uncertain" of their occupational plans, the mean scores were 97.8 and 100.9, respectively.

Schools participating in this study also furnished achievement test scores for respondents. Although several different tests were involved, 599 boys (68.8 percent of the sample) had taken the Iowa Test of Educational Development. Because of the difficulty of adjusting scores for lack of comparability among tests, comparisons were restricted to the ITED scores. ITED scores were available for 65.1 percent of the farm-plan boys and for 72.0 percent of the nonfarm-plan boys. Restricting the comparisons to ITED scores eliminated 36 boys from one stratum, 5 boys from another stratum and between 20 and 25 boys from six other strata. Since there was no apparent relationship between the type of test given and school size, it was assumed that no appreciable selectivity occurred.

The mean ITED percentile for farm-plan boys was 42.0 compared with 53.5 for nonfarm-plan boys (table 14). On the average, boys who were planning to farm scored 79 percent as high as boys who were planning to enter nonfarm occupations. The comparable figure for the intelligence scores was about 95 percent. Apparently, the difference between farm-plan boys and nonfarm-plan boys was larger for achievement than for intelligence.

Again, the largest difference was in the group of boys who were "certain" of their plans. In this group, farm-plan boys had an average achieve-ment percentile of 42.8, whereas nonfarm-plan boys had an average of 62.2. Although farm-non-farm plan differences apparently characterized all uncertainty groupings, there was some tendency for the size of the difference to diminish as uncertainty increased.

The 4-year scholastic record data made available by participating high schools reflected a variety of grading systems. These data were converted to the point system according to the procedure used by the Registrar's office at Iowa State University. The adjusted grades gave a pattern very similar to that of the achievement percentiles (table 14).

The mean grade for farm-plan boys was significantly lower than that for nonfarm-plan boys. Whereas nonfarm-plan boys achieved an average grade of 2.31, farm-plan boys achieved an average of 1.99. Again, the largest difference occurred in the group of boys who were "certain" of their occupational plans.

In summary, all three measures—mean grade point, mean achievement percentiles and mean intelligence scores—presented a similar pattern of farm-nonfarm plan differences. Farm-plan boys had a slightly lower mean intelligence score, a moderately lower mean achievement score and a moderately lower mean grade point than had nonfarm-plan boys. There was some tendency for the sizes of the differences to be inversely related to the degree of plan uncertainty, being greatest for the group of boys who were "certain" of their occupational plans. Insofar as the farm-nonfarm occupational plans of Iowa farm boys are realized, farming is likely to absorb a somewhat larger proportion of those whose measured intelligence and scholastic attainment scores were below the sample means.

Educational Plans and Interests

Boys who plan to farm are less likely to continue their education beyond high school than are boys who plan nonfarm careers. Of the boys who planned a career of farming, 76 percent said that they expected to go to work and 24 percent said that they intended to get more education and training upon completion of high school. In contrast, only 32 percent of the boys planning nonfarm occupations indicated that they intended to go to work, and 68 percent said they expected to get additional education and training (table 15). Whereas, over 43 percent of the nonfarm-plan boys were expecting to go to college, only 15 percent of

Table 14. Mean intelligence score, ITED score and grade point of farm-plan boys and nonfarm-plan boys, classified by plan uncertainty.

	Farm-plan boys			Nonfarm-plan boys		
Plan-uncertainty class	Intelligence score (n = 282)	ITED score (n = 217)	Grade point (n = 317)	Intelligence score (n = 420)	ITED score (n = 382)	Grade point (n = 489)
		(percentile)			(percentile)	
Certain	101.0**	42.8	2.00	108.1**	62.2	2.71
Fairly certain	102.0	43.0	2.02	107.2	58.5	2.37
Fairly uncertain	105.5	45.0	1.96	106.4	53.5	2.22
Very uncertain	97.8	39.0	1.76	100.9	49.0	2.08
Total	102.2**	42.0	1.99	107.0a**	53.5b**	2.31c

[a] Includes 36 boys who failed to give information on uncertainty.
[b] Includes 28 boys who failed to give information on uncertainty.
[c] Includes 46 boys who failed to give information on uncertainty.
** Difference significant at the 1-percent level.

Table 15. Immediate post high school plans of farm-plan boys and nonfarm-plan boys.

Plan	Farm-plan boys		Nonfarm-plan boys	
	Number	Percent	Number	Percent
Plan to go to work	250	75.8	162	32.0
Plan to go to college	50	15.1	219	43.3
Plan to go to trade school	10	3.1	54	10.7
Plan to get other training	12	3.6	36	7.1
Plan a combination of college, trade school, and/or other training	8	2.4	35	6.9
Total	330	100.0	506	100.0

the farm-plan boys intended to take college work. In addition, nearly 11 percent of the nonfarm-plan group expected to attend a trade school compared with only 3 percent of the farm-plan group.

The foregoing information was based on a question which asked what each boy **planned** to do following his graduation from high school. This was followed by a question asking what the boy would like to do. Alternative answers were listed as follows: (1) go to college, (2) go to work at a job you like, (3) go to trade or technical school, (4) go to business school and (5) other (specified). The responses to this question were remarkably similar to those given to the question asking what was actually planned. While 58 percent of the farm-plan boys indicated they preferred to go to work at a job they liked, only 28 percent of the nonfarm-plan boys gave this answer. Nearly 67 percent of the boys planning nonfarm careers said they would like to take additional education and training, compared with only 30 percent of the boys planning to farm. Only about 14 percent of all boys indicated they would like to attend a trade or technical school. The percentage was somewhat smaller for farm-plan boys than for nonfarm-plan boys.

Regarding interest in trade or technical education, a considerably different response was received in answer to the following question: "Suppose there was a trade school (a school to prepare you for one of a dozen trades such as auto mechanic, draftsman, electrician, barber, printer, surveyor and so forth) within driving distance of your home, would you be interested in attending such a school to become a skilled craftsman or a technician?" Although nearly 28 percent of all boys gave a "don't know" answer, 51 percent indicated that they would be interested in attending such a school (table 16). Of the boys planning to farm, about 45 percent gave an affirmative answer. This compares with about 55 percent of the boys planning nonfarm careers. Perhaps the possibility of attending such a school while continuing their farming operations was the factor which explains the large difference between trade school

Table 16. Interest in attending a trade school located within driving distance, classified by occupational plan.

Response	Farm-plan boys		Nonfarm-plan boys	
	Number	Percent	Number	Percent
Interested in attending	148	44.8	278	55.0
Not interested in attending	76	23.0	108	21.3
Don't know	106	32.2	120	23.7
Total	330	100.0	506	100.0

attendance plans and preference for farm-plan boys.

Plans to attend college appeared to be associated with family financial resources. Net-worth estimates for the respondent's family were obtained from the family banker. Respondents were divided into three net-worth groups. The high group included boys whose parents had a net worth of $35,000 or more. The medium group included those with a net worth of between $15,000 and $35,000, and the low group included those with less than $15,000 of net worth. Respondents were classified into the three groups, and the college plans of each group were determined. The results are shown in table 17.

Forty-three percent of the boys in the high net-worth category planned to attend college. This compares with 34 percent in the medium group and with 30 percent in the low group.

The differences in college plans between farm-plan boys and nonfarm-plan boys were large within each net-worth class. In the high net-worth group, 64 percent of the nonfarm-plan boys were planning to attend college, whereas only 21 percent of the farm-plan boys had college plans. In the middle net-worth category, 18 percent of the farm-plan boys as compared with 44 percent of the nonfarm-plan boys had college aspirations. In the low net-worth group, almost 40 percent of the nonfarm-plan boys expected to attend college as against only 9 percent of the farm-plan boys.

The evidence supports the generalization that farm boys who plan to farm have lower educational aspirations than those who plan nonfarm careers. Perhaps a larger proportion of farm boys believe that additional education and training are less important in achieving success in farming than in nonfarm occupations. Or, they may attach a greater disutility to academic efforts. Whatever the reason, it seems clear that if the educational and occupational plans of farm boys are realized, the average level of education of those entering farming will be lower than those entering nonfarm occupations. Over a period of time, this would contribute to a decline in educational levels in the farm sector in relation to those in the nonfarm sector.

Leadership Capacity and School Activities

Information on leadership capacity was based on the judgments of high school instructors. They were requested to rate the leadership capacity of each respondent as high, medium or low. A breakdown of the results by occupational plan is presented in table 18.

Only 14 percent of the boys planning to farm were in the high leadership group in contrast to about 26 percent of the boys planning nonfarm occupations. Medium and low leadership ratings were received by a slightly higher proportion of farm-plan boys, although the differences here were not as large as for the high leadership group. Thus, it appears that new entrants into farming

Table 17. College plans of farm boys, classified by family net worth and occupational plan.

	High one-third net worth ($35,000 and over) (n = 279)						Medium one-third net worth ($15,000 to $35,000) (n = 250)					
	Farm-plan boys		Nonfarm-plan boys		Total		Farm-plan boys		Nonfarm-plan boys		Total	
College plan	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Plan to attend college	28	20.6	92	64.3	120	43.0	17	18.1	68	43.6	85	34.0
Do not plan to attend college	108	79.4	51	35.7	159	57.0	77	81.9	88	56.4	165	66.0
Total	136	100.0	143	100.0	279	100.0	94	100.0	156	100.0	250	100.0

	Low one-third net worth (under $15,000) (n = 217)						Total					
	Farm-plan boys		Nonfarm-plan boys		Total		Farm-plan boys		Nonfarm-plan boys		Total	
College plan	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Plan to attend college	6	9.2	60	39.5	66	30.4	51	17.3	220	48.8	271	36.3
Do not plan to attend college	59	90.8	92	60.5	151	69.6	244	82.7	231	51.2	475	63.7
Total	65	100.0	152	100.0	217	100.0	295	100.0	451	100.0	746	100.0

Table 18. Respondents' leadership capacity as estimated by high school instructors, classified by occupational plan.

Leadership capacity	Farm-plan boys		Nonfarm-plan boys	
	Number	Percent	Number	Percent
High	43	13.7	124	25.5
Medium	173	55.4	236	48.6
Low	96	30.7	125	25.7
Total	312	100.0	485	100.0

may be drawn less frequently from the high leadership grouping and more frequently from the medium and low leadership groupings.

Each respondent was asked to list the different school activities in which he participated. Boys who were planning nonfarm careers reported an average of 3.8 activities, whereas boys who were planning to farm reported an average of 3.3 activities. Again, the largest difference occurred for the group of boys who were "certain" of their occupational plans. In this group, average participation by farm-plan boys was 3.8 activities compared with 4.6 activities by nonfarm-plan boys. Apparently, boys who planned nonfarm occupations participated more frequently in school activities than did boys who planned to farm.

4-H and FFA Experience

Do farm-plan boys participate more in 4-H and FFA activities than do nonfarm-plan boys? The evidence from this study suggests that they do. While 51 percent of the boys who were planning nonfarm careers had been members of a 4-H club, 58 percent of the boys who were planning to farm had been involved in 4-H work. Likewise, 54 percent of the farm-plan boys had been FFA members compared with 47 percent of the nonfarm-plan group (table 19). Although the differences were not large, they were statistically significant.

Does this mean that 4-H and FFA experience provides special encouragement for boys to farm? It might mean this, but not necessarily. The differences might reflect a causal relationship running from 4-H and FFA experience to plans to farm. On the other hand, they might also reflect selectivity effects. Boys who were interested in participating in 4-H and FFA activities also were those who entertained a high interest in farming as an occupation. In other words, they may have become involved in these activities because of their interest in the occupation of farming. Thus, no conclusion can be drawn from these data about causal effects.

Family Financial Resources and Assistance

The general hypothesis relating to differences in the amounts of financial resources available to farm-plan boys and nonfarm-plan boys was based

Table 19. 4-H and FFA experience of farm-plan boys and nonfarm-plan boys.

Club experience	Farm-plan boys	Nonfarm-plan boys
Number of boys in 4-H	192	221
Percent of boys in 4-H*	58	51
Average number of years in 4-H	4.6	4.6
Number of boys in FFA	181	205
Percent of boys in FFA*	54	47
Average number of years in FFA	3.0	2.5

* Difference significant at the 5-percent level.

on the premise that capital requirements place a greater restriction on entry into farming than into most nonfarm occupations. Other things being equal, therefore, boys with large amounts of available capital are more likely to enter farming than those with small amounts.

It was indicated earlier that farm-plan boys had significantly more owned assets than nonfarm-plan boys. Nevertheless the value of assets owned by most boys was small in relation to the capital requirements needed for an efficient farm operation. These assets, however, may be only a small part of the capital available to finance occupational entry. Varying kinds and amounts of family assistance might be expected. The total amount of family assistance anticipated is likely to be related to the financial status of the family. Other things being equal, boys from wealthy families are likely to expect more assistance than boys from poor families.

Family Financial Resources

The financial status of families was measured by net worth as estimated by the family banker. Boys who planned to farm came from families with an average net worth of slightly more than $40,000. In contrast, boys who planned to enter nonfarm occupations came from families with an average net worth of just over $29,000 (table 20). The difference was even larger for boys who were "certain" of their occupational plans. In this group, the mean net worth for families of farm-plan boys was over $49,000 compared with less than $26,000 for families of nonfarm-plan boys. Evidently, the parents of farm-plan boys had more capacity to provide financial assistance than had the parents of nonfarm-plan boys.

There were similar differences for acres owned, acres operated and acres harvested—characteristics highly correlated with farm income. Farm-plan boys came from families with larger farms and undoubtedly higher average incomes than did nonfarm-plan boys (table 21).

With large differences in family resources, it might be hypothesized that boys who planned to farm would expect more family assistance than boys who planned nonfarm occupations. A series of questions was designed to yield information on the respondent's expectations of family assistance in (1) getting started in farming, (2) getting started in a nonfarm job or business and (3) going to college.

Boys' Expectations of Family Assistance in Farming

The initial question relating to family assistance in getting started in farming was aimed at determining whether any assistance was anticipated. This was followed by questions dealing with the kinds and amounts of assistance expected. For those anticipating family assistance, estimates were prepared of the dollar value of the assistance expected.

Table 20. Family net worth, classified by occupational plan and uncertainty.

Plan uncertainty class	Farm-plan boys		Nonfarm-plan boys	
	Number	Mean	Number	Mean
Certain	52	$49,567	33	$25,985
Fairly certain	185	38,878	235	29,330
Fairly uncertain	40	33,688	110	30,136
Very uncertain	18	41,111	29	38,000
Total	295	$40,195	451	$29,085

Table 21. Acres owned, acres operated and acres harvested by parents in 1958, classified by occupational plan.

Characteristic	Farm-plan boys		Nonfarm-plan boys	
	Number	Mean	Number	Mean
Acres owned	327	186.2	501	123.4
Acres operated	329	262.5	505	228.3
Acres harvested	329	203.4	505	168.9

Nearly 72 percent of the boys planning to farm were expecting some family assistance in getting started in farming. This compares with 58 percent of the boys planning nonfarm careers. There was little difference in the proportions expecting help in the form of money loans. The average money loan expected by farm-plan boys was $4,300, whereas that expected by nonfarm-plan boys was $3,820. While this difference was probably significant, it was not large. However, a substantially greater proportion of farm-plan boys than nonfarm-plan boys anticipated parental gifts of land, livestock, machinery and money. Likewise, the average value of gifts expected by boys planning to farm ($4,730) was considerably larger than that expected by boys planning nonfarm occupations ($3,305). Approximately 26 percent of the boys planning to farm expected the use of parents' land having an average value of $33,390. On the other hand, 18 percent of the boys planning nonfarm careers anticipated the use of parents' land having an average value of $30,740. The average value of all family assistance expected by farm-plan boys was about 12 percent greater than that expected by nonfarm-plan boys (table 22).

Family assistance may also take the form of a father-son arrangement. Each respondent was asked "Would you have an opportunity to begin farming in some arrangement with your father?" Of the 328 farm-plan boys who answered this question, 227, or about 69 percent, gave an affirmative answer. Of the 471 nonfarm-plan boys

Table 22. Respondents' expectations of family assistance in getting started in farming, classified by occupational plan.

Characteristic	Farm-plan boys		Nonfarm-plan boys	
	Number	Mean or percent	Number	Mean or percent
Expecting some help from parents in getting started in farming	236	71.7%	294	58.1%
Expecting a loan of money	136	41.3%	189	37.3%
Amount of loan expected	136	$ 4,300	189	$ 3,820
Expecting gifts of land, livestock, machinery and money	222	67.4%	273	47.4%
Value of expected gifts	222	$ 4,730	273	$ 3,305
Expecting use of parents' land	86	26.1%	90	17.7%
Value of land	86	$33,390	90	$30,740
Expecting opportunity to begin farming with father	227	68.8%	235	49.8%
Type of father-son arrangement				
Hired hand	8	3.5%	22	9.4%
Rent land and use fathers' machinery	60	26.4%	50	21.3%
Work and share income on home farm	152	67.0%	152	64.7%
No special arrangement	7	3.1%	11	4.7%

who responded to the question, 235, or only 50 percent, gave an affirmative answer (table 22).

Because of differences in net worth and farm size, a smaller proportion of the families of nonfarm-plan boys would be in position to offer attractive father-son opportunities. Since such an arrangement eases the restrictions on entry into farming, it is not surprising that a larger proportion of farm-plan boys expected an opportunity to begin farming with their fathers.

Boys with father-son opportunities in both the farm-plan and nonfarm-plan groups reported similar kinds of arrangements. Among farm-plan boys having father-son opportunities, 67 percent reported an arrangement to work and share income on the home farm, and 26 percent reported an arrangement to rent land and use father's machinery. Among nonfarm-plan boys having father-son opportunities, these arrangements were reported by 65 percent and 21 percent, respectively.

These data are consistant with the general hypothesis that differences in the availability of capital resources help to explain why some farm boys plan to farm and others plan nonfarm careers. Boys who planned to farm owned more financial assets, and they expected more assistance from their families in getting started in farming than boys who planned nonfarm occupations. The families of farm-plan boys were better able to provide assistance because they had more financial resources.

Boys' Expectations of Family Assistance in Nonfarm Occupations

Differences in family financial resources, however, were not reflected in the boys' expectations of family assistance in getting started in a nonfarm job or business. The proportion of farm-plan boys expecting family assistance in entering a nonfarm job or business did not differ significantly from the proportion of nonfarm-plan boys expecting such assistance. Moreover, there was little difference in the proportions expecting help in the form of money loans or gifts (table 23).

Both groups expected less assistance in getting started in a nonfarm job or business than in entering farming. However, the differences were smaller for nonfarm-plan boys than for farm-plan boys. Thus, the expectation of family assistance probably gave both groups more encouragement to enter farming than to enter nonfarm occupations.

But it undoubtedly gave relatively more encouragement toward farming for the farm-plan boys than for the nonfarm-plan boys. Over 67 percent of the farm-plan group and more than 47 percent of the nonfarm-plan group expected gifts from their parents if they were to start farming. If these boys were to enter a nonfarm occupation, however, only 28 percent of both groups expected assistance in the form of gifts from their parents.

Whether or not the parents were consciously exerting this influence on occupational plans is not known. Nevertheless, the impact via expectations of family assistance may have been substantial. It may have reflected a conscious effort on the part of parents to encourage their sons to enter farming, or it may have reflected the greater adaptability of family resources in providing assistance to get started in farming. The resources available to the typical farm family can be used more readily to assist entry into farming than into most nonfarm occupations. The latter explanation is more consistent with the information presented later on the occupational views of parents. Yet, it is difficult to explain why respondents expected more gifts or loans of money if they were to farm rather than take a nonfarm job, unless they believed their parents preferred that they farm.

Family Assistance for College Expenses

In an earlier section, it was shown that plans to attend college were related to family net worth. Farm boys from families with high net worth were more likely to have plans to attend college than were boys from families with low net worth. Also, it has been established that the families of boys planning to farm had a substantially higher net worth than the families of boys planning nonfarm careers. Thus, it might be expected that a larger proportion of farm-plan boys would anticipate family help if they were to attend college than nonfarm-plan boys. This expectation, however, is not borne out by the data in table 24. A significantly larger proportion of nonfarm-plan boys than farm-plan boys anticipated some family assistance for college expenses: 72 percent of the boys planning to farm and 78 percent of the boys planning nonfarm careers expected some help if they went to college.

Respondents who expected assistance were asked to indicate how much they expected. Four levels of assistance were listed: (1) less than 25 percent, (2) 25 to 50 percent, (3) 50 to 75 percent and (4) 75 percent and over. Of the boys expecting help on

Table 23. Respondents' expectations of family assistance in getting started in a nonfarm job or business, classified by occupational plan.

Characteristic	Farm-plan boys		Nonfarm-plan boys	
	Number	Mean or percent	Number	Mean or percent
Expecting some help from parents to get started in nonfarm job or business[a]....	139	42.1%	228	45.1%
Expecting loan of money from parents...................	116	35.2%	194	38.2%
Amount of loan expected..	116	$2,696	194	$2,641
Expecting gifts from parents	91	27.6%	142	28.0%
Amount of expected gift..	91	$ 850	142	$ 735

[a] Difference **not** statistically significant at the 5-percent level.

Table 24. Respondents' expectations of family assistance for college expenses, classified by occupational plan.

Characteristic	Farm-plan boys		Nonfarm-plan boys	
	Number	Percent	Number	Percent
Expecting some help from parents for college expenses*...................	237	71.8	394	77.9
Amount of help expected				
Less than 25 percent...............	24	10.1	67	17.0
25 to 50 percent.......................	59	24.9	108	27.4
50 to 75 percent.......................	43	18.1	87	22.1
75 percent or more...................	65	27.5	85	21.6
Amount not known...................	46	19.4	47	11.9

* Difference significant at the 5-percent level.

college expenses, 19 percent of those in the farm-plan group and 12 percent of those in the nonfarm-plan group indicated that they did not know how much help to expect. The proportion expecting 75 percent or more was larger for the farm-plan group, whereas the proportion expecting less than 75 percent was greater for the nonfarm-plan group. Although a larger proportion of nonfarm-plan boys expected college assistance, apparently the amount of assistance expected was somewhat smaller.

Other factors, in addition to family financial capacity, appear to have been important in influencing respondents' expectations of help for college expenses. While a larger proportion of farm-plan boys expected assistance in getting started in farming, a smaller proportion expected help to finance a college education. Evidently some of the boys who were planning to farm believed their parents were more willing to provide assistance for farming than for additional education.

Income Expectations and Aspirations

According to the theory of occupational planning outlined earlier, a difference in the returns expected from using given resources in alternative employments may cause a difference in occupational plans. Other things being equal, boys who expect higher returns in farming than in non-farm occupations would plan to farm, and boys who expect more favorable returns in nonfarm occupations would plan nonfarm careers. If differences in expected relative returns influence occupational plans, boys who plan to farm would tend to have more optimistic expectations about relative future income-earning opportunities in farming than would boys who plan nonfarm careers. Of course, it is necessary to recognize that a boy may plan to farm even though he anticipates a less favorable income-earning opportunity in farming. He may expect other advantages in farming which he values more highly than the difference in anticipated income. It has been shown that a substantial number of farm boys would prefer to farm even when this involves a large sacrifice of income. But it also has been shown that the occupational plans of farm boys are highly responsive to changes in relative income opportunities. So it was hypothesized that boys who plan to farm have more optimistic anticipations of relative income opportunities in farming than do boys who plan nonfarm careers.

Relative Income-Earning Expectations in Farming

To examine this hypothesis, each respondent was asked the following question: "Suppose you have $15,000 in the bank, and you are considering how you could be using this money and your own working time to best advantage in the future. (a) How much net income per year do you think your labor and this capital would earn in the year 1965 if you were farming then? (b) How much net in-

Table 25. Frequency distribution of ratios of 1965 expected income in farming to 1965 expected income in nonfarm employment with specified labor and capital resources, classified by occupational plan.

Ratio of farm income to non-farm income	Farm-plan boys		Nonfarm-plan boys		Total	
	Number	Percent	Number	Percent	Number	Percent
0.00 to 0.49	47	14.5	127	25.5	174	21.2
0.50 to 0.99	155	47.8	267	53.6	422	51.2
1.00 to 1.49	78	24.2	60	12.1	138	16.8
1.50 to 1.99	34	10.4	29	5.8	63	7.7
2.00 and over	10	3.1	15	3.0	25	3.1
Total	324	100.0	498	100.0	822	100.0
Mean ratio	0.94		0.79		0.85	

come per year do you think you could earn in the year 1965 if you worked at the highest paying non-farm job you could get and put this capital into the best paying nonfarm investment?" The ratio of the answer given in (a) to that given in (b) was computed and used as a measure of the relative income expectations of each respondent. Boys with ratios greater than 1.0 expected higher returns in farming, and boys with ratios less than 1.0 expected higher returns in nonfarm employments. A frequency distribution of these ratios, classified by occupational plan, is presented in table 25.

Approximately 72 percent of the 822 boys who answered these questions expected lower returns in farming than in nonfarm employments. More than one-fifth of the group expected returns in farming to be less than half as high as in nonfarm employments, and almost 11 percent expected farm returns to be higher than nonfarm returns by 50 percent or more. The average of all individual ratios was 0.85.

The breakdown by occupational plan shows that boys who were planning to farm were more optimistic about relative income-earning opportunities in farming than were boys who were planning nonfarm careers. About 38 percent of the farm-plan boys expected returns in farming to be as high or higher than in nonfarm employments, whereas only 21 percent of the nonfarm-plan boys had similar expectations. On the other hand, 79 percent of the nonfarm-plan boys expected returns in farming to be lower than in nonfarm employments. Only 62 percent of the farm-plan group expected less favorable farm returns. The mean of the ratios for the farm-plan group was 0.94 compared with 0.79 for the nonfarm-plan group.

Although boys who were planning to farm generally had more favorable relative income expectations in farming than boys who were planning nonfarm careers, it is clear that, for many farm-plan boys, other factors were highly influential in shaping occupational plans. Of the 596 boys who expected lower returns in farming, 202, or nearly 34 percent, were still planning to farm. As pointed out earlier, many of these boys had strong nonincome preferences for farming and were expecting more family assistance for getting established in farming than for getting started in a nonfarm job or business. Undoubtedly, these factors operated to offset the effects of less favorable income-earning expectations on plans to farm.

Income Expectations in Farming Under Alternative
Resource Arrangements

Under given price and technological conditions,
different combinations of land, labor and capital
produce different returns in farming. Income ex-
pectations in farming under alternative resource
arrangements were obtained as follows: "We
would like to have your estimate of the net cash in-
come per year (cash receipts minus cash expenses)
from farming operations for an average owner-
operator on three different sized Iowa farms in
1958 and 1965." The land, labor and capital char-
acteristics of each farm were then specified. The
small farm was characterized by $20,000 of land
and buildings, $8,000 of livestock, machinery and
equipment and 14 months of family labor. The
medium-sized farm had $50,000 of land and build-
ing investment, $15,000 of livestock, machinery
and equipment and 14 months of family labor.
And the large farm had $100,000 of land and build-
ings, $25,000 of livestock, machinery and equip-
ment and 14 months of family labor. Table 26 sum-
marizes the results.

The data point to the conclusion that farm-plan
boys tended to be more optimistic about income
opportunities in farming under a wide range of
resource conditions than did nonfarm-plan boys.
The average estimate of net cash income for each
of the three resource arrangements in 1958 was
higher for boys planning to farm than for those
planning nonfarm careers. Farm-plan boys also ex-
pected higher incomes in 1965 on small- and medi-
um-sized farms than did nonfarm-plan boys. Only
in the case of the large farm in 1965 was the aver-
age estimate of the nonfarm-plan group higher
than that of the farm-plan group, and here the dif-
ference was so small as to be of doubtful statisti-
cal significance.

Previous discussion called attention to the fact
that differences between farm-plan boys and non-
farm-plan boys tended to be greater for compari-
sons involving only boys who were more certain of
their occupational plans. Again this is apparent in
comparing the data on income expectations pre-
sented in tables 26 and 27. Table 27 shows the in-
come expectations of boys who were "certain" of
their occupational plans; table 26 shows the same
data for all uncertainty groups.

The average income expected in 1965 on the
small farm was $6,580 for all farm-plan boys and
$5,630 for all nonfarm-plan boys, a difference of
$950. For boys who were "certain" of their plans,
the comparable figures were $6,920 and $3,970, a
difference of $2,950. Likewise, there was an in-
crease in the difference for the medium-sized farm
from $2,090 to $5,750. For the large farm, the in-
come expectations of all nonfarm-plan boys in the
sample was slightly higher than that of all farm-
plan boys. However, farm-plan boys who were
"certain" of their plans had an income expectation
that was $9,630, or two-thirds, greater than that
of nonfarm-plan boys who were "certain" of their
plans.

Boys who were "certain" of their plans to farm

Table 26. Estimates of net cash income in 1958 and 1965 for small, medium and large farms, classified by occupational plan.

Farm size[a]	Mean net cash income in 1958		Mean net cash income in 1965	
	Farm-plan boys[b]	Nonfarm-plan boys[c]	Farm-plan boys[b]	Nonfarm-plan boys[c]
Small farm	$ 4,951	$ 4,546	$ 6,580	$ 5,630
Medium farm	9,890	8,710	12,590	10,500
Large farm	18,680	15,630	23,100	23,550
Average all three sizes	$11,174	$ 9,629	$14,090	$13,227

[a] See text for description of resource combinations.
[b] n = 324.
[c] n = 495.

Table 27. Estimates of net cash income in 1958 and 1965 for small, medium and large farms, classified by occupational plan of boys who were "certain" of their plans.

Farm size[a]	Mean net cash income in 1958		Mean net cash income in 1965	
	"Certain" farm-plan boys[b]	"Certain" nonfarm-plan boys[c]	"Certain" farm-plan boys[b]	"Certain" nonfarm-plan boys[c]
Small farm	$ 5,525	$ 3,720	$ 6,920	$ 3,970
Medium farm	11,040	7,040	13,140	7,390
Large farm	21,820	12,740	24,200	14,570
Average all three sizes	$12,795	$ 7,833	$14,753	$ 8,643

[a] See text for description of resource combinations.
[b] n = 59.
[c] n = 39.

were more optimistic about future income oppor-
tunities in farming than were boys who were less
certain of their plans to farm. They also were
much more optimistic than nonfarm-plan boys who
were "certain" of their plans. For farm-plan boys
who were more uncertain of their plans, lack of
optimism over future farm income opportunities
may have been an important factor increasing plan
uncertainty.

Farm-plan boys whose plans were "certain" ex-
pected larger increases in farm incomes between
1958 and 1965 than did nonfarm-plan boys who
were "certain" of their plans. Based on the means
of the estimates for all three farm sizes, boys plan-
ning to farm expected an average increase of
$1,958, or about 15 percent, whereas boys planning
nonfarm careers expected an increase of $810, or
about 10 percent. Again, this is indicative of more
favorable income expectations for farming on the
part of boys planning to farm.

The data on income expectations are clearly
consistent with the general hypothesis that differ-
ences in relative income expectations are an im-
portant factor explaining differences in the oc-
cupational plans of Iowa farm boys. The differ-
ences in income expectations take on added signi-
ficance when it is recognized that a substantial
proportion of farm-plan boys indicated a prefer-
ence for farming even at a considerable sacrifice
of income.

Money-Income Aspirations

Did the boys who were planning to farm have
lower money-income aspirations than those who
were planning nonfarm occupations? If this were
true generally, it might help to explain the persist-
ent disparity in money incomes in farming.

The data presented in table 28 suggest an af-
firmative answer, although the differences were
not large. The median net money income consid-

Table 28. Median net money income considered "satisfactory" at age 20 and 30 in farming by boys planning to farm and in "best" nonfarm job by boys planning nonfarm careers.

	Net money income considered "satisfactory"	
Age	In farming reported by boys planning to farm (n = 329)	In "best" nonfarm job reported by boys planning nonfarm careers (n = 505)
20	$4,688	$5,070
30	6,612	7,491

ered "satisfactory" in farming by boys planning to farm was $4,688 for age 20 and $6,612 for age 30. Comparable figures in "best" nonfarm job reported by boys planning nonfarm careers were $5,070 and $7,491, respectively. The median level for boys planning nonfarm occupations was 8 percent higher for age 20 and 13 percent higher for age 30.

A difference in money-income aspirations, however, does not necessarily mean a difference in total or "real" income aspirations. Differences in nonmoney-income aspirations or in implicit "deflators" might affect any difference in money-income aspirations. Although the findings from this study point to a difference in money-income aspirations, it remains to be determined whether there are significant differences in total or "real" income aspirations.

About 37 percent of the boys planning to farm reported "satisfactory" net money incomes in farming at age 20 of less than $4,000. On the other hand, nearly 20 percent reported incomes of $8,000 or more. For age 30, only about 15 percent reported "satisfactory" net money incomes of less than $4,000, whereas nearly 30 percent reported incomes of $8,000 or more.

Land and Capital Needs for a "Satisfactory"
Income in Farming

What kind of a farming opportunity was believed to be needed for a "satisfactory" income by boys planning to farm? Respondents were asked to indicate land needs in terms of crop acres and capital needs in terms of dollars invested in machinery and livestock. Needs were specified for both owner and renter situations (table 29).

In general, boys planning to farm reported land needs substantially greater than the land base of the average Iowa farm. The mean number of crop acres for a "satisfactory" income was 200 for owner and 232 for renter. In 1959, according to the Census of Agriculture, the average number of crop acres per farm was 150 in Iowa. Thus,

boys planning to farm reported an average land need that exceeded the cropland base of the average farm by 33 percent for owner and 55 percent for renter.

In 1959, 93 percent of the farms in Iowa harvested some cropland. Of these, 21 percent harvested 200 or more acres. About 40 percent of the boys planning to farm reported 200 or more crop acres needed for a farm owner to secure a "satisfactory" income. The comparable figure for renter was 45 percent. At the other end of the distribution, more than one-third of the farms harvesting cropland in 1959 harvested less than 100 acres. Only 5 percent of the boys planning to farm reported land needs for an owner of less than 100 crop acres for a "satisfactory" income. Less than 2 percent indicated a "satisfactory" income could be earned as a renter on a unit under 100 crop acres.

The mean investment in machinery and livestock needed for a "satisfactory" income was $17,500 for a renter and $25,200 for an owner. The median values were about $15,500 and $19,000, respectively. Comparable data for the population of Iowa farms are not available from the 1959 Census of Agriculture. Some comparison, however, is provided by a statewide sample of 1,673 farms furnishing business record summaries to the Cooperative Extension Service, Iowa State University.[12] The average investment in machinery and livestock on these farms was about $18,000 in 1959. They had 4 percent more acres and 2 percent more investment in land and buildings than the average census farm. However, these farms had larger livestock programs. Consequently, their investment in livestock was probably greater than on the average census farm. Although no breakdown by tenure groups is available, it appears that the investment needs for a "satisfactory" income reported by boys planning to farm were appreciably larger than the machinery and livestock investment on the average census farm.

About 21 percent of the boys planning to farm reported operating capital needs for a renter of less than $10,000. The comparable figure for owner was 11 percent. Operating capital needs for a renter of $20,000 or more were reported by nearly one-third of the group. Half of the group reported livestock and machinery investment needs for an owner of $20,000 or more.

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[12] E. G. Stoneberg and H. B. Howell. Farm business summary of 1,673 Iowa farms, 1959. FW-1350. Cooperative Extension Service, Iowa State University, Ames, Iowa. Nov. 1960.

Table 29. Crop acres and capital in machinery and livestock needed for a "satisfactory" income as estimated by boys planning to farm.

	Crop acres needed					Capital in machinery and livestock needed				
	As owner		As renter				As owner		As renter	
Crop acres	Number	Percent	Number	Percent		Dollars	Number	Percent	Number	Percent
60 to 99	17	5.1	5	1.5		Under 5,000	5	1.5	14	4.3
100 to 139	39	11.8	15	4.6		5,000- 9,999	33	10.1	55	16.8
140 to 179	113	34.2	92	27.9		10,000-14,999	61	18.7	88	27.0
180 to 219	55	16.6	72	21.9		15,000-19,999	64	19.6	60	18.3
220 to 259	58	17.6	63	19.2		20,000-24,999	60	18.3	56	17.1
260 to 339	34	10.3	47	14.3		25,000-29,999	27	8.3	24	7.3
340 to 419	9	2.7	25	7.6		30,000-34,999	26	8.0	11	3.4
420 and over	5	1.5	10	3.0		35,000-39,999	8	2.4	16	4.9
						40,000 and over	43	13.1	3	0.9
Total	330	100.0	329	100.0		Total	327	100.0	327	100.0
Mean acres		200.2		231.9		Mean dollars		25,200		17,500

Occupational Information

Occupational plans rest partly on expectations. Expectations in turn, are influenced by the quantity and quality of information possessed by the planner. Although this study was not primarily concerned with occupational information, some data were collected for the purpose of appraising the informational levels of farm-plan boys and nonfarm-plan boys.

As noted earlier, farm-plan boys estimated higher 1958 net cash incomes for farms of different sizes than did nonfarm-plan boys. Some check on the accuracy of these statements was provided by data on 1958 net cash incomes for Iowa Farm Business Association farms in the medium- and large-sized categories. Comparable figures were not available for the small farm as specified in this study. A comparison between actual incomes and estimated incomes for farms in the medium- and large-sized groups is presented in table 30.

Judged by the income experience of farm business association farms, the income estimates of farm boys were highly accurate. Farm business association units with the resource characteristics of the medium-sized farm had an average net cash income of $9,228 in 1958, whereas the average estimate made by farm boys for units of medium size was $9,196. For the large-sized farm, the farm business association data gave an average income of $16,035. This compares with an average estimate of $16,840 made by farm boys. The error was less than 1 percent for the medium-sized farm and only 5 percent for the large-sized farm.

It is necessary to recognize, however, that farm management specialists consider association farms to be more efficient than nonassociation farms of the same size. Hence, the errors were probably substantially greater than suggested by these figures. Nevertheless, it appears that farm boys generally had a fairly accurate conception of the income-producing capacity of different sized farms in 1958.

Apparently, the estimates of nonfarm-plan boys were more accurate than those of farm-plan boys. The mean estimate of farm-plan boys exceeded the farm business association standard for both the medium-sized farm and the large-sized farm. On the other hand, the estimates of nonfarm-plan boys averaged slightly lower than the farm business association standards. Since the farm business association figures probably overestimate net cash incomes on typical farms of

similar size, it is likely that the estimates of farm-plan boys were less accurate than those of nonfarm-plan boys.

Characteristics of Selected Occupations

Each respondent was asked to rank a selected number of occupations on the basis of the following characteristics: (1) amount of money needed for training and getting started in the job, (2) opportunity to be your own boss and make your own work decisions, (3) steadiness of income from year to year and (4) social standing of the job (prestige level). In addition, each respondent estimated the income earned per year by the average United States worker in each of several occupations.

Different methods were used to obtain standard rankings for scoring purposes. For scoring the rankings of the amount of money needed for training and getting started in the job, steadiness of income and opportunity to be your own boss, standard rankings were based on a survey of 15 members of the staff of the Department of Economics and Sociology, Iowa State University. Approximately two-thirds of the faculty members participating were extension economists. There was nearly unanimous agreement on the rankings among those surveyed. The model ranking for amount of money needed for training and getting started was (1) medical doctor, (2) Corn Belt tenant farmer, (3) high school teacher, (4) machinist and (5) truck driver. For steadiness of income, the ranking was (1) high school teacher, (2) dentist, (3) semiskilled factory worker and (4) Corn Belt tenant farmer. The ranking for opportunity to be your own boss was (1) farm owner and operator, (2) lawyer, (3) high school teacher and (4) factory worker.

Rankings for the prestige levels of jobs were based on the North-Hatt scale.[13] This gave the following standard ranking: (1) lawyer, (2) high school teacher, (3) Corn Belt tenant farmer, (4) store clerk and (5) taxi driver. The scoring standard for the question on occupational incomes was based on data provided by the Iowa Employment Service. The following occupations and standard incomes were used: (1) electrical engineer, $8,500; (2) skilled machinist, $4,200; (3) Corn Belt tenant farmer, $3,900; (4) semiskilled factory worker, $3,900; and (5) filling station attendant, $3,000.

On the basis of the standard rankings, the absolute deviations, disregarding sign, were determined for each respondent and question. Respondents were classified according to occupational plan, and the mean absolute deviation was computed for each question (table 31).

With one exception, the means of the absolute deviations were significantly greater for farm-plan boys than for nonfarm-plan boys, indicating that, on the average, the rankings of boys planning nonfarm careers were closer to the standard rankings than those of boys planning to farm.

Table 30. Boys' estimates of 1958 net cash income for medium- and large-sized farms, classified by occupational plan, and actual 1958 net cash income for medium and large Iowa Farm Business Association farms.

	Medium-sized farm	Large-sized farm
Net cash income estimated by:		
All farm boys	$9,196	$16,840
Farm-plan boys	9,890	18,680
Nonfarm-plan boys	8,710	15,630
Actual net cash income on Iowa Farm Business Association units[a]	9,228	16,035

[a] Based on data from Iowa Farm Business Association farms supplied by E. G. Stoneberg and H. B. Howell, Cooperative Extension Service, Iowa State University, Ames, Iowa.

[13] C. C. North and P. K. Hatt. Jobs and occupations: a popular evaluation. Opinion News 9:3-13. Sept. 1, 1947.

Table 31. Absolute deviations, disregarding sign, from standard rank-ings of specified job characteristics for selected occupations, classified by occupational plan.

Job characteristic	Mean absolute deviation	
	Farm-plan boys	Nonfarm-plan boys
Amount of money for training and getting started in job*......	4.53	3.73
Steadiness of income from year to year*....................	3.68	3.38
Opportunity to be your own boss, make your own work decisions	1.48	1.45
Social standing of job*................	3.92	2.92
Total deviation, all rankings**..	13.60	11.50
Earnings of average worker in 1958..................................	$11,100.00	$10,480.00

** Difference significant at the 1-percent level.
* Difference significant at the 5-percent level.

The only exception was the question on opportunity to be your own boss. For this characteristic, there was no significant difference between the farm-plan group and the nonfarm-plan group.

The mean deviations for both groups were correlated. High and low mean deviations tended to occur for the same characteristics in both the farm-plan group and the nonfarm-plan group, suggesting that both groups were more or less informed about the same occupational characteristics.

When the deviations for all characteristics were combined, the total for farm-plan boys was significantly larger than that for nonfarm-plan boys. The question on average earnings of workers in selected occupations gave a similar result. The average error (disregarding sign) of the rankings of farm-plan boys was significantly greater than the error of the rankings of nonfarm-plan boys.

Table 32 shows the proportion of farm-plan boys and nonfarm-plan boys underestimating and over-estimating the position of farming based on the standard rankings. With respect to the amount of money needed for training and getting started in the job, a larger proportion of nonfarm-plan boys than farm-plan boys underestimated the rank position of the farmer. However, the average error, as measured by the mean rank deviation, was significantly larger for farm-plan boys than for nonfarm-plan boys. For those overestimating the rank position of farming, there was no difference in the mean rank deviation of boys planning to farm and boys planning nonfarm careers.

Since farming ranked lowest in the standard ranking for steadiness of income, it was impossible to underestimate the position of this characteristic. But a larger proportion of farm-plan boys than nonfarm-plan boys overestimated the rank position of farming with respect to steadiness of income. The mean rank deviation for those over-estimating also was larger for boys planning to farm.

Farming ranked highest in the standard ranking for opportunity to be your own boss. Consequently, the rank position of farming could not be overestimated for this attribute. Whereas there was little difference in the average error of those underestimating, a larger proportion of nonfarm-plan boys than farm-plan boys underestimated the rank position of farming. Boys who were planning to farm overestimated the social standing of farming more frequently than they underestimated it, while boys who were planning nonfarm careers did just the reverse. Although there was no appreciable difference in the average error of those underestimating, the mean rank deviation of farm-plan boys who overestimated the social standing of farming was larger than that of nonfarm-plan boys who overestimated.

About the same proportion of farm-plan boys and nonfarm-plan boys overestimated and under-estimated the rank position of farming with respect to the 1958 income of the average worker. Although there was practically no difference in the mean rank deviation for those underestimating, the average error for those overestimating was substantially larger for farm-plan boys than for nonfarm-plan boys.

As judged by the standard rankings, boys who were planning nonfarm occupations apparently were somewhat better informed about particular occupational characteristics than were boys who were planning to farm. This difference may have been associated with the differences in academic achievement, occupations of older brothers and the occupational views of parents.

Farm Industry Characteristics

To provide a basis for appraising their general knowledge of the farm industry, respondents were asked three multiple choice questions dealing with (1) the direction and rate of change in Iowa farm numbers, (2) the average size of farms in Iowa

Table 32. Percent and mean rank deviation of boys overestimating and underestimating the position of farming relative to other selected occupations when ranked according to specified job characteristics, classified by occupational plan.

Characteristic	Boys underestimating				Boys overestimating			
	Farm-plan group		Nonfarm-plan group		Farm-plan group		Nonfarm-plan group	
	Percent	Mean	Percent	Mean	Percent	Mean	Percent	Mean
Amount of money needed for training and getting started in job....................	46.6	1.87**	61.6	1.77**	24.2	1.00	11.2	1.00
Steadiness of income from year to year.......	....	....	....	....	56.3	1.78	45.0	1.53
Opportunity to be your own boss, make your own work decisions.....	11.5	1.39	24.3	1.32	....	....	....	....
Social standing of the job.....................	26.3	1.44	34.3	1.45	38.2	1.54	26.6	1.30
1958 estimated income of average worker in the job[a]........................	35.7	$1,100.00	34.5	$1,180.00	62.7	$3,280	63.0	$2,400

[a] Mean is based on the absolute error in dollars.
** Difference significant at the 1-percent level.

Table 33. Estimates of change in Iowa farm numbers, trend in farm share of national income and average size of farms in Iowa, classified by occupational plan.

Characteristic	Farm-plan boys		Nonfarm-plan boys		Total	
	Number	Percent	Number	Percent	Number	Percent
Change in Iowa farm numbers:						
Increasing by 5 percent per year	10	3.0	12	2.4	22	2.6
Increasing by 2 percent per year	16	4.8	24	4.8	40	4.8
Staying the same	15	4.5	26	5.1	41	4.9
Decreasing by 2 percent per year	167	50.7	254	50.3	421	50.5
Decreasing by 5 per cent per year	122	37.0	189	37.4	311	37.2
Total	330	100.0	505	100.0	835	100.0
Trend in farm share of national income:						
Increasing	140	42.4	205	40.5	345	41.2
Staying the same	69	20.9	98	19.4	167	20.0
Decreasing	121	36.7	203	40.1	324	38.8
Total	330	100.0	506	100.0	836	100.0
Aveage-sized farm in Iowa:						
80 acres	4	1.2	8	1.6	12	1.4
140 acres	59	17.9	88	17.4	147	17.6
175 acres	147	44.5	211	41.7	358	42.8
200 acres	85	25.8	151	29.8	236	28.2
220 acres	35	10.6	48	9.5	83	10.0
Total	330	100.0	506	100.0	836	100.0

and (3) the trend in the farm share of national income. The answers are summarized in table 33.

Most of the boys were aware of the direction of change in farm numbers. Nearly 88 percent of all respondents indicated that the number of farms in Iowa was decreasing. Half of the group had a reasonably accurate idea of the rate of decline. However, nearly one-third said that the decline was 5 percent per year, a figure substantially greater than the rate of decline in Census farms between 1954 and 1959. There was no appreciable difference in the knowledge of farm-plan boys and nonfarm-plan boys. Both groups were about equally well informed of the trend in farm numbers.

Also, boys who were planning to farm and boys who were planning nonfarm careers had about the same knowledge of the average size of farm in Iowa. The distribution of acreages selected to represent the average-sized farm was similar for both groups. About 19 percent of the boys indicated that the average-sized farm was 140 acres or less; 71 percent selected 175 acres or 200 acres as the closest approximation to the average size unit. And 10 percent indicated it was 220 acres. According to the Census of Agriculture, the average-sized farm in Iowa, based on the 1954 farm definition, was 177 acres in 1954 and 190 acres in 1959.

While most farm boys had reasonably accurate knowledge of average farm size and the trend in farm numbers, a much smaller proportion were aware of the trend in the percentage of national income contributed by the farm sector. Between 1910-14 and 1955-59, the farm share of national income declined from 15.1 percent to 4.9 percent.[14] This trend has characterized all countries experiencing a high rate of economic progress and rapid advance in farm technology. Only 39 percent of all repondents apparently were aware of this trend. Over 41 percent said the farm share of national income was increasing, and 20 percent said it was stable. This suggests that most farm boys may not have much understanding of the impact of the forces of economic growth on the position

of the farm industry in our economy. The sample data showed a small difference in the proportion of farm-plan boys and nonfarm-plan boys who were aware of this trend. This may reflect a real difference in general knowledge of the farm industry which could affect occupational plans. On the basis of other tests, it appears that the difference may have been statistically signficant.

Respondents' Views on Occupational Plans

Boys who planned to enter nonfarm occupations were asked to list the three main reasons why they did not plan to farm. A wide variety of reasons were given, but some were mentioned more frequently than others. About 55 percent of the group said they were not planning to farm because it required too much capital. Nearly 44 percent listed unfavorable working conditions as a reason. Forty percent simply stated that they disliked farming and were not interested in it. Poor income-earning opportunity was given as a reason by 38 percent. Other reasons frequently mentioned were "income too unstable" and "no opportunity to farm." Most of the reasons appeared to be consistent with the hypothesized effects of preferences, resources and relative income expectations discussed earlier.

Obstacles to Occupational Entry

Did farm boys anticipate any difficulties in realizing their occupational plans? If so, what kind of difficulties did they expect to encounter? In response to a direct question, nearly 69 percent of all respondents indicated they expected to have difficulty entering the occupation of their choice. Farm-plan boys anticipated difficulty as frequently as did nonfarm-plan boys (table 34).

Financial difficulties were mentioned most frequently by both groups. More than two-fifths of the farm-plan group expected difficulty in getting the capital needed to get started. Only 5 percent of the nonfarm-plan group mentioned this factor. However, 27 percent of the boys planning a nonfarm career anticipated difficulty in financing the cost of training. This was mentioned by only 3 percent of the boys planning to farm.

A larger proportion of nonfarm-plan boys were

[14] United States Department of Agriculture. Farm income situation. July 1960.

Table 34. Obstacles to occupational entry anticipated by Iowa farm boys, classified by occupational plan.

	Farm-plan boys		Nonfarm-plan boys	
	Number	Percent	Number	Percent
Difficulty anticipated	228	69.0	295	68.8
No difficulty anticipated	102	31.0	134	31.2
Total	330	100.0	429	100.0
Difficulties anticipated:				
Cost of training for job	9	2.7	117	27.3
Large capital investment to get started	138	41.9	20	4.7
Capacity to do the work	15	4.5	62	14.4
Limited opportunity in this occupation where you live	26	7.9	35	8.2
Lack of funds to move to area where job is	18	5.4	12	2.8
Lack of knowledge of where to find this work	1	0.3	24	5.6
Have to support family and/or relatives	9	2.7	7	1.6
Other difficulties	12	3.6	18	4.2
Total	228	69.0	295	68.8

planning to take additional training, and many were planning nonfarm careers that required a college education. Hence, they were probably thinking more about the cost of financing such training. Since there are no rigid educational requirements for entering farming, farm-plan boys, on the other hand, were more concerned about the problem of financing the relatively large investment needed to get established. A larger proportion of nonfarm-plan boys than farm-plan boys indicated doubt about their capacity to do the work required in their chosen occupation. This probably reflects the more rigorous standards of achievement required in many of the occupations planned by nonfarm-plan boys.

Sources of Influence

What sources of influence did farm boys consider important in helping them make their occupational plans. In order of decreasing frequency, farm-plan boys mentioned work on the job, parents, FFA experience, close friends and 4-H experience. Nonfarm-plan boys mentioned parents, close friends, reading, study at school and work on the job (table 35).

Sources associated with farming—for example, work on the job, parents, and FFA and 4-H—were mentioned more frequently by farm-plan boys than by nonfarm-plan boys. On the other hand, sources associated with nonfarm activities were mentioned more frequently by nonfarm-plan boys than by farm-plan boys.

It is not clear just how the boys may have viewed these sources of influence. In some cases they may have provided a positive influence in the

Table 35. Sources of influence considered important by farm boys in making occupational plans, classified by occupational plan.

	Percentage indicating specified source as one of these main sources	
Source of influence	Farm-plan boys (n = 326)	Nonfarm-plan boys (n = 439)
Work on job	78	26
Parents	67	47
FFA experience	35	5
Close friends	24	43
4-H experience	24	3
Study at school	15	36
Occupation of person I admire	14	23
Reading	13	37
Vocational guidance	12	15
Teachers	8	23
Radio and TV	4	11

direction of the occupational plan. In other cases, they may have contributed a negative influence. For example, work experience in farming may have encouraged a boy to farm if his experience were satisfying. If it were not, it may have discouraged him from farming. Perhaps it is reasonable to assume that the boys were more likely to mention positive sources of influence than negative sources of influence. On this assumption, it appears that parents, 4-H and FFA experience, and work on the job gave more encouragement in the direction of farming than in the direction of nonfarm careers.

Selected Family Characteristics

Family factors may influence a boy's occupational plans in many subtle and complex ways. Some may operate via the boy's occupational satisfaction function. Others may influence the availability of resources. Still others may affect expectations of costs and returns in alternative employments. Reference already has been made to the role of family resources in providing assistance for a college education and for occupational entry. In this section, several additional family characteristics of farm-plan boys and nonfarm-plan boys are considered.

Family Structure

The only information collected on family structure was the presence of both biological parents versus other parental or guardian arrangements. This attribute was classified by occupational plans to determine if it should be used as a control in subsequent comparisons of family characteristics. The results showed that farm-plan boys and nonfarm-plan boys were similar with respect to this characteristic. About 97 percent of the boys in both groups lived with their biological mother and father. Hence, this factor was not used as a control.

Educational Attainment of Parents

Evidence presented earlier indicated that boys who were planning to farm had lower educational aspirations than those who were planning nonfarm careers. Were there also differences in the educational attainments of the parents of farm-plan boys and nonfarm-plan boys? Other studies have found a positive correlation between the educational attainment of parents and that of children.[15] Thus, it would not be surprising if the educational level of the parents of farm-plan boys was lower than that of the parents of nonfarm-plan boys.

The information summarized in table 36 suggests that there was little, if any, difference in the educational levels of parents of the two groups of boys. This was especially true for mothers. The sample data showed somewhat greater differences for fathers. But, even here, the differences, if statistically significant, were not large. If there were a significant difference in the educational

[15] See references cited in: W. H. Sewell, A. O. Haller and M. H. Strauss. Social status and educational and occupational aspirations. Amer. Soc. Rev. 22:67-73. 1957.

Table 36. Educational level of parents, classified by occupational plan.

Parent and educational level	Farm-plan boys		Nonfarm-plan boys	
	Number	Percent	Number	Percent
Father:				
Eighth grade or less	195	59.0	263	52.0
Ninth to twelfth grade	42	12.7	55	10.9
High school graduate	75	22.7	131	25.9
College or past high school	11	3.4	35	6.9
No father	4	1.2	15	3.0
No answer	3	1.0	6	1.3
Total	330	100.0	506	100.0
Mother:				
Eighth grade or less	110	33.3	160	31.6
Ninth to twelfth grade	38	11.5	56	11.1
High school graduate	125	37.6	198	39.1
College or past high school	46	13.9	78	15.4
No mother	10	3.0	7	1.4
No answer	2	0.7	7	1.4
Total	330	100.0	506	100.0

levels of parents, apparently it was much smaller than the difference between the educational aspirations of their sons. At best, only a small part of the variation in the educational aspirations of sons appears to have been associated with variation in the educational attainment of parents.

Nonfarm Work Experience of Parents

Nonfarm work experience of fathers and, to a lesser extent, of mothers, may provide farm boys with additional information about nonfarm occupations. It may alter a boy's value orientation in the direction of more favorable consideration of a nonfarm career. Nonfarm employment of the father also may indicate a small farming operation and a weaker commitment to farming as a career. In turn, this may be reflected in the son's attitude toward farming. For these reasons, the nonfarm work experience of parents may be associated with the occupational plans of their sons. A smaller proportion of farm-plan boys may have fathers and mothers with nonfarm work experience.

About 16 percent of the fathers of farm-plan boys were part-time farm operators compared with 22 percent of the fathers of nonfarm-plan boys (table 37). Of the fathers of nonfarm-plan boys who were part-time farmers, about 44 percent worked off the farm less than 24 weeks in 1958, and 56 percent worked off the farm more than 24 weeks. The comparable figures for the farm-plan group were 44 percent and 57 percent, respectively. Although a somewhat larger proportion of the fathers of nonfarm-plan boys were employed at nonfarm work, apparently there was little, if any, difference in the amount of time spent at nonfarm work by those working off farms. About 14 percent of the mothers of non-

Table 37. Father's occupational status in 1958, classified by occupational plan.

Occupational status of father	Farm-plan boys		Nonfarm-plan boys	
	Number	Percent	Number	Percent
Farm operator only	277	83.7	410	77.6
Farm operator and nonfarm worker	53	16.3	115	21.8
Retired on farm	0	0.0	3	0.6
Total	330	100.0	528	100.0
Time at nonfarm work				
1 to 24 weeks	23	43.4	51	44.3
24 weeks and over	30	56.6	64	55.7
Total	53	100.0	115	100.0

farm-plan boys were employed outside the home as against about 9 percent of the mothers of farm-plan boys. While these differences suggest some association between the occupational plans of farm boys and the nonfarm work experience of their parents, much of the association may reflect a correlation between nonfarm work experience and other factors influencing occupational plans.

Parental Views on Career Plans as Reported by Sons

Did most parents of Iowa high school senior farm boys have a career in mind for their sons? If they did, only a small proportion of them made their views known to their children. When each boy was asked if his father had a job in mind for which he thought the boy should plan, only 25 percent of all respondents gave an affirmative answer (table 38). About the same percentage indicated that their mothers had a career in mind for them. For at least three out of four boys, apparently there was no overt effort on the part of parents to steer their sons into any particular occupation.

Of the 209 fathers who had a career for their son in mind, 97 or 46 percent wanted their son to farm. Nearly 72 percent of these boys were planning to farm. Of the 112 fathers who wanted their son to enter a nonfarm occupation, 77 percent had sons who were planning a nonfarm career. Of the 212 mothers who had a career for their son in mind, 31 percent wanted their son to farm and 69 percent wanted him to enter a nonfarm occupation. For the minority of boys whose parents had a particular occupation in mind for them, there was a high degree of similarity between the career plans of the parents and those of their sons. In terms of farm and nonfarm categories, most of these boys were planning the careers that their fathers had in mind for them.

Parental career plans were reported by a significantly greater proportion of farm-plan boys than of nonfarm-plan boys. However, the difference was small. About 8 percent of the farm-plan boys indicated that their father wanted them to enter a nonfarm occupation, whereas 5 percent of the nonfarm-plan boys reported that their fathers wanted them to farm.

Parental Views on Additional Education as Reported by Sons

Earlier the conclusion was reached that boys who were planning to farm had lower educational aspirations than those who were planning a nonfarm career. On the basis of information provided by their sons, apparently the parents of farm-plan boys also had lower educational aspirations for their sons than had the parents of nonfarm-plan boys (table 39).

In response to questions on the views of their parents concerning further education, 33 percent of the farm-plan boys, compared with 56 percent of the nonfarm-plan boys, indicated that their fathers felt they should take additional training. On the other hand, 14 percent of the farm-plan

Table 38. Parental views on career plans as reported by sons, classified by occupational plan.

Response	Farm-plan boys		Nonfarm-plan boys		Total	
	Number	Percent	Number	Percent	Number	Percent
Father has no job in mind*	230	71	385	78	615	75
Father has farming in mind**	70	21	27	5	97	12
Father has nonfarm job in mind**	26	8	86	17	112	13
Total	326	100	498	100	824	100
Mother has no job in mind	247	76	369	73	616	74
Mother has farming in mind	59	18	7	1	66	8
Mother has nonfarm job in mind	19	6	127	25	146	18
Total	325	100	503	100	828	100

* Difference significant at the 1-percent level.
** Difference significant at the 5-percent level.

Table 39. Parental views on boys' education as reported by sons, classified by occupational plan.

Views and Parents	Farm-plan boys		Nonfarm-plan boys		Total	
	Number	Percent	Number	Percent	Number	Percent
Feels he should quit high school and go to work						
Fathers	3	1.0	4	0.8	7	0.8
Mothers	0	0.0	1	0.2	1	0.1
Feels he should plan to work right after high school						
Fathers**	47	14.4	31	6.3	78	9.5
Mothers	44	13.6	31	6.2	75	9.1
Feels he should plan to take additional training						
Fathers**	108	33.1	280	56.3	388	47.2
Mothers	141	43.6	358	71.7	499	60.8
Has never said much about it						
Fathers**	166	50.9	178	35.8	344	41.8
Mothers	136	42.1	105	21.0	241	29.3
Miscellaneous						
Fathers	2	0.6	4	0.8	6	0.7
Mothers	2	0.6	4	0.9	6	0.7
Total						
Fathers	326	100.0	497	100.0	823	100.0
Mothers	323	100.0	499	100.0	822	100.0

** Difference significant at the 1-percent level.

boys reported that their fathers felt they should get a job after completing high school. This answer was given by only 6 percent of the nonfarm-plan boys. Similar farm plan-nonfarm plan differences were observed for mothers.

The most surprising result was the large proportion of mothers and fathers who apparently had not discussed the question of additional education with their sons. Nearly 42 percent of all respondents reported that their fathers had never said much about additional training. The comparable figure for mothers was 29 percent. Evidently mothers discussed educational plans with their sons more frequently than did fathers. Farm plan-nonfarm plan differences were large: About 51 percent of the farm-plan boys reported that their fathers never said much about additional training. This answer was given by 36 percent of the nonfarm-plan boys. The difference was even larger for mothers. No more than 1 percent of the boys in both groups reported that their parents felt they should quit high school and go to work.

Occupation of Older Brothers

Although the proportion of boys with older brothers was about the same (60 percent) in both groups, farm-plan boys had a significantly larger number of older brothers engaged in farming and a significantly smaller number in nonfarm occupations than did nonfarm-plan boys (table 40).

There are at least two possible explanations for these differences: (1) Younger and older brothers were influenced by many of the same occupation-determining forces and tended to respond to these forces in a similar manner. (2) Older brothers influenced the occupational plans of younger brothers in the direction of their own occupation. In both cases, there would be a degree of correspondence between the occupations of older brothers and the occupational plans of younger brothers. While both may be involved, the first is likely to be more important than the second. However, additional information is needed to evaluate these hypotheses.

RELATION OF SELECTED FACTORS TO OCCUPATIONAL PLANS

In the preceding sections, the analysis has focused on the characteristics which differentiated boys who were planning to farm and boys who were planning nonfarm careers. In general, the findings were consistent with hypothesized differences in preference systems, financial resources and relative income expectations. Preference systems that gave heavier weights to the nonincome aspects of farming were more frequent among boys planning to farm. On the average, farm-plan boys also had access to more financial resources. These boys also were more optimistic about relative income-earning opportunities in farming.

In this section, the relationships between occupational plans and nonincome preferences, financial resources and income expectations are analyzed. For this purpose, occupational plans were cross-classified on the basis of distributions of variables measuring (1) the intensity of nonincome preferences for farming, (2) the availability of financial resources and (3) relative income expectations in farming. Each distribution was divided into a high, medium and low group containing approximately the same number of cases, and the relative frequency of farm plans and nonfarm plans in each of the 27 cells was determined (table 41).

Measurement of the intensity of nonincome preferences for farming was based on responses to the choice between farming and a nonfarm job

Table 40. Mean number of older brothers with farm and nonfarm jobs, classified by boys' occupational plan.[a]

Occupation of older brothers	Farm-plan boys	Nonfarm-plan boys
Farm	0.76	0.47
Nonfarm[b]	0.73	0.82

[a] Approximately 60 percent of the boys in each occupational plan group had older brothers. Mean number of older brothers is based on the number of boys having older brothers.
[b] Difference **not** significant at the 5-percent level.

Table 41. Frequency distribution of farm and nonfarm plans, classified by family resources, nonincome preferences for farming and relative income expectations in farming.

Relative income expectations in farming

Variable combination and occupational plan	High Number	High Percent	Medium Number	Medium Percent	Low Number	Low Percent	Total Number	Total Percent
1. High family resources and high nonincome preferences								
Farm plans	44	93.6	35	85.4	18	75.0	97	86.6
Nonfarm plans	3	6.4	6	14.6	6	25.0	15	13.4
2. High family resources and medium nonincome preferences								
Farm plans	9	40.9	15	38.5	9	47.4	33	41.2
Nonfarm plans	13	59.1	24	61.5	10	52.6	47	58.8
3. High family resources and low nonincome preferences								
Farm plans	3	14.3	1	3.7	1	3.1	5	6.2
Nonfarm plans	18	85.7	26	96.3	31	96.9	75	93.8
4. Medium family resources and high nonincome preferences								
Farm plans	28	87.5	26	76.5	11	45.8	65	72.2
Nonfarm plans	4	12.5	8	23.5	13	54.2	25	27.8
5. Medium family resources and medium nonincome preferences								
Farm plans	10	58.8	8	44.4	5	17.9	23	36.5
Nonfarm plans	7	41.2	10	55.6	23	82.1	40	63.5
6. Medium family resources and low nonincome preferences								
Farm plans	1	4.3	1	2.5	1	3.2	3	3.2
Nonfarm plans	22	95.7	39	97.5	30	96.8	91	96.8
7. Low family resources and high nonincome preferences								
Farm plans	15	75.0	14	87.5	15	68.2	44	75.9
Nonfarm plans	5	25.0	2	12.5	7	31.8	14	24.1
8. Low family resources and medium nonincome preferences								
Farm plans	7	29.2	6	23.1	5	19.2	18	23.7
Nonfarm plans	17	70.8	20	76.9	21	80.8	58	76.3
9. Low family resources and low nonincome preferences								
Farm plans	1	5.8	1	2.8	1	3.6	3	3.7
Nonfarm plans	16	94.2	35	97.2	27	96.4	78	96.3

Family net worth (family resources)

Variable combination and occupational plan	High Number	High Percent	Medium Number	Medium Percent	Low Number	Low Percent	Total Number	Total Percent
10. High nonincome preferences and high income expectations								
Farm plans	44	93.6	28	87.5	15	75.0	87	87.9
Nonfarm plans	3	6.4	4	12.5	5	25.0	12	12.1
11. High nonincome preferences and medium income expectations								
Farm plans	35	85.4	26	76.5	14	87.5	75	82.4
Nonfarm plans	6	14.6	8	23.5	2	12.5	16	17.6
12. High nonincome preferences and low income expectations								
Farm plans	18	75.0	11	45.8	15	68.2	44	62.9
Nonfarm plans	6	25.0	13	54.2	7	31.8	26	37.1
13. Medium nonincome preferences and high income expectations								
Farm plans	9	40.9	10	58.8	7	29.2	26	41.3
Nonfarm plans	13	59.1	7	41.2	17	70.8	37	58.7
14. Medium nonincome preferences and medium income expectations								
Farm plans	15	38.5	8	44.4	6	23.1	29	34.9
Nonfarm plans	24	61.5	10	55.6	20	76.9	54	65.1
15. Medium nonincome preferences and low income expectations								
Farm plans	9	47.4	5	17.9	5	19.2	19	26.0
Nonfarm plans	10	52.6	23	82.1	21	80.8	54	74.0
16. Low nonincome preferences and high income expectations								
Farm plans	3	14.3	1	4.3	1	5.9	5	8.9
Nonfarm plans	18	85.7	22	95.7	16	94.1	56	91.8
17. Low nonincome preferences and medium income expectations								
Farm plans	1	3.7	1	2.5	1	2.8	3	2.9
Nonfarm plans	26	96.3	39	97.5	35	97.2	100	97.1
18. Low nonincome preferences and low income expectations								
Farm plans	1	3.1	1	3.2	1	3.6	3	3.3
Nonfarm plans	31	96.9	30	96.8	27	96.4	88	96.7

Nonincome preferences for farming

Variable combination and occupational plan	High Number	High Percent	Medium Number	Medium Percent	Low Number	Low Percent	Total Number	Total Percent
19. High income expectations and high family resources								
Farm plans	44	93.6	9	40.9	3	14.3	56	62.2
Nonfarm plans	3	6.4	13	59.1	18	85.7	34	37.8
20. High income expectations and medium family resources								
Farm plans	28	87.5	10	58.8	1	4.3	39	54.2
Nonfarm plans	4	12.5	7	41.2	22	95.7	33	45.8
21. High income expectations and low family resources								
Farm plans	15	75.0	7	29.2	1	5.9	23	37.7
Nonfarm plans	5	25.0	17	70.8	16	94.1	38	62.3
22. Medium income expectations and high family resources								
Farm plans	35	85.4	15	38.5	1	3.7	51	47.7
Nonfarm plans	6	14.6	24	61.5	26	96.3	56	52.3
23. Medium income expectations and medium family resources								
Farm plans	26	76.5	8	44.4	1	2.5	35	38.0
Nonfarm plans	8	23.5	10	55.6	39	97.5	57	62.0
24. Medium income expectations and low family resources								
Farm plans	14	87.5	6	23.1	1	2.8	21	26.9
Nonfarm plans	2	12.5	20	76.9	35	97.2	57	73.1
25. Low income expectations and high family resources								
Farm plans	18	75.0	9	47.4	1	3.1	28	37.3
Nonfarm plans	6	25.0	10	52.6	31	96.9	47	62.7
26. Low income expectations and medium family resources								
Farm plans	11	45.8	5	17.9	1	3.2	17	20.5
Nonfarm plans	13	54.2	23	82.1	30	96.8	66	79.5
27. Low income expectations and low family resources								
Farm plans	15	68.2	5	19.2	1	3.6	21	27.6
Nonfarm plans	7	31.8	21	80.8	27	96.4	55	72.4

at equal incomes of $4,000 per year and the willingness to forego increments of income in order to have the nonincome benefits associated with the occupations selected. A choice of farming and a willingness to forego at least $1,500 of income were the criteria for establishing the group with the highest nonincome preference for farming. The medium group consisted of boys who (1) selected farming at equal incomes and were willing to forego $500 to $1,000 of annual income, (2) were indifferent between farming and nonfarm employment at equal incomes or (3) selected nonfarm employment at equal incomes and were willing to forego up to $500 to have the nonincome benefits associated with nonfarm employment. The low group was made up of boys who preferred nonfarm employment at equal incomes and were willing to forego $1,000 or more to have the benefits associated with nonfarm work.

Access to financial resources was measured by the net worth of the boy's family. The high group consisted of boys from families with $35,000 or more net worth. Boys whose families had net worth values between $15,000 and $34,999 were classified in the medium group. The low group contained boys from families with less than $15,000 net worth.

The measurement of relative income expectations in farming was based on the boys' estimates of the expected net returns to their labor and a given quantity of capital in farming and nonfarm employments in 1965. The ratios of the expected net returns in farming to the expected net returns in nonfarm employments were computed and arrayed. Boys with ratios of 0.9 and over were classified in the group with high relative income expectations in farming. Those with ratios between 0.6 and 0.8 were placed in the medium group. And those with ratios of 0.5 and less were classified in the low group.

If occupational plans were associated with these variables, the relative frequency of farm plans and nonfarm plans would tend to vary systematically for particular combinations of the "independent" variables. Certain combinations would produce high proportions of farm plans and low proportions of nonfarm plans, while other combinations would produce the opposite results. Still other combinations may produce few if any systematic differences in relative frequencies because the variables would be working in opposite directions with offsetting effects on occupational plans.

Plans When Selected Variables Work in the Same Direction

On the basis of the maximization model outlined earlier, it was hypothesized that high nonincome preferences for farming, high relative income expectations in farming and high family resources would combine to produce a high proportion of farm plans and a low proportion of nonfarm plans. Conversely, low nonincome preferences for farming, low relative income expectations in farming and low family resources would produce a low proportion of farm plans and a high proportion of nonfarm plans. When heterogeneity was reduced for two of these variables, it was expected that relative frequencies of farm and nonfarm plans would be related to the levels of the third "independent" variable. In general, the findings support these hypotheses.

Of the 47 boys with high nonincome preferences for farming, high family net worth and high income expectations in farming, 44 or 94 percent were planning to farm. In contrast, 96 percent of the 28 boys with low nonincome preferences for farming, low family net worth and low income expectations in farming were planning nonfarm jobs.

When boys who had high nonincome preferences for farming and high family net worth were classified according to relative income expectations in farming, 94 percent of the group with high income expectations planned to farm compared with 85 percent of the group with medium income expectations and 75 percent of those with low income expectations. Only 13 percent of the boys with high preferences and high family net worth were planning to enter nonfarm occupations, whereas 96 percent of the boys with low preferences and low family net worth were planning nonfarm jobs.

Similar results were obtained when boys with high nonincome preferences for farming and high relative income expectations in farming were classified by family net worth. Of the boys with high family net worth, 94 percent were planning to farm compared with 88 percent for those in the medium net-worth group and 75 percent for those in the low net-worth group. Only 12 percent of the boys with high nonincome preferences for farming and high relative income expectations in farming were planning nonfarm jobs in contrast to 97 percent of the boys with low nonincome preferences and low relative income expectations in farming.

Boys with high income expectations and high family net worth planned to farm more frequently than did those with low income expectations and low family net worth. Of the 90 boys in the former group, 62 percent planned to farm compared with only 28 percent of the 76 boys in the latter group. When the group characterized by high family net worth and high relative income expectations in farming was classified by the level of nonincome preferences for farming, there were large differences in the relative frequencies of farm and nonfarm plans. Of the boys with high nonincome preferences for farming, 94 percent were planning to farm. This compares with 41 percent of the boys with medium nonincome preferences for farming and only 14 percent of the boys with low nonincome preferences. Among boys with low expectations and low family net worth, the relative frequency of farm plans also declined consistently with decreases in the level of nonincome preferences for farming. In both instances, the proportion of boys planning nonfarm occupations increased consistently with decreases

in the level of nonincome preferences for farming.

Over the range of variation reflected in the measurements of the three "independent" variables, the level of nonincome preferences for farming apparently had the greatest influence on occupational plans. The decline from 94 percent planning to farm in the high preference group to 14 percent planning to farm in the low preference group was much larger proportionately than the changes for the cross-tabulations based on family net worth and relative income expectations in farming. In the latter cases, the changes were from about 94 percent planning to farm in the high groups to about 75 percent planning to farm in the low groups. Evidently, nonincome preferences accounted for more of the variations in occupational plans than did either family net worth or relative income expectations.

The two groups with low nonincome preferences for farming and low family net worth and with low nonincome preferences for farming and low relative income expectations supplied little information because of the smaller number of boys in these groups who planned to farm. However, the limited data for these groups did not contradict the evidence provided by the groups characterized by high levels for these variables.

Information provided by the group having low family net worth and low relative income expectations in farming did tend to support the hypothesis. Low family net worth and low relative income expectations notwithstanding, 68 percent of the group with high nonincome preferences planned to farm whereas only 4 percent of the low nonincome preference group planned to farm.

In general, when groups were characterized by having two of the three "independent" variables working in the same direction, the relationships were consistent with the hypothesized results. The relative frequency of farm plans in each of the subgroups (high, medium and low) decreased in a consistent manner, whereas the relative frequency of nonfarm plans increased in a consistent manner. The findings indicate that the occupational plans of farm boys are related to nonincome preferences, family net worth and relative income expectations. They also suggest that nonincome preferences were more important than either family net worth or relative income expectations in shaping occupational plans.

Plans When Selected Variables Work in Opposite Directions

When two "independent" variables work in the same direction (combinations involving high levels or low levels of both variables), consistent relationships were observed between the relative frequencies of farm plans and nonfarm plans and the level of the third variable. However, the same kinds of relationships did not appear as frequently for combinations of variables working in opposite directions. In fact, they were apparent only in the case of nonincome preferences.

When boys with low family resources and high nonincome preferences were classified by relative income expectations in farming, the proportion planning to farm was 75 percent for the high income expectations group, 88 percent for the medium group and 68 percent for the low group. For the combination of high family resources and low nonincome preferences, there also was no consistent relationship between the relative frequency of nonfarm plans and the level of relative income expectations in farming. Few farm-plan boys were characterized by high family resources and low income preferences.

Likewise, there was no apparent relationship between the relative frequency of farm plans or nonfarm plans and family net worth for combinations of high preferences and low relative income expectations or low preferences and high relative income expectations.

Evidently, the offsetting effects of high and low combinations of (1) family net worth and nonincome preferences for farming and (2) relative income expectations and nonincome preferences obscured the underlying relationships between the third variable and the relative frequencies of farm and nonfarm plans. If the strength of the opposing variables (e.g., high relative income expectations in farming and low nonincome preferences for farming) had been similar, the relationship still may have been apparent. It appears, however, that nonincome preferences for farming may have been considerably more important than other factors in shaping occupational plans.

Some additional support for this view is provided by the results for high and low combinations of family net worth and relative income expectations in farming. When boys with high relative income expectations and low family resources were classified by the level of nonincome preferences for farming, there was a tendency for the relative frequency of farm plans to decrease and for the relative frequency of nonfarm plans to increase with declining levels of nonincome preferences. The same tendency appeared for the combination of low relative income expectations and high family resources. For these combinations, the effect of either high or low family resources may have been neutralized by the effect of opposite relative income expectations, leaving the relationship between nonincome preferences and the relative frequency of farm and nonfarm plans largely undisturbed. Further analysis is needed to substantiate this possibility.

SELECTED IMPLICATIONS FOR FARM POLICY

In basing the analytical framework for this study on the theory of choice, it was assumed that occupational planning by farm boys could be characterized as a rational (maximizing) activity. The fact that the hypotheses derived from this theory were generally consistent with the sample evidence is strong reason for believing that this assumption was realistic. Moreover, it attests to the usefulness of the theory as a tool for occupational analysis. The experience from this exploratory study suggests that a model based on the theory of choice could be developed that would be capable of pre-

dicting occupational plans within reasonable limits of error.

The findings support the generalization that the important variables influencing the occupational plans of farm boys include nonincome preferences, available resources and relative income-earning expectations. The probability is high that an Iowa farm boy will plan to farm if (1) he has a strong preference for the nonincome characteristics of farming, (2) his family has a high net worth and (3) he expects future income-earning opportunities to be relatively favorable in farming. If these conditions are reversed, the probability is high that he will plan a nonfarm career.

Developments which affect these variables, therefore, will influence the occupational plans of farm boys. For example, public policies which strengthen nonincome preferences for farming, increase farm family net worth and encourage more optimistic relative income expectations in farming, are likely to increase the proportion of farm boys who plan to farm and to reduce the proportion who plan nonfarm careers. Other programs also may alter the proportions planning farm and nonfarm occupations. For instance, expanded programs of occupational information may influence plans by encouraging more accurate appraisal of the requirements and advantages associated with different occupations. In the context of the present study, however, the strongest and clearest basis for suggesting policy implications relates to programs designed to raise farm income.

The effects of income-raising programs on the number of farm boys seeking entry into farming partly depend on the nature of the supply of farm boy entrants in farming.[16] While this study does not offer conclusive evidence on this point, the data on employment preferences presented earlier provide some insight into the nature of the relationship between the number offering to farm and relative income in farming.

It is sometimes assumed that employment choices are based entirely on income considerations. If this were true of farm boys, they would prefer farming to nonfarm employment when income expectations were higher in farming than in nonfarm employment. They would prefer nonfarm employment to farming when the opposite were true. These choices would be consistent with income maximization in the absence of nonincome restraints. This would make the supply of farm boy entrants in farming perfectly elastic at a relative income in farming of 1.0 (ratio of income in farming to income in nonfarm employment). With a perfectly elastic supply, a shift in the demand for entrants would change the number of entrants, but it would not change the level of relative income.[17] A decline in relative income below 1.0 would completely dry up the flow of farm boys into farming. With respect to entry, a perfectly elastic supply of entrants would result in the largest possible reduction in the number of farm workers in response to a disparity in income-earning opportunities in farming. This, in turn, would produce the maximum income-raising effect via a decline in the number of farm operators.

The Iowa evidence indicates, however, that nonincome considerations weigh heavily in the occupational planning of farm boys.[18] A sizable proportion of farm boys would offer their resources for farming even at relative incomes substantially below 1.0. Another sizable proportion would offer their resources for nonfarm employment even at relative incomes appreciably above 1.0.[19] Apparently the supply of farm-boy entrants in farming covers a range of relative incomes well above and below 1.0. Relative incomes below 1.0 are not likely to halt the flow of farm boys into farming; relative incomes above 1.0 are not likely to stop the movement into nonfarm jobs.

But the employment preferences of farm boys appear to be highly responsive to changes in relative income in farming. A given increase (or decrease) in relative income was associated with a relatively large increase (or decrease) in the number of boys who preferred farming and a relatively large decrease (or increase) in the number who preferred nonfarm employment. Evidently, the elasticity of supply of farm-boy entrants in farming is quite high over a range of relative incomes above and below 1.0. While a given decline in relative income below 1.0 is not likely to halt the flow of farm boys into farming, it is likely to induce a relatively large reduction in the number of entrants. On the other hand, a given increase in relative income above 1.0 is likely to induce a relatively large increase in the number seeking to enter farming even though some boys still are likely to enter nonfarm jobs despite lower relative incomes.

Some indication of the supply of 1959 senior farm boy entrants in farming from Iowa high schools in rural areas and cities under 25,000 population is given by the data in table 42.[20] The figures in the second column were derived by applying the sample estimates of the proportion of farm boys who preferred farming to nonfarm employment at different levels of relative income

[16] The supply of farm boy entrants is defined as a schedule showing the number of farm boys offering (preferring) to farm at different levels of relative income in farming.

[17] The demand for entrants in farming is defined as a schedule showing the number of opportunities in farming to earn different levels of relative income. Under given technological, price and organizational conditions, this number would be inversely related to the level of relative income.

[18] As described earlier, the information on employment preferences at different levels of income in farming was obtained by a series of questions specifying particular incomes in farming and nonfarm employment. Boys were asked to indicate their employment preference for each income situation. This method of generating the data raises the following question: Would the boys have responded as they said they would, if they had actually been faced with the income situations specified? No clear-cut answer can be given to this question. However, there are strong reasons for believing that indicated behavior and actual behavior would be highly correlated. Yet, there is an element of doubt about the degree of correspondence. Consequently, the results must be considered tentative.

[19] The data on employment preferences at different levels of relative income undoubtedly reflect the values and knowledge of the boys at the time of the survey. Further research is needed to explain the wide variation in the indicated employment preferences of farm boys, and to appraise the relative importance of values and knowledge in determining these preferences.

[20] The total supply of entrants in farming includes both farm and nonfarm components. The nonfarm component is made up of the number of persons from the nonfarm sector who would offer (prefer) to farm at different levels of relative income in farming. At historical levels of relative income in farming, the nonfarm sector has been a less important source of entrants in farming than has the farm sector.

Table 42. Apparent supply of 1959 high school senior farm boy entrants in farming from Iowa rural areas and cities under 25,000 population.

Relative income in farming[a]	Estimated number preferring farming to nonfarm employment
1.62 and over	4,845
1.50	4,739
1.37	4,265
1.25	3,844
1.12	3,370
1.00	2,896
0.89	2,475
0.80	1,790
0.73	1,159
0.67	579
0.62 and less	421
Estimated total number	5,266

[a] Ratio of income in farming to income in nonfarm employment.

in farming (table 9) to the estimated total number of senior farm boys attending these high schools in 1959. This total was estimated by multiplying the sample total, adjusted to reflect the definition of a farm boy adopted in this study, by the reciprocal of the sampling rate.[21] Since the sample was drawn from a population of farm boys in the senior class of high schools in rural areas and cities under 25,000 population, there is no representation of farm boys who dropped out of school prior to the senior year or of those attending high schools in cities of over 25,000 population. Thus, information on employment preferences was not available for these groups. The estimates, therefore, are not representative of the total supply of farm-boy entrants in farming. However, high school senior farm boys from the population represented in the sample undoubtedly make up the larger part of this supply.

In 1959, about 2,900 senior farm boys from the population of high schools sampled, preferred farming to nonfarm employment at a relative income in farming of 1.0. With a relative income of 0.89, a decrease of 11 percent, the number dropped to less than 2,500, a decline of over 14 percent. With a relative income of 1.12, an increase of 12 percent, the number rose to nearly 3,400, an increase of about 16 percent. These proportional changes indicate an elasticity substantially greater than unity.

If the supply of entrants in farming is as elastic as these figures suggest, developments which encourage more optimistic income-earning expectations in farming will induce a relatively large increase in the number of entrants. Long-range programs that raise relative incomes in farming without reducing the supply of entrants (shifting the supply curve to the left), therefore, are likely to cause a relatively large increase in the number of farm boys who seek entry into farming. In addition to the increase induced by encouraging more optimistic income expectations, there is likely to be an increase associated with rising farm family net worth and a greater capacity to finance entry. An increase in the capacity to

finance entry would have the effect of raising the supply of entrants, so that a larger number would offer to enter farming at a given level of relative income. Unless such programs were accompanied by additional restrictions on entry, they would tend to be self-defeating over the long run since an increase in the number of entrants would likely reduce relative incomes in farming. During a period of a few years, this effect is likely to be comparatively small because even a large increase in the number of entrants would have a relatively small impact on the total number of farm operators.

If the supply of entrants in farming has a positive slope over a range of relative incomes above and below 1.0, the equilibrium level of relative income could be less than 1.0. This would be true if the strength of the demand for entrants were such that the number of opportunities to earn a relative income of 1.0 was smaller than the number of boys offering to enter farming at that level of relative income. For then, the number of opportunities and the number offering to enter would come into balance at a relative income below 1.0.

Unfortunately, there is a dearth of quantitative information on the demand characteristics for entrants in farming. Little is known about the demand shifters or the elasticity of the relationship between the level of relative income and the number of farming opportunities.[22] It is clear, however, that the demand for entrants has been declining. The number of opportunities to earn a given level of relative income in farming today is much smaller than it was in 1940. The forces responsible for this are the same forces which have reduced the total demand for farm labor as outlined earlier.

Agricultural economists generally agree that the farm industry is currently burdened with a serious excess supply of resources, particularly labor.[23] Without large government-induced income transfers, earning opportunities for labor and capital in farming would be substantially below those in the nonfarm sector.[24] Projection studies suggest that this problem is not likely to disappear in

[21] A farm boy was defined as a male of high school senior age who lived in the household of a farm operator farming a unit having 25 or more acres of cropland. Since school officials used a more liberal definition, about 7 percent of the individuals identified as farm boys failed to meet the above criteria.

[22] An exploratory study of the quantitative and qualitative characteristics of farming opportunities in Iowa is being conducted by the Department of Economics and Sociology and the Department of Statistics at Iowa State University. Preliminary estimates, based on a statewide sample, indicate that in 1959 about 2,450 individuals entered farming in Iowa. There was great variation in the incomes earned by entrants during their first year of operation. Gifts received from relatives had a large effect on disposable income and net worth. About 62 percent were below 28 years of age. Nearly 14 percent were over 43 years. All but 10 percent had been gainfully employed the year preceding entry. Almost one-fourth of all entrants farmed their first year under some form of partnership arrangement, usually with relatives. Practically all of the partnership arrangements involved entrants under 28 years of age.

[23] See, for example: Iowa State University, Center for Agricultural and Economic Adjustment. Problems and policies of American agriculture. Iowa State University Press, Ames. 1959; Iowa State University, Center for Agricultural and Economic Adjustment, Dynamics of land-use—needed adjustment. Iowa State University Press, Ames. 1961; and Joint Economic Committee. Policy for commercial agriculture, its relation to economic growth and stability. Joint Economic Committee, 85th Cong., 1st Sess. Nov. 22, 1957.

[24] Donald Kaldor, Raymond Beneke and Russell Bryant. Comparison of resource returns of well-organized Iowa farms with selected nonfarm opportunities. Iowa Agr. and Home Econ. Exp. Sta. Res. Bul. 491. March 1961.

the near future simply with the passage of time.[25]

Under such conditions, the level of demand for entrants in farming would be extremely low. An excess supply of resources implies that there would be no opportunities, without government support, to earn relative incomes of 1.0 — the demand curve for entrants would intersect the relative income axis below 1.0. This would mean that the number offering to farm would come into balance with the number of opportunities at a relative income below 1.0. In this case, new farm operators would tend to consist of individuals who attach a positive net value to the nonincome characteristics of farming.[26] If it were true historically that people who entered farming attached a substantial

positive net value to the nonincome characteristics of farming, this would help to explain the existence of a long-run disparity between income-earning opportunities in farming and those in other employments. Of course, other factors also influence the long-run level of relative income in farming. Some of these become obstacles to achieving a perfect state of economic adjustment for the farm industry. But even in a perfect state of adjustment, there may be a disparity in income-earning opportunities in farming because of nonincome preferences.

While this study has shed some light on the occupational plans of farm boys and the nature of the supply of farm-boy entrants in farming much remains to be learned. Also, there is a great need for more and better information about the number of farming opportunities capable of generating different levels of income under alternative rates of agricultural adjustment. Increased knowledge in these areas can make an important contribution to the occupational welfare of farm boys, the long-run adjustment of the farm industry and the efficient use of the nation's manpower resources.

[25] See, for example: R. O. Rogers and G. T. Barton. Our farm production potential, 1975. U. S. Dept. Agr., Agr. Inf. Bul. 233. Sept. 1960; Geoffrey Shepherd, Arnold Paulsen, Francis Kutish, Donald Kaldor, Richard Heifner and Gene Futrell. Production, price and income estimates and projections for the feed-livestock economy, under specified control and market-clearing conditions. Iowa Agr. and Home Econ. Exp. Sta. Spec. Rep. 27. 1960; and, Farm price and income projections 1960-65. Senate Doc. 77, 86th Cong., 2nd Sess. U. S. Govt. Print. Off., Washington, D. C. 1960.

[26] Also, some may enter farming because their income-earning expectations are more favorable than those implied by an excess supply of resources.

Methods of Estimation and Measures of Reliability

Estimating Group (Domain) Means,
Differences Between Group Means and
Variances of Differences Between
Group Means

Notation

y_{hti} = Characteristic of ith student in t^{th} segment of hth stratum;

$$h = 1, 2, \ldots, L \quad (L = 10)$$
$$t = 1, 2, \ldots, n \quad (n = 2, N = 12)$$
$$i = 1, 2, \ldots, m_{ht} \quad (m_{ht} = 50)$$

$$_j y_{hti} = \begin{cases} y_{hti} & \text{—if } hti^{th} \text{ student belongs in } j^{th} \text{ group,} \\ 0 & \text{—otherwise;} \end{cases}$$

m_{ht} = number of students in t^{th} segment of hth stratum in sample;

$_j m_{kt}$ = number of students in t^{th} segment of hth stratum in sample that are in j^{th} group;

m_h = number of students in h^{th} stratum in sample;

$_j m_h$ = number of students in h^{th} stratum in j^{th} group;

m = number of students in sample;

$_j m$ = number of students in sample in j^{th} group;

M_h = number of students in h^{th} stratum in population;

M = number of students in population;

$$\frac{M_h}{M} \doteq \frac{1}{L} = \frac{1}{10}.$$

Estimates. The following formulas were used to estimate group means, differences between group means and variances of these differences:

$_j\hat{\bar{y}}_h$ = estimate of population mean of jth group in h^{th} stratum;

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[1] Prepared by Harold D. Baker, Department of Statistics, Iowa State University.

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$$_j\hat{\bar{y}}_h = {_j\bar{y}_h} = \sum_{t=1}^{n} \frac{_j m_{ht}}{_j m_h} \, _j\bar{y}_{ht} = \text{simple sample mean;}$$

$_j\hat{y}$ = estimate of over-all population mean of jth group;

$$_j\hat{y} = {_j\bar{y}} = \sum_{h=1}^{L} \frac{_j m_h}{_j m} \, _j\bar{y}_h = \text{simple sample mean;}$$

$_1\hat{y} - {_2\hat{y}}$ = estimate of difference between two group means;

$$v({_1\hat{y}} - {_2\hat{y}}) \doteq \left(\frac{1}{L}\right)^2 \left(\frac{n}{n-1}\right) \sum_{h=1}^{L} \sum_{t=1}^{n}$$

$$\left\{ \frac{_1 m_{ht}}{_1 m_h} ({_1\bar{y}_{ht}} - {_1\bar{y}_h}) - \frac{_2 m_{ht}}{_2 m_h} \right.$$

$$\left. ({_2\bar{y}_{ht}} - {_2\bar{y}_h}) \right\}^2 = \left(\frac{1}{100}\right) \quad (2)$$

$$\sum_{h=1}^{10} \sum_{t=1}^{2} \left\{ \frac{_1 m_{ht}}{_1 m_h} ({_1\bar{y}_{ht}} - {_1\bar{y}_h}) \right.$$

$$\left. - \frac{_2 m_{ht}}{_2 m_h} ({_2\bar{y}_{ht}} - {_2\bar{y}_h}) \right\}^2.$$

In this case, since $n = 2$, this formula can be reduced to:

$$v({_1\hat{y}} - {_2\hat{y}}) \doteq \left(\frac{1}{100}\right) (4) \sum_{h=1}^{10} \left\{ {_1w} ({_1\bar{y}_{h1}} - {_2\bar{y}_{h2}}) \right.$$

$$\left. - {_2w} ({_2\bar{y}_{h1}} - {_2\bar{y}_{h2}}) \right\}^2$$

where $_j w = ({_j m_{h1}}) ({_j m_{h2}}) / ({_j m_{h1}} + {_j m_{h2}})^2$

t-test for difference between two group means.

$$t = \frac{_1\hat{y} - {_2\hat{y}}}{\sqrt{v({_1\hat{y}} - {_2\hat{y}})}} \qquad \begin{aligned} df &= L({_1}n + {_2}n - 2) \\ &= 10(2 + 2 - 2) \\ &= 20 \end{aligned}$$

Estimating Group Proportions,
Differences Between Group Proportions
and Variances of These Differences

Notation

$$y_{hti} = \begin{cases} 1\text{—if } hti^{th} \text{ student possesses character-} \\ \quad \text{istic in question (e.g., belongs to 4-H)} \\ 0\text{—otherwise;} \end{cases}$$

$$_jy_{hti} = \begin{cases} y_{hti}\text{—if } hti^{th} \text{ student belongs to } j^{th} \\ \quad \text{group,} \\ 0\text{—otherwise;} \end{cases}$$

$$_jm_{hti} = \begin{cases} 1\text{—if } hti^{th} \text{ student belongs to } j^{th} \text{ group,} \\ 0\text{—otherwise.} \end{cases}$$

Then,

$$\sum_{i=1}^{m_{ht}} {}_jy_{hti} = {}_jy_{ht} = \text{number of students in } t^{th} \text{ seg-} \\ \text{ment of } h^{th} \text{ stratum who possess char-} \\ \text{acteristic and who belong to } j^{th} \text{ group;}$$

$$\sum_{i=1}^{m_{ht}} {}_jm_{hti} = {}_jm_{ht} = \text{number of students in } t^{th} \\ \text{segment of } h^{th} \text{ stratum who belong to} \\ j^{th} \text{ group;}$$

$$_jp_{ht} = \frac{_jy_{ht}}{_jm_{ht}} = \text{sample proportion of students in} \\ j^{th} \text{ group in } t^{th} \text{ segment of } h^{th} \\ \text{stratum who possess character-} \\ \text{istic.}$$

Similarly,

$$_jp_h = \sum_{t=1}^{n}\left(\frac{_jm_{ht}}{_jm_h}\right){}_jp_{ht} = \sum_{t=1}^{n}\left(\frac{_jm_{ht}}{_jm_h}\right)\left(\frac{_jy_{ht}}{_jm_{ht}}\right) = \frac{_jy_h}{_jm_h}$$

= sample proportion of students in h^{th} strat-
um in j^{th} group who possess characteristic;

$$_jp = \frac{_jy}{_jm} = \text{sample proportion of students in } j^{th} \\ \text{group who possess characteristic;}$$

$$_j\hat{P} = {}_jp = \text{estimate of proportion of students in} \\ j^{th} \text{ group in population who possess} \\ \text{characteristic;}$$

$$_1\hat{P} - {}_2\hat{P} = \text{estimate of difference between two} \\ \text{group means.}$$

In computing the variance of the differences be-
tween the proportions in two groups, the formula
of the preceding section was applied to the $_jP$'s.

Thus:

$$v(_1\hat{P} - {}_2\hat{P}) \doteq \left(\frac{1}{100}\right)(2)\sum_{h=1}^{10}\sum_{t=1}^{2}\left\{\frac{_1m_{ht}}{_1m_h}\right.$$
$$\left.(_1p_{ht} - {}_1p_h) - \frac{_2m_{ht}}{_2m_h}(_2p_{ht} - {}_2p_h)\right\}^2$$

Again, this formula can be reduced to:

$$v(_1\hat{P} - {}_2\hat{P}) \doteq \left(\frac{1}{100}\right)(4)\sum_{h=1}^{10}\left\{_1w(_1p_{h1} - {}_1p_{h2})\right.$$
$$\left. - {}_2w(_2p_{h1} - {}_2p_{h2})\right\}^2$$

where $_jw = (_jm_{h1})(_jm_{h2})/(_jm_{h1} + {}_jm_{h2})^2$

t-test

$$t = \frac{_1\hat{P} - {}_2\hat{P}}{\sqrt{v(_1\hat{P} - {}_2\hat{P})}} \qquad\qquad df = 20$$