MIGRATION FROM AGRICULTURE: AN HISTORICAL ANALYSIS

Thesis for the Degree of M. S.
MICHIGAN STATE UNIVERSITY
DONALD WILLIAM GAILEY
1973

ABSTRACT

MIGRATION FROM AGRICULTURE:
AN HISTORICAL ANALYSIS

By

Donald William Gailey

Agriculture has been a crucial factor in the economic growth of the nonfarm sector of the United States. Aside from providing food and fiber, this contribution has taken form in the transfer of human capital to the nonfarm sector. Undoubtedly, this massive transfer of productive human resources has permitted a more rapid rate of capital accumulation and product output in the nonfarm sector. However, migration from the agricultural sector to the nonfarm sector in the United States has not been without private and social costs.

Migration from agriculture has been a selective process. Most farm people migrating to the nonfarm sector move only short distances to obtain employment. However, certain segments of those migrating from agriculture move long distances. These long distance migrants, composed of the young, males, nonwhites, and low income persons tend to move to central city metropolitan areas. The selectivity of the migration process creates attendant

problems relative to the viability of receiving areas--the urban problems. The selectivity of the process also has implications for the social and economic health of rural areas.

The basic objective of this study was to investigate the relationship of various demographic and economic characteristics of actual off-farm movers to the distance they migrated in transferring to exclusively nonfarm employment. Results of this analysis provide a clearer understanding of the impact of migration on rural and urban communities. Meaningful public policies can be formulated with this additional information source.

Multiple linear regression equations for the nation and for each of the five regions were employed for this analysis. Data employed were derived from the one per cent continuous Work History Sample maintained by the Social Security Administration. Distance migrated was the dependent variable in the regression analyses. Income change, race, age, farm employment status, farm earings, distance from an SMSA, and nonfarm industry were the independent variables. With the exception of income change, all independent variables were categorized and entered the regression equations as dummy variables.

From the multiple regression analyses for the nation and the regions, major findings were: (1) Income change was not significantly related to distance migrated, both

nationally and by region. Apparently short-run compensation for monetary and opportunity costs was not important in inducing long-distance migration. (2) For the nation as a whole, race was not significant in explaining long-distance migration. However, on a regional basis, Negroes were willing to migrate longer distances than nonNegroes. (3) Long-distance migration for all equations was inversely related to increasing age, particularly for farm individuals 35 years of age and older. (4) Single and multiple job farm wage workers were more responsive to distance than multiple and single job farm operators, both nationally and by region. (5) Farm earings prior to migration for all equations were negatively related to distance. (6) Distance migrated and distance from an SMSA were inversely related for off-farm migrants living within 50 miles of an SMSA but were positively related for greater distances from an SMSA, particularly for the nation as a whole. (7) Off-farm migrants moved greater distances to construction, manufacturing, primary and service industries, and government employment than to utilities and wholesale and retail trade employment.

Since long-distance migration was found to be primarily associated with the young, Negroes, low income persons, and off-farm movers initially securing blue-collar jobs, the implications for urban areas included receiving farm migrants with few marketable skills and uncertain

employment possibilities, the probability of more rapid unemployment, and possibly frustration, discontent, and poverty. Alternatively, the impact on rural areas included continual economic deterioration from the loss of potential production and consumption necessary for a viable rural economy, further inadequacy of basic public services, and possibly rural poverty.

The public policy implications of the analysis indicated that mutual cooperation between rural and urban areas must be encouraged. For a lasting solution to the problems attendant to migration, meaningful public policies must be designed to promote a heterogeneous development of rural economies and an improvement of rural living conditions to discourage further massive off-farm migration and concentration in metropolitan areas.

MIGRATION FROM AGRICULTURE:
AN HISTORICAL ANALYSIS

By

Donald William Gailey

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

Department of Agricultural Economics

1973

ACKNOWLEDGMENTS

The author wishes to express his appreciation to his two major professors during the course of this study, Drs. Dale E. Hathaway and James B. Johnson. Dr. Hathaway's suggestions and criticisms were instrumental in the development and early drafts of the thesis. Dr. Johnson's contributions were invaluable to the completion of the final draft. By meticulously reading and editing the entire thesis, Dr. Johnson provided many helpful suggestions and much needed guidance. No student could ask for a more generous effort from a major professor.

A thank you is also extended to Dr. Robert L. Gustafson who provided assistance with quantitative problems and offered worthwhile suggestions for the interpretation of the results of the analysis.

Appreciation is also expressed to the Department of Agricultural Economics for the provision of financial assistance and study facilities.

The author wishes to express a very special thanks to his parents, Mr. and Mrs. A. T. Gailey. Their continual support and encouragement made possible the completion of this phase of my education.

Finally, I wish to express my sincere appreciation to my wife, Nikki, and girls, Adella and Brenna, for their unselfish sacrifices throughout the writing of this thesis. Their sacrifices may never be repaid.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDIX TABLES

CHAPTER I

INTRODUCTION

The Problem Setting

Since the depression decade of the 1930's, agricultural economic development in the United States has been phenomenal. The material record in both production and marketing is remarkable, considering the complexity of the problems with which agriculture has been plagued. Amid price and income uncertainties, agriculture has developed into a technologically advanced and highly productive industry.

Through the employment of various technological innovations, an average farmer of today supplies himself and over 40 other persons with farm products. Comparable economic progress has also occurred in the nonfarm sector. This progress has come partially as a result of the accomplishments in agriculture. Especially in earlier decades, agriculture was a crucial factor in the economic growth of the nonfarm sector. Aside from providing food and fiber, this contribution took the form of a transfer of human capital to the nonfarm sector. The transfer of these productive human resources was important in setting the stage

for further maturity in growth by permitting a more rapid rate of capital accumulation and greater increases in nonfarm output.

However, so sanguine a view of the development in agriculture and its accompanying contribution to the nonfarm economy must be interpreted with care. The process of economic development in the United States has been characterized by a rapid transformation from a rural, agricultural economy to an urban, industrial one. Such change has involved drastic alterations of social and economic relationships, particularly with respect to migration of human capital from agriculture. In more recent decades, the agricultural economy has become increasingly dependent on nonfarm economic growth, full employment, and public agricultural policies. Cities have grown in population with such rapidity that social and economic problems have become almost unmanageable. As a consequence, the social and economic health of many rural and urban areas may be in question.

The historical record of migration from agriculture highlights a massive transfer of people.[1] After the depression, the proportion of the total population composed of farm people declined rapidly. From 25.8 per cent in 1933,

---

[1]See Appendix A for definitions used in this study.

the farm population declined to an estimated 4.8 per cent of the total U.S. population in 1970.[2] While some of the change was due to large increases in the total population, of major importance was migration out of agriculture. For the period 1930 to 1962, the net movement from farms to nonfarm areas and/or occupations was more than 23 million people.[3] For the three decades prior to the 1960's, the rate of out-migration was even more pronounced. For the 1930-40 period, the net out-migration rate was 13 per cent of the initial 1930 population, compared with 31 per cent of the initial 1940 population for the 1940-50 period, and 29 per cent of the initial 1950 population for 1950-59.[4] In the words of Johnson, "One is almost led to wonder how the crops and livestock were tended!"[5]

---

[2]U.S. Department of Agriculture, Farm Population Estimates For 1910-62, by Vera J. Banks, Calvin L. Beale, and Gladys K. Bowles, ERS-130 (Washington, D.C.: Government Printing Office, 1963), Table 1, p. 19, and U.S. Bureau of the Census, Current Population Reports, Series P-27, No. 42, "Farm Population" (Washington, D.C.: Government Printing Office, 1971), Table A, p. 1.

[3]U.S. Department of Agriculture, Farm Population--Net Migration From the Rural--Farm Population, 1940-50, by Gladys K. Bowles, Statistical Bulletin No. 176 (Washington, D.C.: Government Printing Office, 1956), Table 1, p. 16, and U.S. Department of Agriculture, Farm Population Estimates For 1910-62, Table 5, p. 23.

[4]U.S. Department of Agriculture, Farm Population--Net Migration From the Rural--Farm Population, 1940-50, Table A, p. 13, and Brian B. Perkins, "Labor Mobility Between the Farm and the Nonfarm Sector," (unpublished Ph.D. thesis, Michigan State University, 1964).

[5]D. Gale Johnson, "Policies to Improve the Labor Transfer Process," Amer. Econ. Rev., L (May 1960), p. 403.

Traditionally, two basic reasons are given for the occurrence of farm-nonfarm migration. These are: (1) the low returns to human effort in agriculture relative to nonfarm employment and, (2) the declining demand for labor in agriculture. Notwithstanding the large movements of labor out of agriculture, for many, the returns to human effort in agriculture have not risen relative to labor earnings in the nonfarm sector. The farm population per capita income averaged only 40 per cent of the nonfarm level for the period 1935-39, 54 per cent for the 1940-49 and 1950-59 periods, and 69 per cent for the period 1960-70.[6] Based on 1960 data, and after appropriate adjustments for differences in labor capacity, sex and age composition, labor force participation, relative share of labor earnings, purchasing power of money income, income tax payments, and value of home produced food at retail prices, Hathaway estimated ". . . that the average per capita income on farms would have to be about 88 per cent of nonfarm levels to represent comparable labor earnings for the farm population."[7]

With the advent of the technological revolution in agriculture in the 1930's, the demand for labor steadily

---

[6]U.S. Department of Agriculture, Farm Income Situation, (Washington, D.C.: Government Printing Office, July 1971), Table 7H, p. 50.

[7]Dale E. Hathaway, Government and Agriculture: Economic Policy in a Democratic Society (New York: Macmillian and Company, 1963), Ch. 2, p. 35.

declined, especially for certain enterprises and regions. The total man-hours of labor used for farm work declined from 22.3 million in 1930-34 to 6.8 million in 1969. For the same periods, the number of tractors, exclusive of steam and garden, increased from one million to 4.8 million.[8] The decline in labor demand was particularly true for milk, feed grains, cotton, and hay and forage, all of which had labor intensive processes replaced by capital intensive processes. Moreover, this decline was the most pronounced in the Southeast, Delta, Southern Plains, and Appalachian regions, in general reflecting the decline in labor demand associated with the enterprises specific to the regions.

Along with the magnitude of movements out of agriculture is the well documented observation that the transfer process itself is very selective.[9] Adjustments to nonfarm

---

[8]U.S. Department of Agriculture, Changes in Farm Production and Efficiency, Statistical Bulletin No. 233 (Washington, D.C.: Government Printing Office, 1970).

[9]See Dale E. Hathaway, "Occupational Mobility from the Farm Labor Force," in Farm Labor in the United States, ed. by C. E. Bishop (New York: Columbia University Press, 1967), pp. 71-96; Dale E. Hathaway, "Migration from Agriculture: The Historical Record and Its Meaning," Amer. Econ. Rev. (May, 1960), pp. 379-391; D. Gale Johnson, "Labor Mobility and Agricultural Adjustment," in Agricultural Adjustment Problems in a Growing Economy, ed. by Earl O. Heady, et al. (Ames, Iowa: Iowa State University Press, 1958), pp. 163-172; Vernon W. Ruttan, "The Human Resource Problem in American Agriculture," in Farming, Farmers, and Markets for Farm Goods, ed. by Karl A. Fox, et al. (New York: Committee for Economic Development, 1962), pp. 73-116; and Larry A. Sjaastad, "Occupational Structure and Migration Patterns," in Labor Mobility and Population in Agriculture (Ames, Iowa: Iowa State University Press, 1961), pp. 8-27.

opportunities through migration appear to be significantly affected by biological, social, and economic inheritance. Often, those farm individuals who could benefit most from off-farm migration do not migrate. Likewise, success in adjusting to a nonfarm environment and remaining permanently employed in the nonfarm sector appear to be related to this selectivity.

In a recent study for the President's National Advisory Commission on Rural Poverty, Hathaway and Perkins found that, although most off-farm movers do not migrate more than 50 miles, long-distance migration was more common among the young, Negroes, males, low income persons, and those from high income counties.[10] However, they concluded that long-distance migrants did not have long-term earnings as high as short-distance movers and that long-term earnings were highest for whites and persons with high incomes in agriculture before moving. Moreover, they found that long-distance migrants were more likely to seek employment in large cities, more likely to migrate again after leaving farm employment, but less likely to return to farm employment.

The findings of Hathaway and Perkins concur with those of other studies. In a study of the social and

[10]Dale E. Hathaway and Brian B. Perkins, "Occupational Mobility and Migration from Agriculture," in Rural Poverty in the United States, Report by the President's National Advisory Commission on Rural Poverty (Washington, D.C.: Government Printing Office, 1968), Ch. 13, pp. 185-237.

economic conditions of Negroes, it was found that, for the period 1950-66, the number of Negroes living in the central cities of metropolitan areas grew sharply while increases in smaller cities, towns, and rural areas were negligible.[11] Consistent with these findings are those of a Bureau of the Census migration study.[12] For the civilian, noninstitutional population 18 years and over in May, 1958, 17 per cent of nonwhites born on farms had current residences in places of 500,000 population and over, however, only 3 per cent of the whites had current large city residences. Moreover, in another Bureau of the Census study, migration rates were found to be higher for males, nonwhites, the young, and persons with low incomes.[13]

Migration from agriculture in the United States has been a massive but highly selective process. Most of the farm people who change to nonfarm employment migrate short distances. However, long-distance migrants, composed

---

[11]U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 26, BLS Report No. 347, "Social and Economic Conditions of Negroes in the United States" (Washington, D.C.: Government Printing Office, 1968), p. 4.

[12]U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 25, "Lifetime Migration Histories of the American People" (Washington, D.C.: Government Printing Office, 1968), Table 6, pp. 56-69.

[13]U.S. Bureau of the Census, Current Population Reports, Series P-20, No. 171, "Mobility of the Population of the United States: March 1966 to March 1967" (Washington, D.C.: Government Printing Office, 1968).

of the young, males, nonwhites, and low income persons, tend to move to central city metropolitan areas. This selective process has implications for the economic and social health of many rural and urban areas.

The Problem

The foregoing discussion of the magnitude and selectivity of migration from agriculture has emphasized two possibly related but unanswered questions. First, what is the impact of out-migration on rural areas? There is some evidence to indicate that the rapid depopulation of many rural areas has severely burdened private businesses and organizations, schools, and local units of government in economically providing basic public services. In consequence, for many rural areas, these institutions have suffered functional deterioration if not total physical breakdown. Second, what is the impact of out-migration on urban areas? It would appear that, in view of mounting social and economic problems, large cities are not capable of assimilating the continuing mass migration from rural areas.

These questions conspicuously point to the lack of knowledge of the processes of migration from agriculture, both from the point of view of the people involved and their impacts on sending and receiving areas. More information about the factors that characterize actual off-farm

migrants need be obtained, in order to better understand not only farm people's desire to incur the migration experience but their ability to cope with nonfarm life. Furthermore, too little is known about the relationship between rural and urban problems resulting from migration and if separate or unified efforts are necessary or desirable for their solution. If successful public policy is to be formulated to facilitate solutions to these problems, more accurate knowledge of the processes of migration is needed.

Objectives of the Study

This study is the second utilizing data derived from records provided by the Social Security Administration. The first, by Hathaway and Perkins, was generally concerned with the experiences of low income farm individuals in finding nonfarm employment.[14] To add to that analysis, the general purpose of this study is to investigate the relationship of demographic and economic characteristics of actual off-farm movers to the distance they migrated in transferring from farm to nonfarm employment. To accomplish this, the migration patterns of off-farm migrants and multiple linear regression equations with dummy variables are employed. It is hypothesized that this approach will

---

[14]Hathaway and Perkins, "Occupational Mobility and Migration from Agriculture," in Rural Poverty in the United States, Ch. 13, pp. 185-237.

yield results from which inferences could be formulated relative to the impact of migration on both sending and receiving areas and thereby a greater understanding of the link between rural and urban problems. The analysis is conducted and interpreted within a framework suggested by economic theory.

Specifically, the following questions are to be answered:

1. What demographic and economic characteristics of actual off-farm migrants are significant in explaining the distance of migration, for the nation and by region?

2. What effect does out-migration have on rural areas?

3. What is the impact on urban areas?

4. What public policy alternatives might be effective in solving these problems?

The Outline

The remainder of this thesis is comprised of four chapters. Chapter II presents the conceptual framwork. Particular treatment is given to a theory of migration and investments in migration. Chapter III describes the method of analysis. Several hypotheses are advanced and discussed; in addition, the statistical model, the form of available data, and the statistical tests of hypotheses are presented.

Chapter IV presents data employed in the study on the percentage distribution of off-farm migrants by demographic and economic characteristics. Analytical results of the statistical analysis are reported. Interpretation of the regression equation estimates is provided. Chapter V summarizes the statistical analysis, provides conclusions relative to the impacts of migration on urban and rural areas, and discusses selected policy implications.

CHAPTER II

CONCEPTUAL FRAMEWORK

Introduction

The labor market is an allocative mechanism by which human resources are shifted between various forms of production and between sectors of the economy. In a perfectly competitive economy, wages provide the mechanism for efficient resource allocation, where efficiency can be defined in terms of maximizing net national product. When labor resources are allocated among and within markets such that the value marginal products divided by the appropriate wage rates of labor are the same in all employments (i.e., $VMPL_i/PL_i$ are equal for all i), the allocation is optimal from the point of view of economic efficiency. Hence, malallocation of labor resources implies a level of national income and output below that possible and a slower rate of economic growth over time.

An efficient labor market as an allocative mechanism must be able to shift resources in two ways: (1) adjust the general price of labor relative to other resource prices so as to clear the market of labor (the interfactor allocative process); and (2) shift labor from one sector of the labor

market to another (the intrafactor allocative process).[15] Migration of labor from agriculture is an example of a market mechanism to promote both efficient interfactor and intrafactor allocation of human resources. The emphasis of this inquiry is on shifts from specified classifications of farm labor to exclusively nonfarm employment in various industries within the nonfarm sector.

A Theory of Migration

In general, a consumers' income is payment for work performed by him, whereby satisfaction is derived from the commodities purchased with the income and from leisure. Hence, from an analysis of utility maximization, the optimum amount of work that the consumer will be willing to perform and his demand curve for income can be derived. When viewed in this manner, the theory of migration is essentially a special case of the theory of consumer behavior.

Consider a small, perfectly competitive, single labor market. A utility maximizing worker will adjust his offerings of labor services such that his marginal rate of substitution of income for leisure is equal to the real wage rate in that market.[16] Since the competitive assumption

[15] Lowell E. Galaway, "Labor Mobility, Resource Allocation, and Structural Unemployment," Amer. Econ. Rev., LIII (Sept., 1963), pp. 694-716.

[16] This approach was adapted from Lowell E. Gallaway, "Mobility of Hired Agricultural Labor: 1957-1960," Amer. Jour. Agr. Econ., 49 (Feb., 1967), pp. 32-5].

precludes the existence of more than one wage rate in that market, the individual will simply choose the amount of work that is optimum for him at that wage rate. If this reasoning is extended to a fully employed, two sector economy, should any real wage differential between markets exist, other than that reflected by opportunity costs associated with transfer, the maximizing worker will offer his labor services to the high-wage market. Therefore, maximizing behavior on the part of all workers implies an increase in the quantity of labor employed in the high-wage sector and a decrease in the low-wage sector until an equilibrium real wage differential between the sectors is established. This means that, under the usual assumptions of a perfectly competitive model, migration from agriculture is a sufficient condition for the elimination of all forms of unemployment in agriculture and the maintenance of an equilibrium real wage differential between the agricultural and the nonfarm sectors which reflects opportunity costs associated with movements from one geographic area to another.

Although there has not been complete agreement among economists as to whether the market for agricultural labor has been in short-run disequilibrium or dynamic equilibrium with respect to the nonfarm sector, the foundations of migration discussed in Chapter I are consistent with those discussed within this section. The real gap between farm

and nonfarm earnings has induced voluntary migration from agriculture (i.e., farm workers willingly elect to migrate to the high-wage nonfarm sector) while declining demand for agricultural labor has involved involuntary migration (i.e., farm individuals forced to change jobs). For the sample employed in this study, it was not possible to accurately distinguish between voluntary and involuntary migration, although the extent of the latter was believed to be of relatively minor importance. Nevertheless, on a theoretical basis, the presence of involuntary migration will not produce a change in an equilibrium wage structure, even if it is a differential one. If involuntary migration did produce other than the equilibrium wage differential, voluntary migration would occur to re-establish the equilibrium differential.[17]

Operation of the labor market according to these theoretical constructs presupposes the existence of several conditions.[18] These are: (1) labor units are homogeneous; (2) there are no non-wage elements of money income associated with employment; (3) workers attempt to maximize their utility functions; (4) there are no differences in workers' preference functions; and (5) there are no restrictive

---

[17]Gallaway, "Mobility of Hired Agricultural Labor: 1957-1960," pp. 32-52.

[18]Gallaway, "Labor Mobility, Resource Allocation, and Structural Unemployment," pp. 694-716.

noneconomic impediments to migration. But in reality, the labor moarket fails to allocate human resources in conformance with these theoretical constructs. Essentially, a fully-employed, perfectly competitive market for labor does not exist. Human resources in agriculture are not homogeneous, particularly in skill and educational qualities; in addition, only by chance would farm workers have identical preference functions. There are nonwage elements of money income associated with different employments and noneconomic impediments are in existence.

However, the absence of some of Gallaway's conditions given above does not preclude a reasonably efficient functioning of the labor market. In particular, conditions one, two, and four are unnecessary. As long as workers attempt to maximize their utility functions, as diverse as they may be, and there are no undue restrictive noneconomic impediments to migration, the labor market will sufficiently perform its function of allocating labor resources among various employments.

Costs of Migration

In conjunction with the foregoing theory of migration as an explanation of the functioning of the labor market, movements of labor from agriculture have at least been in the right direction. However, little information is gained to permit the generation of particular testable

hypotheses about the functional relationship between distance of migration and demographic and economic characteristics of off-farm migrants. Hence, for predictive purposes for this study, it is necessary to view the migration problem more specifically in a resource allocation framework--a process of investment in human capital. Since it has been assumed many times that migration from agriculture has occurred primarily in response to higher nonfarm returns, it remains to relate the impediments or costs of such an investment.

Many economists have argued that a considerable part of the failure of migration to equate returns to comparable farm and nonfarm labor can be accounted for by various economic and noneconomic impediments. Economic impediments reflect opportunity cost estimates associated with farm and nonfarm employment while noneconomic impediments do not. Although far from inhibiting migration, as evidenced by off-farm migration rates, these impediments discourage transfers of some farm individuals by making the decision to procure employment in a particular nonfarm industry much more complex and thereby successful nonfarm job establishment more remote. Perhaps the real impact is the increase in the selectivity of the transfer process.

For the general purpose of this study, private economic and noneconomic impediments to migration are of great significance. These impediments can be reclassified into monetary and nonmonetary costs and are shown to be a

function of the distance of migration. Then, from this simultaneous relationship, a foundation is established upon which to conduct an economic analysis of the relationship of demographic and economic characteristics and distance of migration.

The monetary costs of migration generally include out-of-pocket expenses. The most obvious cash outlays are the costs of transportation (to move individuals and possessions) and the increase in living expenses (for food, lodging, and incidentals). Monetary costs can also be associated with searching for a nonfarm job, especially if one is not found immediately, and can include any combination of transfer and living expenses. Although monetary costs probably are of minor importance relative to nonmonetary costs, by any standard monetary costs increase as the distance of migration increases.

For nonmonetary costs associated with off-farm transfers, two categories are distinguishable: psychic costs and opportunity costs. These two costs are nonmonetary in the sense that they involve no direct cash outlays. Psychic costs are generated through people's preferences for their existing social and economic environment. Many people are reluctant to experience changes, even if higher returns for their labor can be expected from alternative employments. Sjaastad has argued that psychic costs involve no real resource costs, since they are of the nature of lost

consumer or producer surplus on the part of off-farm movers.[19] Hence, efforts to compensate for psychic costs are wasteful. However, Sjaastad further argued that psychic costs do influence resource allocation and will explain part of an existing equilibrium earnings differential between labor markets in the economy. Then, to the extent that between farm and nonfarm labor markets an earnings differential widens with distance and part of this differential has a nonmonetary equivalent in tastes and preferences, it is possible for psychic costs to increase with the distance of migration. This would mean that marginal psychic costs per mile of migration are greater than zero.

A second form of nonmonetary costs are opportunity costs, which are generated through earnings foregone while searching for and/or traveling to a nonfarm job and thereby represent real resource costs.[20] A part of these foregone earnings will be a function of the distance of migration and quite obviously will vary depending upon farm earnings. Since uniform sources of information in the labor market are nonexistent, potential off-farm movers may learn of nonfarm job opportunities through word of mouth from relatives and friends or from other informal sources. Time

---

[19] Larry A. Sjaastad, "The Costs and Returns of Human Migration," Jour. Pol. Econ., LXX, Supplement (Oct., 1962), pp. 80-93.

[20] Ibid.

involved in such a trial and error search can magnify foregone earnings. Opportunity costs so generated, even if only in terms of travel time, can feasibly increase with the distance of migration and will vary depending upon farm earnings from classes of farm employment.

Data on the actual monetary and nonmonetary costs incurred by off-farm migrants are not available, but general estimates have been made. For capital requirements only, James G. Maddox estimated the following:

> . . . many farm people can travel as far as five hundred miles from their homes, take ten days to find a nonfarm job and wait a week for their first pay check after they start to work, with a nestegg of no more than $100 a person.[21]

Surely these estimates are conservative, even though the estimates are not discounted by what it would cost to live without experiencing a farm-nonfarm transfer. But even taken as fact, for a potential off-farm migrant with a family, a furnished house, a source of home-produced food, and an income of less than $3,000 per year, these costs can weigh heavily in any decision to attempt a transfer to nonfarm employment.

Perhaps a more reliable estimate of the cost of migration is the following:

> The out-of-pocket expenses are under $100 for most moves of 100 miles or less. However, out-of-pocket

---

[21]James G. Maddox, "Private and Social Costs of the Movement of People Out of Agriculture," Amer. Econ. Rev., (May, 1960), p. 395.

> costs understate the true costs by omitting foregone earnings, costs of search for new jobs, and, perhaps most importantly, psychic costs. The financial resources required by a family to move a hundred miles in North Carolina would appear to be closer to $300 if we include costs of search for both jobs and housing and living expenses incurred before being paid.[22]

Some indication of the trade-off between income and distance is given from an estimate by Sjaastad:

> At the mean of the income and distance variables . . . the typical migrant would be indifferent between two destinations one of which was 146 miles more distant than the other, if the average annual labor earnings were $106 (1947-49 dollars) higher in more distant one.[23]

These latter estimates obviously include compensation for more than monetary costs of migration and represent very high marginal costs per mile of migration. This unexplained part must be related in part to nonmonetary costs of migration.

To summarize, the reality of monetary and nonmonetary costs complicates the willingness of and decision by farm people to experience off-farm migration. These costs explain in part, in the absence of a perfect market, the existence of income differentials between farm and nonfarm employment, and in this respect nonmonetary costs (psychic

---

[22]Paul R. Johnson, "Labor Mobility: Some Costs and Returns," in Rural Poverty in the United States, Report by the President's National Advisory Commission on Rural Poverty (Washington, D.C.: Government Printing Office, 1968), Ch. 14, pp. 238-247.

[23]Sjaastad, "The Costs and Returns of Human Migration," p. 84.

and opportunity) are of much more significance. Further, both types of cost, on a private basis, are related functionally to the distance of migration. In the absence of actual data, distance of migration serves as a reasonable proxy measure for monetary and nonmonetary costs and constitutes a negative incentive to migration.

CHAPTER III

METHODOLOGY

Discussion of Hypotheses

The process of migration from agriculture requires resources--investments to enhance human capital. It is assumed in this inquiry that these investments in the form of monetary and nonmonetary costs increase with the distance of migration. It is further assumed that the motivation for incurring these costs was the expectation of higher earnings from farm employment and future well-being in general, although previous research cited revealed that some off-farm migrants did not achieve higher earnings in the nonfarm sector.

Under these conditions, it is hypothesized that distance of migration can be explained in part by various economic and demographic characteristics of actual off-farm movers. Therefore, the purpose of the analysis is to test specific hypotheses about the relationship of these characteristics to the distance of migration. These hypotheses are, in part, suggested by the results of an earlier study conducted by Hathaway and Perkins on a similar data base.[24]

[24]Hathaway and Perkins, "Occupational Mobility and Migration from Agriculture," Ch. 13, pp. 185-237.

The economic and demographic characteristics of actual off-farm movers employed in this study are examined in detail in a subsequent section of this chapter. Briefly, these characteristics include income change, race, age, farm employment status, farm earnings, distance from an SMSA, and nonfarm industry.

The change in earnings following farm--nonfarm migration is hypothesized to be positively related to distance migrated. A positive earnings differential between the farm and the nonfarm sector has long been a reality. And, the incentive for incurring the additional costs from migration could come only from the expectation of higher earnings from nonfarm employment. Unfortunately, the income change variable is computed from short-run total incomes rather than from the more desirable permanent or long-run total incomes.

Since the race variable includes a Negro-nonNegro differentiation, it is hypothesized that Negroes would be willing to move greater distances in off-farm transfers than nonNegroes. In general, farm opportunity costs for Negroes are much less relative to those for nonNegroes, by virtue of discrimination resulting in low farm earnings from low skill farm jobs. And limited economic opportunity in nonfarm employment except in the West and North regions has long been recognized. These economic factors, coupled with problems of social and political integration in most

communities and thereby the possibility of low psychic costs among Negores could feasibly account for a direct relationship between distance and the Negro racial category.

Distance migrated and increasing age are hypothesized to be inversely related. In general, the payoff period for recouping investments in migration tends to decrease with age, thereby giving much weight to monetary costs of migration and opportunity costs associated with farm employment. Moreover, locational preferences and family responsibilities tend to increase with age, meaning higher psychic costs. Hence, it would appear reasonable to assume that the initial magnitudes of monetary, psychic, and opportunity costs increase substantially with age and, thereby, preclude distance in off-farm migration.

With regard to the employment status of farm individuals, it is hypothesized that wage workers are more willing to incur distance in off-farm transfers than farm operators. In general, psychic and farm opportunity costs are much less for farm wage workers than for categories of farm operators. These farm wage workers usually have few community ties and public responsibilities, generally are not home owners, and have little capital invested in farming activities. Hence, there is reason to believe that migration to nonfarm jobs appears to be less difficult for wage workers relative to farm operators.

The relationship between farm earnings and the distance of migration is hypothesized to be inverse. In general, the higher the level of farm earnings, even if below nonfarm levels, the greater the risks of successfully establishing nonfarm employment with higher earnings, the greater farm opportunity costs, and therefore the greater the complacency of the farm employed and the less the willingness to experience distance. However, given that farm earnings have been low, these factors may indicate that earnings from farm employment are not indicative of the ability of potential off-farm migrants to bear the monetary costs associated with distance.

An inverse relationship is hypothesized between distance from an SMSA and distance migrated. First, the general favorable economic conditions around such centers and the greater expected availability of nonfarm employment could indicate a direct response by off-farm migrants the smaller the distance from an SMSA. Such individuals would also be expected to have access to the national labor market. Second, it would seem reasonable to assume that the closer a potential migrant to an SMSA the smaller the monetary costs necessary for migration. Third, close proximity to an employment center would minimize the effect of psychic costs from a new environment and opportunity costs from search for a nonfarm job.

These hypotheses are supported by the findings of the study by Hathaway and Perkins, with the exception of the income change variable where no uniform decline in losses or increase in gains with distance migrated was found.[25] They found that Negroes were a greater proportion of migrants than nonNegroes and were heavily concentrated in the South. In addition, they found the proportion of migrants to decline with advancing age, that farm wage workers constituted a higher proportion of migrants than did farm operators, and that single and multiple job self-employed farm operators were the least likely to migrate. Finally, their study indicates a decreasing relationship between the proportion of migrants and the earnings of off-farm migrants while they were farm employed and that off-farm movers from counties within 50 miles of an SMSA constituted the highest proportion of migrants.

Tests of hypotheses concerning the distribution of off-farm migrants by nonfarm industries over distance are based on the ability of these industries via discounted real wage rates to attract potential off-farm movers and on the ability of the potential migrants, via skill requirements, to meet these employment opportunities. For the years 1957-1959, some indication is given by the following average weekly nominal earnings: construction $110.64,

---

[25]Hathaway and Perkins, "Occupational Mobility and Migration from Agriculture," Ch. 13, pp. 185-237.

primary industries $103.35, utilities $92.73, manufacturing $85.12, wholesale and retail trade $76.00, and service industries $66.56.[26] However, some care must be taken since these data are not discounted and give no indication of the availability of employment for off-farm migrants. Moreover, the skill requirements within each individual aggregate are quite varied.

Nevertheless, based on these rough nonfarm earnings and assuming that most nonfarm migrants are relatively unskilled, it is hypothesized that distance would be directly related to manufacturing, construction, government, primary industries--agriculture (nonfarm), forestry, fisheries, and mining, and service industries--finance, insurance, real estate, and services. For the latter group of industries it is assumed that services such as hotels and lodging places and laundry and cleaning jobs would attract off-farm migrants in greater numbers than finance, insurance, and real estate jobs.

However, an inverse relationship is hypothesized for utilities and wholesale and retail trade. These industries are, in general, more prevalant in or near most local communities and thereby located near sources of farm labor. Finally, no justifiable relationship between

---

[26]U.S. Department of Labor, Monthly Labor Review, (Washington, D.C.: Government Printing Office, Dec. 1959 and Dec. 1960), Table C-1.

distance and the unknown, unclassified, and military category can be hypothesized.

Most of these hypothesized relationships are supported by the findings of Hathaway and Perkins.[27] They found that the proportion of migrant off-farm movers was highest for construction, service, and manufacturing industries and for government but lowest for primary industries, utilities, and wholesale and retail trade. Their findings for service and primary industries were contradictory to those hypothesized.

The Model

The model employed in this study is a multiple linear regression equation supported by comparisons of the proportions of off-farm migrants by demographic and economic characteristics. In order to facilitate the analysis and because the initial relationship between distance and the demographic and economic characteristics, excluding income change, could be nonlinear and/or nonquantifiable, sets of zero-one variables are employed as expressions for the characteristics, with the categories in each set being exhaustive and mutually exclusive.[28] Distance migrated is

---

[27]Hathaway and Perkins, "Occupational Mobility and Migration from Agriculture," Ch. 13, pp. 185-237.

[28]For a complete discussion of dummy (zero-one) variable analysis, see Daniel B. Suits, "Use of Dummy Variables in Regression Equation," Jour. Amer. Stat. Assoc., 52

the dependent variable in the analysis. Farm employment status, farm earnings, race, age, distance from an SMSA, nonfarm industry, and income change are the independent variables.

However, for a multiple linear regression analysis in this form, the parameter estimation can not be accomplished, because the first column in the matrix of squares and cross products is the sum of the remaining zero-one columns, thereby making the matrix singular and a unique solution indeterminant. Therefore, in order to permit inversion of the appropriate moment matrix, one zero-one variable from each set is omitted. This essentially transforms each estimated parameter (coefficient) into the difference between the actual value of the estimated parameter of the category of a characteristic and the estimated parameter of the omitted category of the characteristic. For interpretation purposes each coefficient becomes an estimate of the expected change in the dependent variable, distance migrated, when one moves from the omitted category to another category, holding other independent variables constant at their geometric means.

(December, 1957), pp. 548-551; Robert T. Gustafson, "The Use and Interpretation of "Dummy Variables" in Regressions," Michigan State University, Department of Agricultural Economics, Mimeo (January 1962); and J. Johnston, Econometric Methods (New York: McGraw-Hill Book Co., Inc., 1963).

The use of the procedure outlined above for the proposed model results in the following equation:

$$Y_t = b_o' + b_1 X_{1t} + \sum_{s=1}^{S} \sum_{k=2}^{C_s} (a_{sk} - a_{s1}) Z_{tsk} + \mu_t$$

where:

$t = 1,2,\ldots, N$, the number of observations in the sample;

$s = 1,2,\ldots, S$, the number of category-sets (characteristics);

$k = 2,3,\ldots, C_s$, the number of categories in each category-set s;

b_o' is the overall constant equal to the original constant term b_o plus the coefficients of each of the omitted categories;

b_1 is the coefficient of the income change variable X_{1t};

$(a_{sk} - a_{s1})$ is the coefficient of the appropriate category of a characteristic and is equal to the difference between the actual estimated coefficient a_{sk} of the category and the omitted category a_{s1} of the appropriate characteristic;

$Z_{tsk} = 1$, if the observation t is in the category k of the category-set (characteristic) s, otherwise is 0; and

μ_t is an error term.

For this multiple linear regression model employed, the basic classical assumptions made are:

1. μ_t is normally distributed;
2. μ_t has zero expectation ($E(\mu_t) = 0$);
3. μ_t has constant variance ($E(\mu_t) = 0^2$);
4. μ_t is nonautoregressive ($E(\mu_t \mu_j) = 0$); and
5. X_{1t} and Z_{tsk} are nonstochastic and have finite variances and all independent variables are less than perfectly correlated.

Given the nature of the sample employed, some of the assumptions are violated, with resulting effects on the desired properties of the least squares coefficient estimators and the validity of the tests of hypotheses. Desirable small (finite) sample properties are (1) unbiasedness, (2) efficiency, and (3) best linear unbiasedness (BLUE) while desirable large (asymptotic) sample properties are (4) asymptotic unbiasedness, (5) consistency, and (6) asymptotic efficiency. Although no explicit attempt is made to adjust for the violations of the assumptions, it is hoped that the violations of these basic assumptions were not sufficient to invalidate the analysis.[29]

Consider first the violation of the assumption that the error term μ_t is normally distributed. The least

---

[29]For an excellent discussion of the basic classical assumptions of the linear model and the consequences of various violations, see Jan Kmenta, Elements of Econometrics (New York: The Macmillan Company, 1971).

squares estimators of the regression coefficients are still best linear unbiased (BLUE) estimators, since this property is independent of the assumption relative to the distribution of the population. And, from the central limit theorem, it can be shown that, irrespective of the distribution of the error term, the least square estimators retain all asymptotic properties. Finally, tests of hypotheses are strictly valid only in the case of large samples. Consequently, since the sample employed in this study totaled 12,765 observations for the nation as a whole and no fewer than 1,920 observations in any region, nonnormality of the error term would appear not to be a serious problem, i.e., a large sample was in use.

If the second basic assumption of μ_t having a zero expectation is dropped, the implication is some specification error resulting from the incorrectly specified regression equation. While several kinds of such errors are possible, a most common one results from the omission of a relevant independent variable. For this study, variables such as levels of education and nonfarm city size greater than one million (to which migrated) should have been used; however, such data were unavailable. Nevertheless, it can be shown that if the omitted independent variables are not correlated with the included ones, the estimator of b_o', the constant term, will be biased and inconsistent, but the estimators of the coefficients of

the included variables will be unbiased, with all other desirable properties unaffected. However, the estimators of the variances of the included variables will have an upward bias, resulting in tests of hypotheses with unusually conservative conclusions. Since a priori the degree of correlation between the possible omitted variables and the included ones is not known, the true impact of the error term μ_t having a nonzero mean cannot be accurately ascertained.

The third basic assumption of the classical regression model is that μ_t has constant variance, technically known as homoskedasticity. However, this study involves many cross-sectional microeconomic observations which may involve substantial differences in the variation of distance migrated for different groups of individuals. The assumption of homoskedasticity may not be plausible on a priori grounds, with the appropriate model being one with an heteroskedastic error term. If such is the case, the least squares estimators can be shown to be unbiased and consistent but not best linear unbiased (BLUE), efficient, or asymptotically efficient. Thus if the error term is truely heteroskedastic but its true nature is unknown by the researcher, the least squares estimators will have some desirable properties. Nevertheless, the estimated variances of the estimators are biased and the tests of hypotheses are therefore not valid. Hence for this study, if the assumption of homoskedasticity

is not satisfied, inferences about the population coefficients are not correct. Since cross-sectional data are employed and no adjustments are made, analysis results must be interpreted with care.

By the fourth assumption of the classical linear model, μ_t is nonautoregressive. This assumption is most frequently violated in the case of the use of time series data. Although this study involved data collected over several years, the nature of the sample of individuals would seem to preclude any carryover effect from time period to time period; hence, autoregression would appear to be of no concern. But if autoregressive error terms did exist, it can be shown that least squares estimators are unbiased and consistent but not efficient, best linear unbiased (BLUE), and asymptotically efficient and further that tests of hypotheses are not valid.

The fifth classical assumption is that X_{1t} and Z_{tsk} are nonstorhastic and have finite variances and that all independent variables are less than perfectly correlated. The assumption of finite variances will be assumed to hold for both X_{1t} and Z_{tsk}. If the independent variables are in fact storhastic, the important consideration is whether or not the variables are independent of the error term μ_t. If independence holds, it can be shown that relaxing the assumption of nonstochastic independent variables results in the loss of only the best linear unbiasedness (BLUE) property

and tests of hypotheses remain valid. However, if an independent variable is correlated with the error term, then all desirable least squares properties of estimators are lost and tests of hypotheses are not valid. Correlation problems usually occur in simultaneous equation models, distributed lag models, or in error-in-variables models, consequently, for this study the existence of stochastic independent variables would appear to be of no consequence or the true effect unknown.

If some independent variables are themselves correlated, technically referred to as multicollinearity, the real question is one of degree. For the case of a complete lack of multicollinearity, no problem exists. However, for the case of perfect multicollinearity, it can be shown that the least squares estimators of the regression coefficients are indeterminate. For the intermediate case of some multicollinearity, it can be shown that the higher the degree, the larger the variances of the least squares estimators and hence the estimates of the regression coefficients are highly imprecise. However, large variances of the estimated coefficients may exist even without multicollinearity. For the independent variables employed in this study, undoubtedly some correlation exists, but a priori the precise degree is indeterminate.

An equation of the aforementioned functional form is fitted for the nation as a whole and for each of the five

major regions. All variables are included in each of these six equations, but no interaction terms are included due to the complexity and difficulty of interpretation involved. The magnitude of the income change coefficient is interpreted in the usual manner. For all of the zero-one variables, the magnitude of any estimated parameter is interpreted to be the estimated expected change in the dependent variable, distance migrated Y, when one moves, in category-set s, from category 1 to category k, while holding constant the categories in all other category-sets (characteristics) and the income change variable. However, since S > 1, the number of total category-sets, it is not possible to get estimates of the original estimated coefficients a_{sk} but this deficiency in the model is believed to be of minor importance, since the direction of the difference coefficient is most important.

Statistical Tests

The Student's t distribution is used to derive tests for significance of individual regression coefficients. Both the .05 and .01 per cent significance levels are employed. These criteria were selected in the main arbitrarily, but some consideration was given to the type of analysis being conducted and to the probability of committing Type I and Type II errors.

The significance of the regression coefficients is determined by testing a null hypothesis that the coefficients are equal to zero against the alternative hypotheses that the coefficients are either greater than or less than zero, depending upon the direction hypothesized previously. Therefore, for the income change variable, $H_o : b_1 = 0$ against $H_A : b_1 > 0$, while for the zero-one variables, $H_o : a_{sk} - a_{s1} = 0$ against the $H_A : a_{sk} - a_{s1} \gtrless 0$, where $s = 1,\ldots, 6$ and $k = 2,\ldots, C_s$. The general form of the calculated t statistic is $t_b = \frac{b}{S_b}$, where b is the regression coefficient and S_b is the standard error of b. For appropriate degrees of freedom and directions of hypothesized relationships, if $t \geqslant t_{.05 \text{ or } .01}$ or $t \leqslant -t_{.05 \text{ or } .01}$ the null hypothesis is rejected, where $t_{.05 \text{ or } .01}$ and $-t_{.05 \text{ or } .01}$ are the tabular values of the t distribution. And if so, the alternative hypothesis is accepted, thus meaning that the variable in question was linearly related to the dependent variable, when all other variables are held constant. A thorough discussion of statistical hypotheses testing can be found in Mathematical Statistics by John B. Freund.[30]

---

[30]John E. Freund, Mathematical Statistics, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962).

Outline of the Data

The data employed in this study are derived from the one per cent continuous Work History Sample maintained by the Social Security Administration. This sample contains workers who have been in employment covered by the Old Age Survivors Disability and Health Insurance (OASDHI) system.[31] Individuals in the sample remain permanently. From this continuous sample, for the period 1957-1960, individuals who had some form of covered farm employment in one year and covered exclusive nonfarm employment in the next year are selected. Demographic and economic characteristics of such individuals are tabulated for the conterminous United States by five major regions.[32] These data facilitate the tracing of the experience of actual off-farm movers and the assessment of their importance in the transfer process.

Distance Migrated.--By using Census coordinates, distance migrated is measured as the direct mileage between the center of population in the county of farm employment

---

[31]Detailed treatments of Social Security sample data as sources of farm labor statistics can be found in the following: Uel Blank, "O.A.S.I. Data of the Farm Labor Force," (unpublished Ph.D. thesis. Michigan State University, 1960); Arley D. Waldo, "The Off-farm Employment of Farm Operators in the United States" (unpublished Ph.D. thesis, Michigan State University, 1962); and Perkins, "Labor Mobility Between the Farm and the Nonfarm Sector."

[32]See Appendix B for the regional division of states.

and the center of population in the county in which the off-farm mover found nonfarm employment. Four discrete mileage categories--1-50; 51-100; 101-150; and 151-3200--are recorded in the sample for appropriate individuals as zero-one variables. In such form, however, distance migrated does not easily facilitate an analysis based on a linear model. Distance migrated can not be used as a continuous response variable; values for distance migrated must be assigned to the discrete categories. Second, because the centers of population between many adjacent counties are less than 50 miles apart, it is not possible to distinguish between those who migrated 50 miles or less and those who did not migrate. Hence, any mileage value assigned to the 1-50 category would necessarily have to be small in order not to seriously bias the analysis. Consequently, for convenience and in an attempt to mediate these problems, the geometric mean is computed for each separate mileage category and assigned as the appropriate value for each category specified. This procedure results in a low mileage value being assigned to the 1-50 mileage category and a more moderate value to the 151-3200 category. The resulting assigned values are: 7.0713 for the 1-50 mile category; 71.4150 for the 51-100 category; 123.0900 for the 101-150 category; and 695.1300 for the 151-3200 mile category.

Income Change.--A change in income in dollars, whether positive or negative, is reported as a continuous variable for each farm individual who transferred to the nonfarm sector. This income change is computed as the total earnings in the second year (nonfarm employment) less the total earnings in the first year (farm employment). For purposes of comparing the proportion of migrants who experienced various levels of income change with the four distance migrated categories, income changes are divided into the following five categories: (1) loss $500 and over; (2) loss $499-1; (3) gain $0-999; and (5) gain $1000 and over.

Demographic Characteristics.--Race and age characteristics are reported for each farm individual in the year of farm employment, as zero-one variables. The race variable includes a Negro-nonNegro differentiation. The age variable, in years, includes the following categories: 24 and under; 25-34; 35-44; and 45 and over.

Farm Employment Status.--An individual is farm employed, if in the indicated year prior to off-farm movement, some form of covered farm employment was maintained by the Social Security Administration. Five categories of farm employment are distinguished in the sample data, as zero-one variables; (1) farm wage work only; (2) farm self-employment only; (3) farm wage work and nonfarm wage

employment; (4) farm self-employment and nonfarm wage employment; and (5) farm self-employment and nonfarm self-employment.

Farm Earnings.--Total earnings in dollars from all sources in the year of farm employment are reported in the sample for each off-farm mover. For the 1957-1960 period, maximum creditable earnings from all types of employment were $4,800. As zero-one variables, five categories are distinguished: $0-1,199; $1,200-1,799; $1,800-2,399; $2,400-2,999; and $3,000 and over.

Distance From an SMSA.--For each farm employed individual in the sample, location in miles of the county of farm employment with respect to the nearest Standard Metropolitan Statistical Area (SMSA) is recorded. An SMSA is a Census definition for counties which include cities with population of 50,000 or more. As zero-one variables, four categories are distinguished: 0-50 miles from an SMSA; 51-100 miles; 101-150 miles; and 151 miles and over from an SMSA.

Nonfarm Industry.--The industry of the job in which the off-farm mover had the highest earnings in the year of exclusive nonfarm employment is recorded in the sample. Several industry groups were combined, resulting in the following eight categories, expressed as zero-one variables: (1) primary industries--agriculture (nonfarm), forestry, fisheries, and mining; (2) construction; (3) manufacturing,

(4) utilities; (5) wholesale and retail trade; (6) service industries--finance, real estate, insurance, and services; (7) government; and (8) unknown, unclassified, and military.

CHAPTER IV

RESULTS OF ANALYSIS

Introduction

The purpose of this study is to investigate the relationship of various economic and demographic characteristics of actual off-farm migrants to the distance they migrated in transferring to nonfarm employment. From this analysis it is expected that part of the impact of farm-nonfarm migration on both urban and rural areas can be determined. Moreover, it is believed that this approach can yield a greater understanding of the relationship between rural and urban problems. Data employed in the study, for the period 1957-1960, are derived from records provided by the Social Security Administration.

This chapter is concerned with the presentation and interpretation of the results of the analysis. The proportions of off-farm migrants by demographic and economic characteristics are compared to support the basic multiple regression analysis. In the regression analysis, distance migrated is the dependent variable whereas income change, race, age, farm employment status, farm earnings,

distance from an SMSA, and nonfarm industry are the independent variables. Briefly, the hypotheses to be tested are:

1. distance and income change are directly related;

2. Negroes are willing to move greater distances than nonNegroes;

3. distance is an inverse function of increasing age;

4. classes of farm wage workers are more responsive to distance than classes of farm operators;

5. distance is an inverse function of farm earnings;

6. distance migrated and distance from an SMSA are inversely related; and

7. distance is a direct function of primary, manufacturing, construction, and service industries and to government, but is inversely related to utilities and wholesale and retail trade.

Migration Patterns

The basic patterns of migration of actual off-farm migrants were determined from the Social Security data by comparing the proportion of off-farm migrants moving longer distances by demographic and economic characteristics. Although the gross tabulations represent a mixture of characteristics and can be misleading, it was expected that

these proportions would add to an assessment of the relationship between distance migrated and these characteristics in the national and regional regression equations.

Distance migrated and income change were hypothesized to be directly related. However, from Table 1, the proportion of off-farm migrants moving longer distances did not vary uniformly with increasing short-run income changes, both for the nation and in most regions. Therefore, it would appear that some economic factor(s) other than short-run nominal income changes motivated long-distance transfers.

For the race variable, Negroes were hypothesized to be willing to migrate longer distances than nonNegroes. From Table 2, for the nation and all regions, the proportion of off-farm migrants moving greater distances was larger for Negroes than for nonNegroes. This was particularly the case for off-farm movers who migrated 151 miles and over, where roughly one-third of all Negro migrants traveled the longer distance for the nation as a whole. Surprisingly however, the proportion of Negro migrants corresponding to the 151 miles and over category was smaller for the Plains and South regions relative to the other three, with the South having the lowest percentage. Consequently, these frequency comparisons clearly indicate that long-distance migration was not simply limited to the South and Plains regions.

Table 1. Percentage distribution of off-farm migrants by income change, and by region, 1957-60.[1]

Region and income change	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Northeast					
Income change:					
Loss $500 and over	76.9	6.3	3.4	13.4	100.0
Loss $499-$1	73.5	7.8	3.1	15.6	100.0
Gain $0-$499	74.7	7.4	4.5	13.4	100.0
Gain $500-$999	77.2	7.6	3.6	11.6	100.0
Gain $1,000 and over	72.2	8.9	3.9	15.0	100.0
Total	74.8	7.5	3.7	13.9	100.0
North Central					
Income change:					
Loss $500 and over	78.5	6.5	3.4	11.6	100.0
Loss $499-$1	77.0	4.2	3.1	15.8	100.0
Gain $0-$499	74.9	5.3	4.4	15.4	100.0
Gain $500-$999	75.3	5.2	5.2	14.2	100.0
Gain $1,000 and over	70.2	9.5	5.6	14.7	100.0
Total	75.1	6.5	4.3	14.0	100.0
South					
Income change:					
Loss $500 and over	75.7	6.2	3.8	14.3	100.0
Loss $499-$1	70.5	7.3	4.3	17.9	100.0
Gain $0-$499	68.7	9.2	4.8	17.3	100.0
Gain $500-$999	67.8	6.8	3.4	21.9	100.0
Gain $1,000 and over	62.6	8.4	4.1	24.9	100.0
Total	69.6	7.6	4.1	18.7	100.0

Table 1.--Continued.

Region and income change	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Plains					
Income change:					
Loss $500 and over	62.0	8.2	5.4	24.4	100.0
Loss $499-$1	59.9	7.0	6.0	27.2	100.0
Gain $0-$499	58.6	7.7	5.9	27.8	100.0
Gain $500-$999	57.0	8.0	7.3	35.6	100.0
Gain $1,000 and over	49.4	7.8	7.3	35.5	100.0
Total	57.6	7.8	6.3	28.4	100.0
West					
Income change:					
Loss $500 and over	58.4	9.4	5.3	27.0	100.0
Loss $499-$1	52.9	8.5	6.4	32.2	100.0
Gain $0-$499	53.8	6.3	6.5	33.5	100.0
Gain $500-$999	59.1	7.4	7.7	25.8	100.0
Gain $1,000 and over	54.3	9.3	5.2	31.2	100.0
Total	55.4	8.3	6.0	30.3	100.0
Nation[2]					
Income change:					
Loss $500 and over	70.7	7.3	4.2	17.8	100.0
Loss $499-$1	66.6	6.9	4.7	21.8	100.0
Gain $0-$499	66.0	7.3	5.2	21.5	100.0
Gain $500-$999	66.8	7.0	5.5	20.7	100.0
Gain $1,000 and over	61.6	8.8	5.3	24.3	100.0
Total	66.4	7.5	4.9	21.2	100.0

[1]Source: Social Security data.

[2]The continental United States, excluding Alaska.

Table 2. Percentage distribution of off-farm migrants by race, age, and by region, 1957-60.[1]

Region, race, and age	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Northeast					
Race:					
Negro	62.0	3.9	2.0	32.2	100.0
nonNegro	76.3	8.0	4.0	11.7	100.0
Age:					
0-24	71.7	8.4	4.1	15.8	100.0
25-34	72.6	8.1	5.1	14.3	100.0
35-44	74.8	7.3	3.2	14.8	100.0
45 and over	81.7	5.9	2.4	10.0	100.0
Total	74.8	7.5	3.7	13.9	100.0
North Central					
Race:					
Negro	56.5	1.6	6.5	35.5	100.0
nonNegro	75.5	6.6	4.3	13.6	100.0
Age:					
0-24	68.7	8.2	5.5	17.6	100.0
25-34	70.3	7.2	4.7	17.8	100.0
35-44	74.4	6.8	4.4	14.4	100.0
45 and over	84.8	4.4	2.8	8.0	100.0
Total	75.1	6.5	4.3	14.0	100.0
South					
Race:					
Negro	60.8	8.0	5.7	25.5	100.0
nonNegro	73.1	7.4	3.5	16.0	100.0
Age:					
0-24	61.2	7.8	6.3	24.6	100.0
25-34	62.9	8.3	4.3	24.5	100.0
35-44	72.2	9.4	3.6	14.8	100.0
45 and over	78.1	5.9	2.7	13.3	100.0
Total	69.6	7.6	4.1	18.7	100.0

Table 2.--Continued.

Region, race, and age	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Plains					
Race:					
Negro	53.2	8.5	8.5	29.8	100.0
nonNegro	57.8	7.7	6.1	28.3	100.0
Age:					
0-24	50.6	9.2	6.8	33.4	100.0
25-34	50.8	8.9	6.8	33.6	100.0
35-44	60.9	6.6	6.0	26.5	100.0
45 and over	68.6	6.1	5.4	19.9	100.0
Total	57.6	7.8	6.3	28.4	100.0
West					
Race:					
Negro	40.7	11.9	8.5	39.0	100.0
nonNegro	55.7	8.2	6.0	30.1	100.0
Age:					
0-24	56.6	7.9	7.0	28.4	100.0
25-34	48.9	8.2	4.5	38.4	100.0
35-44	57.6	7.9	5.2	29.3	100.0
45 and over	58.6	9.2	6.8	25.4	100.0
Total	55.4	8.3	6.0	30.3	100.0
Nation[2]					
Race:					
Negro	58.9	7.2	5.6	28.3	100.0
nonNegro	67.2	7.5	4.9	20.4	100.0
Age:					
0-24	61.4	8.3	6.0	24.3	100.0
25-34	60.6	8.1	5.1	26.2	100.0
35-44	68.0	7.6	4.6	19.8	100.0
45 and over	75.2	6.1	3.9	14.8	100.0
Total	66.4	7.5	4.9	21.2	100.0

[1]Source: Social Security data.

[2]The continental United States, excluding Alaska.

Again from Table 2, the proportion of off-farm migrants moving longer distances declined with increasing age, for the nation as a whole and for all regions except the West. Hence, these frequency distributions lend strong support to the hypothesized age-distance relationship that distance migrated is an inverse function of increasing age.

For the farm employment status variable, from Table 3, the proportion of off-farm migrants moving longer distances was greater for classes of farm wage workers than for classes of self-employed farm operators. This was the case for all regions and the nation, supporting the hypothesis that farm wage workers are more likely to migrate longer distances than farm operators. Moreover, for most distance categories, the frequency of long-distance moves was greater for individuals who had some form of farm wage and nonfarm wage employment than for those persons who had only farm wage employment. For self-employed individuals, the proportion of off-farm migrants moving longer distances was greatest for individuals with farm self-employment and/or farm self-employment and nonfarm wage employment.

Farm earnings were hypothesized to be inversely related to distance migrated. Reasonably consistent with this hypothesis, from Table 4, for the nation and all regions, the proportion of off-farm migrants moving longer distances declined as farm earnings increased. Such was especially evident for farm earnings of $2,400 or more,

Table 3. Percentage distribution of off-farm migrants by farm employment status, and by region, 1957-60.[1]

Region and farm employment status	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Northeast					
Farm employment status:					
Farm wage work only	72.8	6.3	4.2	16.6	100.0
Farm self-employment only	78.5	10.8	1.5	9.2	100.0
Farm wage work and nonfarm wage employment	72.1	8.8	3.9	15.2	100.0
Farm self-employment and nonfarm wage employment	90.3	1.3	3.9	4.5	100.0
Farm self-employment and nonfarm self-employment	90.9	4.5	1.1	3.4	100.0
Total	74.8	7.5	3.7	13.9	100.0
North Central					
Farm employment status:					
Farm wage work only	68.8	7.5	4.3	19.5	100.0
Farm self-employment only	82.3	6.8	4.0	6.8	100.0
Farm wage work and nonfarm wage employment	67.6	7.2	5.6	19.6	100.0
Farm self-employment and nonfarm wage employment	85.5	5.9	2.9	5.6	100.0
Farm self-employment and nonfarm self-employment	92.4	2.8	1.4	3.5	100.0
Total	75.1	6.5	4.3	14.0	100.0
South					
Farm employment status:					
Farm wage work only	64.4	8.4	4.0	23.2	100.0
Farm self-employment only	77.3	7.7	1.7	13.3	100.0
Farm wage work and nonfarm wage employment	61.7	8.7	5.4	24.2	100.0
Farm self-employment and nonfarm wage employment	80.4	6.9	3.6	9.1	100.0
Farm self-employment and nonfarm self-employment	94.6	1.5	0.8	3.1	100.0
Total	69.6	7.6	4.1	18.7	100.0

Table 3.--Continued.

Region and farm employment status	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Plains					
Farm employment status:					
Farm wage work only	53.9	9.3	5.2	31.5	100.0
Farm self-employment only	75.2	6.0	4.7	14.1	100.0
Farm wage work and nonfarm wage employment	50.8	7.9	7.2	34.2	100.0
Farm self-employment and nonfarm wage employment	73.4	7.5	6.6	12.5	100.0
Farm self-employment and nonfarm self-employment	90.1	4.7	1.2	4.1	100.0
Total	57.6	7.8	6.3	28.4	100.0
West					
Farm employment status:					
Farm wage work only	55.7	7.7	6.0	30.6	100.0
Farm self-employment only	83.7	10.2	0.0	6.1	100.0
Farm wage work and nonfarm wage employment	52.5	8.6	6.4	32.5	100.0
Farm self-employment and nonfarm wage employment	79.3	10.3	3.4	6.9	100.0
Farm self-employment and nonfarm self-employment	91.2	1.8	3.5	3.5	100.0
Total	55.4	8.3	6.0	30.3	100.0
Nation[2]					
Farm employment status:					
Farm wage work only	62.5	7.9	4.8	24.8	100.0
Farm self-employment only	79.2	7.5	3.0	10.3	100.0
Farm wage work and nonfarm wage employment	60.0	8.2	5.8	26.0	100.0
Farm self-employment and nonfarm wage employment	82.0	6.2	3.9	7.9	100.0
Farm self-employment and nonfarm self-employment	92.4	2.9	1.2	3.5	100.0
Total	66.4	7.5	4.9	21.2	100.0

[1]Source: Social Security data.

[2]The continental United States, excluding Alaska.

Table 4. Percentage distribution of off-farm migrants by farm earnings, and by region, 1957-60.[1]

Region and farm earnings	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Northeast					
Farm earnings:					
$0-$1,199	71.1	7.2	4.2	17.5	100.0
$1,200-$1,799	70.1	11.2	3.6	15.1	100.0
$1,800-$2,399	79.6	7.5	2.0	10.9	100.0
$2,400-$2,999	75.6	7.4	5.1	11.9	100.0
$3,000 and over	82.4	6.0	3.2	8.3	100.0
Total	74.8	7.5	3.7	13.9	100.0
North Central					
Farm earnings:					
$0-$1,199	68.9	5.6	5.3	20.2	100.0
$1,200-$1,799	72.6	6.4	5.0	16.0	100.0
$1,800-$2,399	79.3	7.7	2.8	10.2	100.0
$2,400-$2,999	80.4	9.2	4.0	6.4	100.0
$3,000 and over	81.2	6.5	3.4	8.9	100.0
Total	75.1	6.5	4.3	14.0	100.0
South					
Farm earnings:					
$0-$1,199	65.9	8.5	4.1	21.4	100.0
$1,200-$1,799	71.9	5.0	5.0	18.1	100.0
$1,800-$2,399	69.5	9.1	5.5	15.9	100.0
$2,400-$2,999	70.9	9.5	2.5	17.1	100.0
$3,000 and over	78.4	5.5	2.8	13.3	100.0
Total	69.6	7.6	4.1	18.7	100.0

Table 4.--Continued.

Region and farm earnings	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Plains					
Farm earnings:					
$0-$1,199	51.4	9.0	6.9	32.7	100.0
$1,200-$1,799	58.4	6.3	5.9	29.5	100.0
$1,800-$2,399	60.9	8.8	5.7	24.6	100.0
$2,400-$2,999	64.7	6.3	5.2	23.8	100.0
$3,000 and over	65.8	6.5	5.9	21.8	100.0
Total	57.6	7.8	6.3	28.4	100.0
West					
Farm earnings:					
$0-$1,199	52.5	7.6	6.2	33.7	100.0
$1,200-$1,799	52.8	8.4	5.9	32.9	100.0
$1,800-$2,399	54.1	8.6	3.5	33.9	100.0
$2,400-$2,999	54.0	12.6	5.2	28.2	100.0
$3,000 and over	63.7	8.1	7.2	21.0	100.0
Total	55.4	8.3	6.0	30.3	100.0
Nation[2]					
Farm earnings:					
$0-$1,199	61.4	7.7	5.4	25.5	100.0
$1,200-$1,799	65.7	7.0	5.1	22.2	100.0
$1,800-$2,399	68.8	8.4	4.0	18.8	100.0
$2,400-$2,999	69.6	8.8	4.4	17.2	100.0
$3,000 and over	74.6	6.6	4.5	14.3	100.0
Total	66.4	7.5	4.9	21.2	100.0

[1]Source: Social Security data.

[2]The continental United States, excluding Alaska.

although the results were mixed for lower earnings. Nevertheless, since the proportions for all classes of farm earnings were greater for large distance categories, the evidence would seem to indicate an inverse relationship between distance and farm earnings.

Distance migrated and distance from an SMSA were hypothesized to be inversely related. However, from Table 5, the evidence would seem to indicate no clear negative relationship. For all regions and the nation, the proportion of off-farm migrants moving longer distances did not decrease with increasing distances from an SMSA. For the nation, most migration above 50 miles was done by those individuals who were located either 50 miles and under or 151 miles and over from an SMSA.

For the nonfarm industry entered by off-farm migrants, from Table 6, patterns of distances migrated for most industry categories corresponded closely with hypothesized relationships. For the nation and all regions, utility and wholesale and retail trade jobs entailed proportions of migrants moving shorter distances relative to that for the other industries. The construction industry category had the highest proportion of such migrants for all regions and the nation. Finally, the proportions of migrants moving longer distances were reasonably larger for manufacturing, government, and service and primary industries.

Table 5. Percentage distribution of off-farm migrants by distance from an SMSA, and by region, 1957-60.[1]

Region and location to SMSA	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Northeast					
Distance from an SMSA:					
0-50 miles	74.2	8.5	3.8	13.4	100.0
51-100 miles	76.7	4.0	2.3	17.0	100.0
101-150 miles	74.5	3.6	3.6	18.2	100.0
151 miles and over	79.2	5.2	7.8	7.8	100.0
Total	74.8	7.5	3.7	13.9	100.0
North Central					
Distance from an SMSA:					
0-50 miles	71.0	7.9	5.0	16.2	100.0
51-100 miles	82.7	4.3	3.1	9.9	100.0
101-150 miles	83.5	4.4	3.5	8.5	100.0
151 miles and over	42.3	3.8	3.8	50.0	100.0
Total	75.1	6.5	4.3	14.0	100.0
South					
Distance from an SMSA:					
0-50 miles	58.5	9.2	5.0	27.3	100.0
51-100 miles	84.4	5.2	2.8	7.6	100.0
101-150 miles	76.8	7.7	5.4	10.1	100.0
151 miles and over	0.0	0.0	0.0	100.0	100.0
Total	69.6	7.6	4.1	18.7	100.0

Table 5.--Continued.

Region and location to SMSA	Distance Migrated				
	0-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Plains					
Distance from an SMSA:					
0-50 miles	44.4	6.8	7.3	41.5	100.0
51-100 miles	66.8	8.6	5.8	18.9	100.0
101-150 miles	68.2	8.8	4.1	18.9	100.0
151 miles and over	70.8	8.4	5.8	15.0	100.0
Total	57.6	7.8	6.3	28.4	100.0
West					
Distance from an SMSA:					
0-50 miles	52.1	8.9	6.9	32.1	100.0
51-100 miles	63.8	7.1	4.6	24.5	100.0
101-150 miles	67.9	7.7	4.1	20.3	100.0
151 miles and over	50.0	6.3	3.4	40.2	100.0
Total	55.4	8.3	6.0	30.3	100.0
Nation[2]					
Distance from an SMSA:					
0-50 miles	60.9	8.3	5.5	25.3	100.0
51-100 miles	77.2	5.8	3.6	13.4	100.0
101-150 miles	73.9	7.0	4.1	15.0	100.0
151 miles and over	66.0	7.5	5.4	21.1	100.0
Total	66.4	7.5	4.9	21.2	100.0

[1]Source: Social Security data.

[2]The continental United States, excluding Alaska.

Table 6. Percentage distribution of off-farm migrants by nonfarm industry, and by region, 1957-60.[1]

Region and nonfarm industry	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
Northeast					
Nonfarm industry:					
Manufacturing	79.2	6.2	4.3	10.2	100.0
Primary industries	74.6	11.9	0.0	13.6	100.0
Construction	66.8	8.4	3.5	21.2	100.0
Utilities	75.3	14.1	0.0	10.6	100.0
Wholesale and retail trade	75.8	7.6	2.6	14.0	100.0
Service industries	70.3	6.8	5.7	17.1	100.0
Government	71.0	9.3	4.7	15.0	100.0
Unknown, unclassified, and military	75.7	2.7	8.1	13.5	100.0
Total	74.8	7.5	3.7	13.9	100.0
North Central					
Nonfarm industry:					
Manufacturing	74.8	7.2	3.9	14.1	100.0
Primary industries	71.4	3.2	1.6	23.8	100.0
Construction	69.4	7.6	6.8	16.3	100.0
Utilities	79.2	7.5	1.2	12.1	100.0
Wholesale and retail trade	78.5	5.2	4.4	11.9	100.0
Service industries	75.6	4.5	3.7	16.3	100.0
Government	73.2	9.6	7.1	10.1	100.0
Unknown, unclassified, and military	71.8	8.2	2.7	17.3	100.0
Total	75.1	6.5	4.3	14.0	100.0

Table 6.--Continued.

Region and nonfarm industry	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
South					
Nonfarm industry:					
Manufacturing	69.4	6.4	3.4	20.8	100.0
Primary industries	68.4	5.1	3.8	22.8	100.0
Construction	58.3	14.5	6.8	20.4	100.0
Utilities	77.5	6.7	1.7	14.2	100.0
Wholesale and retail trade	74.5	5.4	3.2	17.0	100.0
Service industries	73.6	4.0	4.5	17.9	100.0
Government	61.3	15.2	4.9	18.6	100.0
Unknown, unclassified, and military	77.2	4.0	5.0	13.9	100.0
Total	69.6	7.6	4.1	18.7	100.0
Plains					
Nonfarm industry:					
Manufacturing	51.2	8.0	5.7	35.1	100.0
Primary industries	67.6	5.6	1.4	25.4	100.0
Construction	43.2	10.8	10.1	35.9	100.0
Utilities	64.1	7.1	5.1	23.7	100.0
Wholesale and retail trade	66.0	6.2	4.4	23.4	100.0
Service industries	62.5	7.2	5.3	25.1	100.0
Government	59.6	7.0	8.7	24.8	100.0
Unknown, unclassified, and military	51.1	10.6	7.8	30.5	100.0
Total	57.6	7.8	6.3	28.4	100.0

Table 6.--Continued.

Region and nonfarm industry	Distance Migrated				
	1-50 miles	51-100 miles	101-150 miles	151 miles and over	All movers
West					
Nonfarm industry:					
Manufacturing	59.6	8.4	4.8	27.2	100.0
Primary industries	56.8	6.8	10.2	26.1	100.0
Construction	40.7	7.3	6.7	45.3	100.0
Utilities	56.4	16.1	3.4	24.2	100.0
Wholesale and retail trade	59.8	7.0	5.8	27.4	100.0
Service industries	51.2	9.8	8.0	31.1	100.0
Government	59.7	2.6	6.5	31.2	100.0
Unknown, unclassified, and military	45.5	9.1	7.3	38.2	100.0
Total	55.4	8.3	6.0	30.3	100.0
Nation[2]					
Nonfarm industry:					
Manufacturing	68.3	7.2	4.3	20.2	100.0
Primary industries	66.9	6.4	3.9	22.8	100.0
Construction	54.6	10.1	7.3	28.0	100.0
Utilities	70.0	10.0	2.5	17.5	100.0
Wholesale and retail trade	70.7	6.1	4.2	19.0	100.0
Service industries	66.7	6.4	5.3	21.6	100.0
Government	64.8	9.6	6.6	19.0	100.0
Unknown, unclassified, and military	63.5	7.7	5.8	23.0	100.0
Total	66.4	7.5	4.9	21.2	100.0

[1]Source: Social Security data.

[2]The continental United States, excluding Alaska.

The Regressions

Parameters of the regression equations were estimated for the nation and five major regions. For each equation, dependent-independent relationships and statistical tests employed were the same.

The Nation.--The results of the regression analysis for the nation is shown in Table 7. Two things are apparent. First, little of the variation in the dependent variable--distance migrated--was explained by the independent variables. Several unspecified variables, such as levels of education, long-term earnings, and nonfarm city size may have assisted substantially in explaining the variation of the dependent variable. Second, even though the R^2 value was small, 15 of the 24 independent variables (including the constant term) were significant at the .01 or .05 level.

Income change was not significantly related to distance migrated. For those off-farm migrants included in the sample, on the average, holding other independent variables constant, short-run changes in income resulting from nonfarm employment were not important in inducing migration. Hence, it would appear that something other than short-run income changes was necessary to compensate for monetary and opportunity costs associated with migration (whether voluntary or involuntary).

Table 7. Results of regression equation of demographic and economic characteristics associated with distance migrated, the Nation,[1] 1957-60.

Independent variables[2]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[3]
Constant	111.4141	12.8093	--	8.6979	S**
Income change	.0004	0.0015	0.0023	0.2511	NS
Race:					
Negro	12.4750	8.2596	0.0134	1.5104	NS
Omitted: nonNegro					
Age:					
25-34	39.7010	6.8863	0.0587	5.7652	S**
35-44	10.1547	7.2575	0.0144	1.3992	NS
45 and over	-11.1777	6.7588	-0.0182	-1.6538	NS
Omitted: 24 and under					
Farm employment status:					
Farm wage work only	80.6381	12.2585	0.1099	6.5781	S**
Farm wage work and non-farm wage employment	100.4668	11.0370	0.1791	9.1028	S**
Farm self-employment and nonfarm wage employment	-1.1105	12.3384	-0.0013	-0.0900	NS
Farm self-employment and nonfarm self-employment	-29.4215	13.8572	-0.0267	-2.1232	S*
Omitted: Farm self-employment only					
Farm earnings:					
$1,200-$1,799	-10.3097	7.2034	-0.0136	-1.4312	NS
$1,800-$2,399	-36.3197	8.2583	-0.0414	-4.3980	S**
$2,400-$2,999	-41.1330	9.3204	-0.0411	-4.4132	S**
$3,000 and over	-50.7975	7.1967	-0.0752	-7.0584	S**
Omitted: $0-$1,199					

Table 7.--Continued.

Independent variables[2]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[3]
Distance from an SMSA:					
51-100 miles	-66.5259	5.7678	-0.1034	-11.5340	S**
101-150 miles	-59.5115	8.5133	-0.0615	-6.9904	S**
151 miles and over	-26.6008	10.0322	-0.0234	-2.6515	S**
Omitted: 0-50 miles					
Nonfarm industry:					
Primary industries	25.8466	14.8620	0.0154	1.7391	NS
Construction	61.7558	7.8128	0.0779	7.9044	S**
Utilities	-6.5737	11.2453	-0.0053	-0.5846	NS
Wholesale and retail trade	-1.4743	6.5436	-0.0024	-0.2253	NS
Service industries	22.9658	7.9292	0.0287	2.8964	S**
Government	39.8135	10.7072	0.0352	3.7184	S**
Unknown, unclassified, and military	60.6076	13.6077	0.0401	4.4539	S**
Omitted: Manufacturing					

[1]The continental United States, excluding Alaska.

[2]Observations = 12,761
R^2 = 0.0712
S.E.E. = 267.1940
F = 42.4774
Significance = .01

[3]S* = .05 level
S** = .01 level
NS means the coefficient was not significantly different from zero at the .05 level.

The insignificance of short-run income changes in motivating long-distance transfers seems quite reasonable if migrants place greater emphasis on anticipations of higher long-run earnings, improved working conditions, and better housing, etc. Of particular interest, on a theoretical as well as practical basis, is anticipation of higher long-run earnings. Following the terminology of Friedman and Stigler, let the average income of a family over a period of years be its permanent income and the deviation of its current income from this level be its transitory component of income.[33] Then a family with a large negative transitory component would be put in a low current income class but with a large positive transitory component the same family would be put in a high current income class. But the family would be foolish to vary expenditures solely on the basis of widely fluctuating annual incomes. Moreover, as an empirical matter family incomes do undergo fluctuations of substantial magnitude, although such fluctuations are not consistent except perhaps between seasons of a year. For these reasons, budgeting studies of a group of families at any one time normally tend to understate the responsiveness of expenditures to changes

---

[33]Milton Friedman, A Theory of the Consumption Function, (New York: National Bureau of Economic Research, 1957), and George Stigler, The Theory of Price, (New York: The Macmillan Company, 1966).

in permanent income. In other words, current measured income is inadequate as an indicator of long-run income status and as such more permanent or long-run income changes would be expected to be of significant importance in explaining migration.

Contrary to that hypothesized, the coefficient for the race variable was not significantly different from zero, indicating that, for the nation, Negroes were not more willing to move greater distances in off-farm transfers than nonNegroes. In view of this insignificant result, one of two conclusions is apparent. First, although Negroes historically appear to have been more responsive to distance in off-farm occupational mobility than nonNegroes, the distinction is not statistically relevant in predicting who will be more willing to migrate long distances. Perhaps the gross relationship is not due to race at all but due to interactions between other variables. Second, since the parameter estimation in the national equation involved the aggregation of cross-sectional data, the true significance was negated by the dominating influence of migration patterns of Negroes particularly from other than the South.

Nevertheless, this result does not lend itself well to interpretation, expecially since approximately 62 per cent of the Negroes in the sample originated in the South. Moreover, the massive migration of Negroes to center cities of metropolitan areas, as opposed to nonNegroes, is well

documented. John F. Kain and Joseph J. Persky found that 58 per cent of Negroes born in the South Atlantic division and now living elsewhere live in the four northeastern SMSA's greater than one million (Buffalo, New York, Philadelphia, and Pittsburgh).[34] Similarly, they found that 40 per cent of the Negro migrants from the East South Central division moved to the five East North Central SMSA's greater than one million (Chicago, Detroit, Cincinnati, Cleveland, and Milwaukee) while 36 per cent of the same group from the West South Central division live in the four Pacific SMSA's greater than one million (Los Angeles, San Diego, San Francisco, and Seattle).

In addition to this mass migration, it is well known that nonfarm economic opportunities for Negroes in the South have been limited, opportunity costs for Negroes in farming are low, and rural Negro birth rates have been high. Hence, these pressures would seem to add to the long-standing link between the rural Negro of the South and migration to large northern metropolitan centers.

The relationship between distance and increasing age was generally consistent with the inverse relationship hypothesized. It will be recalled that each estimated

---

[34]John F. Kain and Joseph J. Persky, "The North's Stake in Southern Rural Poverty," in Rural Poverty in the United States, Report by the President's National Advisory Commission on Rural Poverty (Washington, D.C.: Government Printing Office, 1968), Ch. 17, pp. 288-308.

parameter (coefficient) of a category of the age variable was computed by subtracting the actual value of the coefficient of the omitted category, which in this case was 24 and under, from the actual value of the estimated parameter. Therefore, from the sign of the regression coefficients, off-farm migrants 25-34 years of age were more willing to move greater distances than those persons 24 and under. The estimated change in distance migrated on the average, holding other variables constant, when one moved from the 24 and under to the 25-34 age category, was approximately 40 miles.

The results of this comparison between the 24 and under and the 25-34 years of age category was somewhat contrary to that expected. Normally, work experience and locational preferences would be greater for the older group as opposed to that of the 24 and under category. This should hold true irrespective of race and farm employment status. Thereby, psychic and farm opportunity costs would be expected to be higher for the older migrants. In addition, persons in the older category normally have more accumulated belongings and family responsibilities which would translate into greater money costs--food, lodging, and transportation--associated with migration. But apparently, as viewed by the older group, the expected length of the pay-off period from nonfarm employment for regaining these investments in migration was sufficient. Maturity

short of 35 may have been an advantage in exposing a wider range of potential nonfarm employment opportunities with better earnings and future advancement possibilities. Moreover, for the 24 and under category, the possibility of commuting to nonfarm jobs, the reality of various military obligations, and the existence of dependence on other wage earners may have been true negative factors to long-distance migration.

From the initial calculations given in Table 7 above, both the 35-44 and the 45 and over age groups had coefficients that were not significantly different from that of the omitted category, 24 and under. However, this does not mean that these categories would not be significant when compared with some other omitted category. Further t statistics ($t_b = \frac{b}{S_b}$) were calculated (results not shown), with the b obtained by subtracting the value of the regression coefficient of the desired omitted category from the value of the regression coefficient of the retained category, and with the S_b obtained by taking the square root of the sum of the appropriate coefficient variances less twice the appropriate covariance term. From such computations, the 35-44 age category was found to be significantly different from the 25-34 age group, and the 45 and over age group was significantly different from the 35-44 age category. In both cases the calculated coefficients had negative signs. This result reinforced the hypothesized age-distance

relationship by indicating that older persons who leave agriculture do so only with the opportunity of nonfarm employment located near their current employment.

For the employment status of farm individuals, as hypothesized, single and multiple job wage workers were found to be more responsive to distance than categories of multiple and single job farm operators. With the exception of the farm operator-nonfarm wage worker category, all farm employment categories were significant in explaining distance migrated. The estimated parameter of the farm wage work and nonfarm wage employment category was of the greatest magnitude, indicating that, other things the same, persons in this group were willing to migrate over 100 miles further than persons who were farm operators only. It appears that persons with this type of multiple employment status are in the best possible position to successfully migrate long distances to exclusively nonfarm employment. Such long-distance transfers would be expected to be the result of lower relative costs of migration than self-employed individuals or the simple availability of nonfarm employment through present nonfarm wage jobs. Alternatively, for the farm wage work only category, long-distance moves would be expected to be primarily a function of lower migration costs. The estimated change in distance migrated on the average, holding other variables constant,

by moving from the farm self-employed category to the farm wage work only category, was approximately 81 miles.

As previously mentioned, farm operators with nonfarm self-employment were the least likely to migrate long distances. This finding is of particular interest in view of the method of computation with the omitted category, farm self-employment only, and the resulting negative sign of the multiple job category. Several reasons are immediate. In all probability, farm operators with nonfarm self-employment left agriculture with the intention of devoting full time to their present nonfarm jobs. Quite likely these nonfarm jobs were within commuting distance of their farm businesses. Consequently, their money and psychic costs were minimized by short-distance migration. Moreover, the nonfarm component would be accompanied by some accumulation of experience as well as an added source of money income. And, additional investments in transportation, tools, office facilities, and clothing might have been required. Hence, farm operators with some form of nonfarm self-employment would have high opportunity costs relative to the employment position of single-job farm operators.

As hypothesized, all categories of farm earnings prior to migration were found to be negatively related to distance. However, as farm earnings increased, holding other variables constant, the negative magnitude of the coefficients of the categories increased, indicating a

declining response to distance migrated as farm earnings became larger. Only the coefficient for the $1,200-$1,799 category was not significantly different from the omitted category, farm earnings between $0-$1,199. In view of the method by which each of the other parameters was estimated, persons with this lowest level of farm earnings were most responsive to distance in off-farm mobility.

A number of reasons are plausible. Hathaway and Perkins found that farm-nonfarm occupational mobility does not necessarily close the money income gap between the poor and the better off.[35] Perhaps some potential migrants had similar expectations. In addition, on the average, as farm earnings increase, the greater the opportunity costs associated with farm employment become and thereby the less the willingness of a potential mover to migrate. Moreover, the low level of earnings in farming when weighed against monetary costs of migration could have magnified the negative response, although given that individuals with $0-$1,199 were most responsive to distance, there is reason to believe that earnings from farm employment are not good indicators of the ability of potential off-farm migrants to bear the monetary costs associated with distance.

As hypothesized, holding other independent variables constant, distance migrated was inversely related to

---

[35]Hathaway and Perkins, "Occupational Mobility and Migration from Agriculture," Ch. 13, pp. 185-237.

distance from an SMSA. The omitted category was 0-50 miles and as indicated by the negative sign of the remaining coefficients, persons coming from this category were the most responsive to distance in migration. Surprisingly however, in view of previous findings, for the three remaining categories, as the mileage from an SMSA increased the negative magnitude of the corresponding coefficients decreased. This means that, aside from the 0-50 category, farm employed persons located further away from SMSAs were the most likely to migrate long distances.

Perhaps the best explanation for such findings lies in the functioning of the SMSA itself in the labor market. It is well known that nonfarm employment is much more available in or near SMSAs and access to the national labor market more readily obtained. Hence, persons within 50 miles of the SMSA are best able to participate immediately and directly in the national labor market. Moreover, for people outside the 50 mile area, the SMSA essentially serves as a regional center through which farm migrants are transferred to nonfarm employment. Therefore, assuming the off-farm migrants involved moved to and/or through their nearest SMSAs, the further a migrant from his nearest SMSA, the greater the distance he would have to migrate in order to establish exclusively nonfarm employment.

With respect to the nonfarm industry entered, four categories were found to be significantly different from

manufacturing, the omitted category, in explaining distance migrated. Off-farm migrants were found to move greater distances to construction and service industries and to government, with construction having the largest positive sign followed by government and service industries, respectively. Manufacturing was next in importance. Primary industries, utilities, and wholesale and retail trade were not significantly different from manufacturing in explaining distance migrated. As hypothesized, construction and government had the largest positive significant regression coefficients, indicating that persons in the former group were willing to migrate over 61 miles further than persons in the manufacturing category while persons in the latter category were willing to migrate an additional 40 miles. This result is quite plausible since for construction industries, discounted real wage rates were relatively high. Moreover, employment opportunities with all local, state, and federal levels of government were generally relatively good.

The finding for service industries (finance, insurance, and real estate) was contrary to that expected when compared to the manufacturing category. The coefficient magnitude was the smallest of the significant categories. The positive relationship would seem to indicate, however, that many migrants possess the skills necessary for this type employment, especially in view of

the less important role of manufacturing industries. The possibility of high earnings might also have been an important factor.

From the coefficient magnitudes for the industry variable, there would appear to be four major clusters. These are: (1) utilities and wholesale and retail trade, (2) primary and service industries, (3) government, and (4) construction. Further t statistics were calculated to examine any significantly different responses with distance migrated. From such computations, service industries were found to be significantly different from wholesale and retain trade, government was not significantly different from service industries, but construction was found to be significantly different from government in explaining distance migrated. These results further reinforced the hypothesized distance-industry relationship by indicating that long-distance moves were principally to jobs in construction, manufacturing, government, and primary and service industries.

The Regions.--A summary of the analyses for the five major regions is shown in Table 8.[36] As in the case of the national equation, little of the variation in the dependent variable distance migrated was explained by the

---

[36]Specific regression results are contained in Appendix C.

Table 8. Results of regression equation of demographic and economic characteristics associated with distance migrated, by region, 1957-60.[1]

Independent variables	North-east	North Central	South	Plains	West
Constant	NS	+	+	+	NS
Income Change	NS	NS	NS	NS	NS
Race:					
Negro	+	+	+	-	NS
Omitted: nonNegro					
Age:					
25-34	NS	+	NS	NS	+
35-44	NS	NS	-	NS	NS
45 and over	NS	NS	NS	NS	NS
Omitted: 24 and under					
Farm Employment Status:					
Farm wage work only	NS	+	NS	+	+
Farm wage work and nonfarm wage employment	NS	+	+	+	+
Farm self-employment and nonfarm wage employment	NS	NS	NS	NS	NS
Farm self-employment and nonfarm self-employment	NS	NS	NS	NS	NS
Omitted: Farm self-employment only					
Farm Earnings:					
$1,200-$1,799	NS	NS	NS	NS	NS
$1,800-$2,399	NS	-	NS	-	NS
$2,400-$2,999	NS	-	NS	NS	-
$3,000 and over	-	-	NS	NS	-
Omitted: $0-$1,199					

Table 8.--Continued.

Independent variables	North-east	North Central	South	Plains	West
Distance from an SMSA:					
51-100 miles	NS	-	-	-	-
101-150 miles	NS	-	-	-	-
151 miles and over	NS	+	+	-	+
Omitted: 0-50 miles					
Nonfarm Industry:					
Primary industries	NS	+	NS	NS	NS
Construction	+	+	NS	NS	+
Utilities	NS	NS	NS	-	NS
Wholesale and retail trade	NS	NS	NS	-	NS
Service industries	+	NS	NS	-	NS
Government	+	NS	NS	NS	NS
Unknown, unclassified, and military	NS	NS	NS	NS	+
Omitted: Manufacturing					

[1]The signs indicate whether the relationship was significant at the .05 level and the nature of the relationship. NS means the coefficient was not significantly different from zero at the .05 level.

independent variables in each regional equation. Despite this shortcoming, the findings were useful because of the additional information obtained to support the results of the national equation.

Short-run income changes were not significantly related to distance migrated in any region, as in the case of the nation as a whole. This suggests that anticipations of greater short-run income changes are not relevant in explaining long-distance migration irregardless of region of origin or demographic and economic characteristics of persons migrating.

The Negro race category was significant in all regions except the West and all coefficients were positive except for the Plains region. This was encouraging in view of the insignificant relationship found in the national equation. It would appear that migrants who were most responsive to distance were nonNegroes from the Plains or Negroes from the Northeast, North Central, and the South. However, of all Negroes included in the sample from the latter three regions, over 75 per cent had some type of farm employment in the South prior to migration. Consequently, there is good reason to believe that many of the farm individuals who migrated long distances to exclusively nonfarm employment were Negroes from the South.

The regional breakdown of the relationship between distance migrated and increasing age was similar to that

found in the national equation. For the 25-34 category, as for the nation as a whole, a positive relationship was found in the North Central and West regions. In other words, this more mature group of individuals was willing to migrate greater distances than the younger 24 and under group. Perhaps the former, through maturity and work experience, were more employable than the latter in better nonfarm jobs at greater distance from their places of origin.

However, for the South, the 25-34 age category was not significantly different from the 0-24 omitted category, and an inverse but significant relationship occurred for the 35-44 age category. This indicates that for this region all migrants over 24 years of age were resistant to distance in migration.

For the farm employment status of farm individuals, single and multiple job farm wage workers were found to be willing to incur distance in off-farm transfers in the North Central, Plains and West regions, while the farm wage work-nonfarm wage employment category had the only significant coefficient in the South. Without exception for each region, multiple wage workers were the most responsive to distance. As previously argued, persons in this group were in a good position to successfully establish exclusively nonfarm employment. Perhaps the real input of the original

nonfarm wage jobs was the provision of the necessary basis of experience.

The relationships found in all regions between farm earnings prior to migration and distance migrated concurred with the inverse relationship of the national equation. All categories were found to be negatively related to distance, indicating that persons with $0-$1,199 in farm earnings, the omitted category, were willing to migrate longer distances. The South had no significant coefficients while only the North Central region had farm earnings with significant coefficients indicating a negative relationship with distance migrated. These findings of a declining response to distance migrated as farm earnings became greater would seem to confirm the argument that for these persons opportunity costs in farming were large and thereby the incentive to migrate to exclusively nonfarm employment small.

The regional results for the association between distance migrated and distance from an SMSA were somewhat mixed. All significant coefficients were negative (indicating persons 0-50 miles from an SMSA were responsive to distance) with the exception of the 151 miles and over category. Contrary to the results for the national equation, a positive coefficient for this latter category was found in the North Central, South, and West regions. This implies that the further a person from an SMSA, even

considering the 0-50 category, the greater the willingness to migrate long distances. As with the equation for the nation as a whole, the only plausible explanation seems to be that SMSAs provide easy access to the national labor market. That is, the further a potential migrant from his nearest SMSA, the greater the distance he would have to move in order to establish exclusively nonfarm employment, whether in the SMSA itself or at a greater distance through the SMSA to another national employment center.

The relationship between nonfarm industry entered and distance migrated varied considerably by industry and by region. For the South, no category was significantly different from manufacturing, the omitted category, in explaining distance migrated. The government category was important only for migrants from the Northeast. Utilities, wholesale and retail trade, and service industries had negative coefficients for the Plains region, indicating that manufacturing was more important in attracting long-distance migrants. As opposed to this result, for the Northeast region the service industry category had a positive sign.

The result for the construction and primary industries categories was similar to that for the national equation in that a significantly different relationship from the manufacturing category was found in some regions. The coefficient for service industries was significant but

positive only for the Northeast region. The construction category coefficient was positive and significant in the Northeast, North Central, and West regions.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The basic objective of this inquiry was to investigate the relationship of various economic and demographic characteristics of actual off-farm movers to the distance they migrated in transferring from farm to nonfarm employment. Three general assumptions were made. First, it was assumed that the migration process requires investments in the form of both monetary and nonmonetary costs which increase with the distance of migration. Second, the motivation for incurring these costs was the expectation of better economic well-being from nonfarm employment. Finally, it was believed that from the results of the analysis the impact of migration on both sending and receiving communities could be more clearly understood and thereby enable a greater understanding of the link between rural and urban problems.

The model employed in this study was a multiple linear regression equation, both for the nation and by region. The data employed were derived from the one per cent continuous Work History Sample maintained by the

Social Security Administration. Distance migrated was the dependent variable. Income change, race, age, farm employment status, farm earnings, distance from an SMSA, and nonfarm industry were the independent variables. With the exception of income change, all independent variables were categorized and entered the regression equations as dummy variables.

The hypotheses advanced were:

1. income change and distance are directly related;

2. Negroes are willing to migrate further than nonNegroes;

3. distance migrated and increasing age are inversely related;

4. categories of farm wage workers are more responsive to distance than classes of farm operators;

5. distance migrated is an inverse function of farm earnings;

6. distance migrated and distance from an SMSA are inversely related; and

7. distance is a direct function of primary, manufacturing, and construction industries and to government, but is inversely related to utilities, service industries, and wholesale and retail trade.

From the multiple regression analyses for the nation and the regions, the major findings were as follows:

1. Income change was not significantly related to distance migrated, both in the national equation and by region. Apparently short-run compensation for monetary and opportunity costs was not important in inducing long-distance migration.

2. For the nation as a whole, the race variable (Negro-nonNegro) was not significant in explaining long-distance migration. However, on a regional basis, the Negro race category was significantly different from the nonNegro category in all regions except the West and all coefficients were positive except for the Plains region. This contradiction with the national equation was attributed to aggregation along cross-sectional lines. Negroes from the South, representing approximately 62 per cent of all Negroes in the sample, were found to be most responsive to distance. Hence, there was good reason to believe that many farm workers who migrate long distances to exclusively nonfarm employment are Negroes from the South.

3. Long-distance migration for all equations was found to be inversely related to increasing age, especially for farm individuals 35 years of age and over. Surprisingly, migrants 25-34 were more responsive to distance than persons 24 and under. It would appear that maturity and expectations regarding the sufficient length of the payoff period for recouping migration investments and better

nonfarm job opportunities motivated the greater response by the older group.

4. For the national equation as well as by region, single and multiple job farm wage workers were found to be more responsive to distance than categories of multiple and single job farm operators. Individuals with farm wage work and some form of nonfarm wage employment were willing to migrate longer distances while farm operators with nonfarm self-employment were the least likely to do so. Moreover, single-job farm operators were more responsive to distance than multiple-job self-employed individuals. By virtue of high opportunity costs, in all probability farm operators with nonfarm self-employment left agriculture with the intention of devoting full time to their present nonfarm jobs.

5. All categories of farm earnings prior to migration were found to be negatively related to distance, both for the nation and by region. But the negative magnitude of the coefficients of the categories increased as farm earnings increased, indicating a declining response to distance migrated as farm earnings increased. Even though the farm earnings reported were relatively low, this result would suggest that the negative incentive came from greater opportunity costs in farming as earnings increased and thereby the greater the risks from migration. But, again in view of the low levels of earnings, this result raises

a serious question as to the adequacy of current farm earnings as an economic indicator of farm well-being.

6. Distance migrated was inversely related to distance from an SMSA in the national equation when comparing the 0-50 mileage category with the other categories. However, beyond the 50 mile belt, farm employed persons located further away from SMSA's were the most likely to migrate long distances. Moreover, for the North Central, South, and West regions, farm employed individuals located 151 miles and over from an SMSA were the most responsive to long-distance migration. Since SMSA's function as regional centers in the national labor market, it would appear that persons located near such centers are able to participate directly in the national labor market. For potential migrants located some distance from the SMSA's, the greater the distance of migration required for the establishment of exclusively nonfarm employment either in the regional center (SMSA) or in more distant national labor market centers.

7. The relationship on a national and regional basis between distance and nonfarm industries entered was generally consistent with that hypothesized. For the nation, off-farm migrants were found to move greater distances to construction, manufacturing, service industries, and to government, with construction having the largest positive sign. The result for service industries was surprising,

especially in view of the general work skills of the migrants involved. These findings were consistent by regions, except that the primary industries category was positively significantly different from manufacturing in the North Central region and service industries were negatively significant in the Plains region. Unfortunately, no industry category was significantly different from manufacturing in the South.

Impact on Urban Areas

From an historical perspective, given the foregoing summarized results of the regression analysis, the impact of rapid off-farm migration on urban areas can be more clearly explained.

The lack of adequate economic preparation of many off-farm migrants for urban employment was suggested by the demographic and economic relationships established by this study. In particular, since long-distance migration was found to be primarily associated with the young, Negroes, low income persons, and off-farm movers initially securing blue-collar jobs (construction, manufacturing, and service industries), the probability of continued nonfarm employment would be expected to be small. In general, relative to their urban counterparts, farm youth complete fewer years of formal schooling and receive a somewhat poorer quality education. Moreover, via vocational agriculture,

job training has tended to emphasize manual labor skills. Consequently, off-farm migrants generally are able only to obtain the lowest paying jobs within each industrial category and normally would tend to be laid off first in the event of an economic decline. All of these contribute to possible unemployment among the relatively poorly educated and poorly skilled and ultimately lead to frustration, discontent, and poverty.

Impact on Rural Areas

The impact of massive off-farm migration on rural areas has created many problems. Results of this study show that long-distance migration is positively associated with the young and categories of farm wage and nonfarm wage workers. Young off-farm movers leave with expectations of a better quality life, taking with them potential production and consumption necessary for a viable rural economy and the maintenance of a livable community.

From the shift in the demand for farm labor, and due to the selectivity of the off-farm migration process, many individuals remaining in rural areas are unemployed and/or underemployed. This has led to poverty for many.

Perhaps the most drastic negative impact of massive out-migration from rural areas has been the continual economic deterioration. Since many individuals who migrate have nonfarm wage jobs, goods and services produced

from such efforts stagnate. Moreover, many businesses are forced to discontinue functioning, thereby creating more unemployment. Or, due to a declining volume of goods and services demanded, prices eventually must be increased and passed on to the remaining rural population. However, such a situation does not exist for but the very short-run, since individuals are induced to substitute in favor of items purchased elsewhere. And economic deterioration continues.

Since predominately the young leave for urban areas, many old people remain, to exist on declining business incomes or pensions. Private businesses and local governments experience diseconomies in the production of various services. Property tax bases, both farm and non-farm, become totally inadequate for operation of public services and the remaining older individuals involved strongly resist any increase in tax rates.

Policy Implications

Some off-farm migration will continue to occur in response to natural economic phenomena for certain areas of the United States. Many rural communities are not expected to continue to exist. However, as out-migration to urban areas is expected to continue, it would be desirable to assist out-migrants to make successful transfers. This does not mean that off-farm movements should be

encouraged by large publically provided subsidies, since in many cases the real economic position of many rural poor is superior to that of their urban counterparts. However, meaningful public policies should receive further attention, particularly those policies designed to encourage cooperation between rural and urban areas.

Given that multiple-job farm wage earners have been most willing to migrate long distances, a modest beginning could be the provision of detailed occupational and educational information regarding skill requirements, job openings, employer contacts, and social conditions in cities as well as limited employer subsidies for job training. Such a program, designed particularly for rural people, could probably best be administered through the Cooperative Extension Service associated with most land-grant institutions in conjunction with local and state employment agencies. Hopefully, such a program would enable successful nonfarm job establishment and adjustments to urban living.

Notwithstanding the merits of the above stop-gap proposal, a lasting solution can only come from within rural communities. Policies must be designed to assist development of rural economies and improvement of rural living conditions to discourage further massive off-farm migration and concentrations in large metropolitan areas.

Rural community growth demands a heterogeneous economy if any degree of development is to be achieved. Various industries must be induced to operate in rural areas to effectively utilize out-migrants from the agricultural sector and supplement the remaining agricultural sector. But in order to make rural communities more inviting to those moving into the cities, to encourage those who left the agricultural sector to return, and to attract industrial development, rural areas must become better places to live.

Public policies must be devised to promote the advantages of rural areas and communities over large urban centers. The country must be advertized as a desirable place to live and rear a family.

Rural communities must be revitalized in many ways. Public facilities must be modernized. Schools must be adequately staffed and equipped. Residential housing must be made available of sufficient quality and quantity. And recreation facilities must be modernized or constructed anew. Such revitalization would attract new industry and open new prospects and opportunities for rural areas to grow and prosper.

New national growth policies to develop the resources of rural areas will require much local initiative and will cost money. Local governments, schools, and other formal and informal organizations must be reorganized to

permit efficiency in the delivery of all needed public services. For long-run success, such a reorganization must involve local leadership. Credit institutions in addition to those in current existence must be developed to provide funds for rural industrial development and for financing improvements in public services. Finally, federal and state expenditures to subsidize rural economies must be made, perhaps at the expense of existing urban programs of low social value.

BIBLIOGRAPHY

BIBLIOGRAPHY

Bachmura, F. T. "Migration and Factor Adjustment in Lower Mississippi Valley Agriculture: 1940-1950." J. Farm Econ., Vol. 38 (November, 1956), pp. 1024-1042.

Baumgartner, H. W. "Potential Mobility in Agriculture: Some Reasons for the Existence of a Labor-Transfer Problem." J. Farm Econ., Vol. 47 (February, 1965), pp. 74-82.

Ben-David, Moshe. "Farm-Nonfarm Income Differentials, U.S., 1960." Unpublished Ph.D. dissertation, Michigan State University, 1967.

Bishop, C. E. "Underemployment of Labor in Southeastern Agriculture." J. Farm Econ., Vol. 36 (May, 1954), pp. 258-272.

_____. "Economic Development and Adjustments in Southeastern Low Income Agriculture." J. Farm Econ., Vol. 36 (December, 1954), pp. 1146-1160.

_____. "Economic Aspects of Changes in Farm Labor Force." Labor Mobility and Population in Agriculture. Ames, Iowa: Iowa State University Press, 1961, pp. 36-49.

_____. "Dimensions of the Farm Labor Problem." Farm Labor in the United States. Edited by C. E. Bishop. New York: Columbia University Press, 1967, pp. 1-17.

_____. "The Urbanization of Rural America: Implications for Agricultural Economics." J. Farm Econ., Vol. 49 (December, 1967), pp. 999-1008.

Blank, Uel. "O.A.S.I. Data of the Farm Labor Force." Unpublished Ph.D. dissertation, Michigan State University, 1960.

Bogue, Donald J. "A Methodological Study of Migration and Labor Mobility." Scripps Foundation Studies in Population Distribution, No. 4, June, 1952.

Boyne, David H. "Changes in the Income Distribution in Agriculture." J. Farm Econ., Vol. 47 (December, 1965), pp. 1213-1224.

Bryant, W. Keith. "Causes of Inter-County Variations in Farmers' Earnings." J. Farm Econ., Vol. 48, Part I (August, 1966), pp. 557-577.

Diehl, William D. "Farm-Nonfarm Migration in the Southeast: A Costs-Returns Analysis." J. Farm Econ., Vol. 48 (February, 1966), pp. 1-11.

Freund, John E. Mathematical Statistics. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962.

Friedman, Milton. A Theory of the Consumption Function. New York: National Bureau of Economic Research, 1957.

Fuller, Varden. "Factors Influencing Farm Labor Mobility." Labor Mobility and Population in Agriculture. Ames, Iowa: Iowa State University Press, 1961, pp. 28-35.

_____, and Beale, Calvin L. "Impact of Socioeconomic Factors on Farm Labor Supply." J. Farm Econ., Vol. 49 (December, 1967), pp. 1237-1243.

Gallaway, Lowell E. "Labor Mobility, Resource Allocation, and Structural Unemployment." Amer. Econ. Review, Vol. LIII (September, 1963), pp. 694-716.

_____. Interindustry Labor Mobility in the United States: 1957 to 1960. Social Security Administration Research Report No. 18. Washington, D.C.: Government Printing Office, 1967.

_____. "Mobility of Hired Agricultural Labor: 1957-1960." J. Farm Econ., Vol. 49, Part I (February, 1957), pp. 32-51.

_____. "Geographic Flows of Hired Agricultural Labor: 1957-1960." Amer. J. Agr. Econ., Vol. 50 (May, 1968), pp. 199-212.

Gisser, Micha. "Needed Adjustments in the Supply of Farm Labor." J. Farm Econ., Vol. 49 (November, 1967), pp. 806-815.

Guither, Harold D. "Factors Influencing Decisions to Leave Farming." J. Farm Econ., Vol. 45 (August, 1963), pp. 567-576.

Gustafson, Robert L. "The Use and Intrepretation of 'Dummy Variables' in Regressions." Michigan State University, Department of Agricultural Economics, Mimeo, January, 1962.

Hathaway, Dale E. "Migration From Agriculture: The Historical Record and Its Meaning." Amer. Econ. Review, Vol. L (May, 1960), pp. 379-391.

_____. Government and Agriculture: Economic Policy in a Democratic Society. New York: Macmillan and Company, 1963.

_____. Urban-Industrial Development and Income Differentials Between Occupations." J. Farm Econ., Vol. 46 (February, 1964), pp. 56-66.

_____. "Occupational Mobility From the Farm Labor Force." Farm Labor in the United States. Edited by C. E. Bishop. New York: Columbia University Press, 1967.

_____, and Perkins, Brian B. "Occupational Mobility and Migration from Agriculture." Rural Poverty in the United States, Report by the President's National Advisory Commission on Rural Poverty. Washington, D.C.: Government Printing Office, 1968.

_____. "Farm Labor Mobility, Migration, and Income Distribution." Amer. J. Agr. Econ., Vol. 50 (May, 1968), pp. 342-353.

_____, and Waldo, Arley D. Multiple Jobholding by Farm Operators. Michigan Agr. Exp. Sta. Bul. 5, 1964.

Heady, Earl O. "Facilitating Movements of Labor Out of Agriculture--Discussion." Amer. Econ. Review, Vol. L (May, 1960), pp. 413-415.

_____. "Preface." Labor Mobility and Population in Agriculture. Ames, Iowa: Iowa State University Press, 1961, pp. v-vi.

_____. Agricultural Policy Under Economic Development. Ames, Iowa: Iowa State University Press, 1962.

Johnson, D. Gale. "Functioning of the Labor Market." J. Farm Econ., Vol. 33 (February, 1951), pp. 75-87.

_____. "Policies and Procedures to Facilitate Desirable Shifts of Manpower." J. Farm Econ., Vol. 33 (November, 1951), pp. 722-729.

_____. "Comparability of Labor Capacities of Farm and Nonfarm Labor." Amer. Econ. Review, Vol. XLIII (June, 1953), pp. 296-313.

_____. "Labor Mobility and Agricultural Adjustment." Agricultural Adjustment Problems in a Growing Economy. Edited by Earl O. Heady, et al. Ames, Iowa: Iowa State College Press, 1958.

_____. "Policies to Improve the Labor Transfer Process." Amer. Econ. Review, Vol. L (May, 1960), pp. 403-412.

Johnson, Paul R. "Labor Mobility: Some Costs and Returns." Rural Poverty in the United States. Report by the President's National Advisory Commission on Rural Poverty. Washington, D.C.: Government Printing Office, 1968.

Johnston, J. Econometric Methods. New York: McGraw-Hill Book Co., Inc., 1963.

Kain, John F. and Persky, Joseph J. "The North's Stake in Southern Rural Poverty." Rural Poverty in the United States. Report by the President's National Advisory Commission on Rural Poverty. Washington, D.C.: Government Printing Office, 1968.

Kmenta, Jan. Elements of Econometrics. New York: The Macmillan Company, 1971.

Maddox, James G. "Private and Social Costs of the Movement of People Out of Agriculture." Amer. Econ. Review, Vol. L (May, 1960), pp. 393-402.

Perkins, Brian B. "Labor Mobility Between the Farm and the Nonfarm Sector." Unpublished Ph.D. dissertation, Michigan State University, 1964.

_____, and Hathaway, Dale E. The Movement of Labor Between Farm and Nonfarm Jobs. Michigan Agr. Exp. Sta. Bul. 13, 1966.

Reder, Melvin W. "Facilitating Movements of Labor Out of Agriculture--Discussion." Amer. Econ. Review, Vol. L (May, 1960), pp. 415-416.

Ruttan, Vernon W. "The Human Resource Problem in American Agriculture." Farming, Farmers, and Markets for Farm Goods. Edited by Karl A. Fox, et al. New York: Committee for Economic Development, 1962.

Schuh, G. Edward. "An Econometric Investigation of the Market For Hired Labor in Agriculture." J. Farm Econ., Vol. 44, Part I (May, 1962), pp. 307-321.

Schultz, T. W. Agriculture In An Unstable Economy. New York: McGraw-Hill Book Company, Inc., 1945.

_____. Economic Organization of Agriculture. New York: McGraw-Hill Book Company, Inc., 1953.

_____. "Investment In Human Capital." Amer. Econ. Review, Vol. LI (March, 1961), pp. 1-17.

_____. "Reflections On Investment In Man." J. Pol. Econ., Vol. LXX, Part II, Supplement (October, 1962), pp. 1-8.

Sjaastad, Larry A. "Occupational Structure and Migration Patterns." Labor Mobility and Population in Agriculture. Ames, Iowa: Iowa State University Press, 1961, pp. 8-27.

_____. "The Costs and Returns of Human Migration." J. Pol. Econ., Vol. LXX, Part II, Supplement (October, 1962), pp. 80-93.

Stigler, George. The Theory of Price. New York: The Macmillan Company, 1966.

Suits, D. B. "Use of Dummy Variables in Regression Equations." J. Am. Stat. Assoc., Vol. 52 (December, 1957), pp. 548-551.

Tyrchniewicz, E. W., and Schuh, G. E. "Regional Supply of Hired Labor in Agriculture." J. Farm Econ., Vol. 48 (August, 1966), pp. 537-556.

United States Bureau of the Census. "Mobility of the Population of the United States: March 1966 to March 1967." Current Population Reports, Series P-20, No. 171. Washington, D.C.: Government Printing Office, 1968.

_____. "Lifetime Migration Histories of the American People." Current Population Reports, Series P-23, No. 25. Washington, D.C.: Government Printing Office, 1968.

_____. "Social and Economic Conditions of Negroes in the United States." Current Population Reports, Series P-23, No. 26. Washington, D.C.: Government Printing Office, 1968.

_____. "Farm Population." Current Population Reports, Series P-27, No. 42. Washington, D.C.: Government Printing Office, 1971.

United States Department of Agriculture. Farm Population--Net Migration From the Rural--Farm Population, 1940-50, by Gladys K. Bowles, Statistical Bulletin No. 176. Washington, D.C.: Government Printing Office, 1956.

_____. Farm Population Estimates For 1910-62, by Vera J. Banks, Calvin L. Beale, and Gladys K. Bowles, ERS-130. Washington, D.C.: Government Printing Office, 1963.

_____. Changes in Farm Production and Efficiency, Statistical Bulletin No. 233. Washington, D.C.: Government Printing Office, 1970.

_____. Farm Income Situation. Washington, D.C.: Government Printing Office, July, 1971.

United States Department of Labor. Monthly Labor Review. Washington, D.C.: Government Printing Office, December 1959 and December 1960.

Waldo, Arley D. "The Off-farm Employment of Farm Operators in the United States." Unpublished Ph.D. dissertation, Michigan State University, 1962.

APPENDICES

APPENDIX A

DEFINITION OF TERMS

APPENDIX A

DEFINITION OF TERMS

Migration.--Defined as a change in location, the smallest change being from one county to another, in moving from some form of farm employment coverage to exclusively nonfarm employment.

Occupational mobility and off-farm mobility.--Both used synonymously with migration.

Distance migrated.--The distance between the county of farm employment and the county of nonfarm employment, measured by using the Census coordinates for the population centers of the counties.

Employment status.--Defined as either farm or nonfarm.

Farm Employment.--Persons who are exclusively farm wage workers, who are exclusively self-employed farm operators, or who combine one of these categories with some form of nonfarm employment.

Nonfarm Employment.--Persons whose employment, either wage, salary, or self-employment, was exclusively in nonfarm industries.

Industry of nonfarm employment.--The industry of employment from which the individual obtained the highest earnings during the year after migration.

APPENDIX B

REGIONAL DIVISION OF STATES

APPENDIX B

REGIONAL DIVISION OF STATES

Northeast.--Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Maryland, Delaware, Pennsylvania, District of Columbia.

North Central.--Wisconsin, Michigan, Illinois, Indiana, Ohio, Minnesota, Iowa, Missouri.

South.--West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Arkansas, Louisiana, Missouri, Alabama, Georgia, Florida.

Plains.--North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Montana, Wyoming, Colorado, New Mexico, Idaho, Utah, Arizona.

West.--Washington, Oregon, California, Nevada.

APPENDIX C

APPENDIX TABLES

Table 1. Results of regression equation of demographic and economic characteristics associated with distance migrated, the Northeast, 1957-60.

Independent variables[1]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[2]
Constant	60.9272	33.9195	--	1.7962	NS
Income change	0.0005	0.0039	0.0033	0.1366	NS
Race:					
Negro	113.7237	17.6791	0.1489	6.4327	S**
Omitted: nonNegro					
Age:					
25-34	8.0323	14.7981	0.0142	0.5428	NS
35-44	6.9404	16.8107	0.0109	0.4129	NS
45 and over	-18.7368	15.5020	-0.0339	-1.2087	NS
Omitted: 24 and under					
Farm employment status:					
Farm wage work only	34.7160	32.8440	0.0586	1.0570	NS
Farm wage work and non-farm wage employment	33.9334	30.8801	0.0689	1.0989	NS
Farm self-employment and nonfarm wage employment	-21.0638	35.1002	-0.0243	-0.6001	NS
Farm self-employment and nonfarm self-employment	-35.7368	38.5374	-0.0317	-0.9273	NS
Omitted: Farm self-employment only					
Farm earnings:					
$1,200-$1,799	-7.2704	16.4694	-0.0109	-0.4414	NS
$1,800-$2,399	-24.7028	19.0501	-0.0321	-1.2967	NS
$2,400-$2,999	-15.3184	20.0389	-0.0187	-0.7644	NS
$3,000 and over	-34.5554	16.0367	-0.0612	-2.1548	S*
Omitted: $0-$1,199					

Table 1.--Continued.

Independent variables[1]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[2]
Distance from an SMSA:					
51-100 miles	22.2747	14.8140	0.0343	1.5036	NS
101-150 miles	44.6307	31.8963	0.0316	1.3992	NS
151 miles and over	-34.5716	27.1844	-0.0288	-1.2717	NS
Omitted: 0-50 miles					
Nonfarm industry:					
Primary industries	16.8807	31.5382	0.0124	0.5352	NS
Construction	68.3425	17.9665	0.0934	3.8039	S**
Utilities	14.0154	26.8494	0.0122	0.5220	NS
Wholesale and retail trade	19.0650	14.0071	0.0354	1.3611	NS
Service industries	46.4654	17.1803	0.0677	2.7046	S**
Government	52.9082	24.7784	0.0515	2.1353	S*
Unknown, unclassified, and military	51.0231	39.5876	0.0297	1.2889	NS
Omitted: Manufacturing					

[1] Observations = 1,920
R^2 = 0.0594
S.E.E. = 230.2355
F = 5.2043
Significance = 0.01

[2] S* = .05 level
S** = .01 level
NS means the coefficient was not significantly different from zero at the .05 level.

Table 2. Results of regression equation of demographic and economic characteristics associated with distance migrated, the North Central, 1957-60.

Independent variables[1]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[2]
Constant	90.7929	20.0993	--	**4.5172**	S**
Income change	-0.0040	0.0023	-0.0325	-1.7311	NS
Race:					
Negro	96.0760	29.5889	0.0580	3.2470	S**
Omitted: nonNegro					
Age:					
25-34	39.5484	12.7251	0.0670	3.1079	S**
35-44	23.6548	13.0486	0.0398	1.8128	NS
45 and over	-16.1601	12.4003	-0.0315	-1.3032	NS
Omitted: 24 and under					
Farm employment status:					
Farm wage work only	63.9057	19.7143	0.0921	3.2416	S**
Farm wage work and nonfarm wage employment	82.6615	16.5330	0.1743	4.9998	S**
Farm self-employment and nonfarm wage employment	6.9061	17.4494	0.0119	0.3958	NS
Farm self-employment and nonfarm self-employment	-9.4578	20.0871	-0.0118	-0.4708	NS
Omitted: Farm self-employment only					
Farm earnings:					
$1,200-$1,799	-10.2822	13.0011	-0.0160	-0.7909	NS
$1,800-$2,399	-59.8429	14.5991	-0.0816	-4.0991	S**
$2,400-$2,999	-77.8740	16.8641	-0.0913	-4.6177	S**
$3,000 and over	-58.5138	12.2708	-0.1108	-4.7686	S**
Omitted: $0-$1,199					

Table 2.--Continued.

Independent variables[1]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[2]
Distance from an SMSA:					
51-100 miles	-34.4140	9.9223	-0.0638	-3.4683	S**
101-150 miles	-52.7432	14.0479	-0.0687	-3.7545	S**
151 miles and over	227.3265	44.9805	0.0894	5.0539	S**
Omitted: 0-50 miles					
Nonfarm industry:					
Primary industries	77.5673	29.7735	0.0472	2.6052	S**
Construction	31.2070	14.1295	0.0435	2.2086	S*
Utilities	-0.5346	19.0463	-0.0005	-0.0281	NS
Wholesale and retail trade	-11.4739	11.4358	-0.0210	-1.0033	NS
Service industries	26.4525	14.2278	0.0373	1.8592	NS
Government	17.3702	18.6053	0.0183	0.9336	NS
Unknown, unclassified, and military	44.0135	23.1996	0.0351	1.8972	NS
Omitted: Manufacturing					

[1] Observations = 2,972
R^2 = 0.0880
S.E.E. = 227.1066
F = 12.3626
Significance = .01

[2] S* = .05 level
S** = .01 level
NS means the coefficient was not significantly different from zero at the .05 level.

Table 3. Results of regression equation of demographic and economic characteristics associated with distance migrated, the South, 1957-60.

Independent variables[1]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[2]
Constant	187.5757	24.3633	--	7.6991	S**
Income change	0.0054	0.0029	0.0360	1.8888	NS
Race:					
Negro	27.5325	11.8036	0.0468	2.3326	S*
Omitted: nonNegro					
Age:					
25-34	17.3750	14.7148	0.0261	1.1808	NS
35-44	-30.5474	14.9290	-0.0470	-2.0462	S*
45 and over	-25.7557	13.9952	-0.0460	-1.8403	NS
Omitted: 24 and under					
Farm employment status:					
Farm wage work only	39.7747	23.0348	0.0569	1.7267	NS
Farm wage work and nonfarm wage employment	46.4614	21.0172	0.0877	2.2106	S*
Farm self-employment and nonfarm wage employment	24.8024	22.5529	-0.0355	-1.0997	NS
Farm self-employment and nonfarm self-employment	47.3506	25.1354	-0.0525	-1.8838	NS
Omitted: Farm self-employment only					
Farm earnings:					
$1,200-$1,799	-3.9998	13.8797	-0.0058	-0.2882	NS
$1,800-$2,399	-14.0943	16.2416	-0.0173	-0.8678	NS
$2,400-$2,999	10.0628	19.9721	0.0099	0.5038	NS
$3,000 and over	-0.9423	16.5701	-0.0013	-0.0569	NS
Omitted: $0-$1,199					

Table 3.--Continued.

Independent variables[1]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[2]
Distance from an SMSA:					
51-100 miles	-121.1267	10.3728	-0.2225	-11.6774	S**
101-150 miles	-101.2393	20.6830	-0.0917	-4.8948	S**
151 miles and over	496.1444	252.1253	0.0358	1.9678	S*
Omitted: 0-50 miles					
Nonfarm industry:					
Primary industries	1.5611	29.9168	0.0010	0.0522	NS
Construction	-5.5851	15.6238	-0.0077	-0.3575	NS
Utilities	-38.4844	24.9326	-0.0297	-1.5435	NS
Wholesale and retail trade	-14.5739	13.4672	-0.0243	-1.0822	NS
Service industries	-4.7497	16.3254	-0.0062	-0.2909	NS
Government	27.4315	20.6099	0.0272	1.3310	NS
Unknown, unclassified, and military	-10.5773	27.1117	-0.0075	-0.3901	NS
Omitted: Manufacturing					

[1] Observations = 2,737
R^2 = 0.1070
S.E.E. = 251.4329
F = 14.1404
Significance = .01

[2] S* = .05 level
S** = .01 level
NS means the coefficient was not significantly different from zero at the .05 level.

Table 4. Results of regression equation of demographic and economic characteristics associated with distance migrated, the Plains, 1957-60.

Independent variables[1]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[2]
Constant	262.0412	30.9547	--	8.4653	S**
Income change	0.0038	0.0035	0.0210	1.1052	NS
Race:					
Negro	-66.2613	25.4392	-0.0478	-2.6047	S**
Omitted: nonNegro					
Age:					
25-34	23.0634	15.9005	0.0307	1.4505	NS
35-44	-2.3038	16.6072	-0.0029	-0.1387	NS
45 and over	-26.7983	15.1391	-0.0395	-1.7701	NS
Omitted: 24 and under					
Farm employment status:					
Farm wage work only	88.3323	28.4910	0.1080	3.1004	S**
Farm wage work and nonfarm wage employment	108.1154	25.1631	0.1735	4.2966	S**
Farm self-employment and nonfarm wage employment	-2.6993	28.7908	-0.0028	-0.0938	NS
Farm self-employment and nonfarm self-employment	-55.7182	32.4424	-0.0442	-1.7175	NS
Omitted: Farm self-employment only					
Farm earnings:					
$1,200-$1,799	-0.3947	16.4033	-0.0005	-0.0241	NS
$1,800-$2,399	-41.3205	19.3145	-0.0420	-2.1394	S*
$2,400-$2,999	-36.6010	20.1914	-0.0356	-1.8127	NS
$3,000 and over	-27.5933	17.2512	-0.0355	-1.5995	NS
Omitted: $0-$1,199					

Table 4.--Continued.

Independent variables[1]	Regression coefficients	Std. errors of coefficients	Beta weights	TB	Signif-icance[2]
Distance from an SMSA:					
51-100 miles	-130.8767	14.0797	-0.1813	-9.2954	S*
101-150 miles	-132.2436	17.2631	-0.1469	-7.6605	S*
151 miles and over	-164.7221	15.2173	-0.2103	-10.8247	S*
Omitted: 0-50 miles					
Nonfarm industry:					
Primary industries	-45.7672	36.6149	-0.0238	-1.2500	NS
Construction	9.0470	18.5583	0.0114	0.4875	NS
Utilities	-61.7242	26.4212	-0.0467	-2.3362	S*
Wholesale and retail trade	-54.0688	16.8224	-0.0804	-3.2141	S**
Service industries	-48.5082	19.3873	-0.0571	-2.5021	S*
Government	-18.4366	23.6398	-0.0167	-0.7799	NS
Unknown, unclassified, and military	14.3391	27.5647	0.0104	0.5202	NS
Omitted: Manufacturing					

[1] Observations = 2,778
R^2 = 0.1284
S.E.E. = 285.1573
F = 17.6438
Significance = .01

[2] S* = .05 level
S** = .01 level
NS means the coefficient was not significantly different from zero at the .05 level.

Table 5. Results of regression equation of demographic and economic characteristics associated with distance migrated, the West, 1957-60.

Independent variables[1]	Regression coefficients	Std. error of coefficients	Beta weights	TB	Signif-icance[2]
Constant	67.3949	49.4557	--	1.3627	NS
Income change	-0.0019	0.0041	-0.0096	-0.4640	NS
Race:					
Negro	14.9081	40.0465	0.0075	0.3723	NS
Omitted: nonNegro					
Age:					
25-34	87.0432	17.1439	0.1206	5.0772	S**
35-44	29.2257	18.4898	0.0368	1.5806	NS
45 and over	11.6506	17.3597	0.0162	0.6711	NS
Omitted: 24 and under					
Farm employment status:					
Farm wage work only	146.0307	48.5050	0.1904	3.0106	S**
Farm wage work and nonfarm wage employment	172.3280	46.6610	0.2479	3.6932	S**
Farm self-employment and nonfarm wage employment	37.7094	60.4254	0.0189	0.6241	NS
Farm self-employment and nonfarm self-employment	4.8401	60.7476	0.0024	0.0797	NS
Omitted: Farm self-employment only					
Farm earnings:					
$1,200-$1,799	-22.0340	19.7396	-0.0245	-1.1162	NS
$1,800-$2,399	-21.6882	21.7886	-0.0218	-0.9954	NS
$2,400-$2,999	-67.7461	25.3406	-0.0572	-2.6734	S**
$3,000 and over	-100.9907	18.0733	-0.1373	-5.5878	S**

Table 5.--Continued.

Independent variables[1]	Regression coefficients	Std. error of coefficients	Beta weights	TB	Signif-icance[2]
Distance from an SMSA:					
51-100 miles	-52.7913	17.4478	-0.0618	-3.0257	S**
101-150 miles	-77.1544	20.6230	-0.0762	-3.7412	S**
151 miles and over	61.2371	24.0293	0.0517	2.5484	S*
Omitted: 0-50 miles					
Nonfarm industry:					
Primary industries	1.9744	34.1560	0.0012	0.0578	NS
Construction	126.4387	20.9698	0.1362	6.0296	S**
Utilities	-23.6791	27.2080	-0.0186	-0.8703	NS
Wholesale and retail trade	-4.6469	16.4439	-0.0068	-0.2826	NS
Service industries	24.4461	20.2474	0.0277	1.2074	NS
Government	27.0535	36.1208	0.0156	0.7490	NS
Unknown, unclassified, and military	116.6810	42.3688	0.0569	2.7539	S**
Omitted: Manufacturing					

[1] Observations = 2,354
R^2 = 0.0772
S.E.E. = 298.9978
F = 8.4717
Significance = .01

[2] S* = .05 level
S** = .01 level
NS means the coefficient was not significantly different from zero at the .05 level.