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# A SOCIOECONOMIC STUDY OF PART-TIME FARMING IN UPPER EAST TENNESSEE

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Lynn Justin Garrett

December 1976

1305120

## ACKNOWLEDGMENTS

The author owes a debt of gratitude to all persons who have made this study possible. The author is especially grateful to Dr. Billy J. Trevena, committee chairman, for his assistance and guidance throughout this study. Special thanks are due also to Dr. M. B. Badenhop and Dr. S. D. Mundy, members of the author's graduate committee, for their guidance and constructive criticisms.

Appreciation is extended to the Department of Agricultural Economics and Rural Sociology for financial assistance during the course of the author's graduate study.

The author is also grateful for the cooperation of those farmers in East Tennessee who made up the sample for this study.

The author is grateful to Ms. Melitta Stout for typing drafts of this thesis.

Finally, a very special gratitude is expressed to my wife, Judy, for her patience and understanding throughout this study.

ABSTRACT

The objectives of this study were: (1) To distinguish between part-time and full-time farmers in the study area according to an established criterion and indicate their significance; (2) To establish a profile of land, labor, and capital resources of typical part-time farm families; (3) To determine the types and amounts spent on various farm expense items on part-time farms; and (4) To compare part-time farmers with full-time farmers according to economic activities, farm household characteristics, attitudes relating to farming, levels of satisfaction with life and farming, and personal feelings about their managerial abilities. These objectives were to revolve around the central problem of low incomes of farm people.

The data were obtained from a sample of 287 farmers in a 12-county study area in Upper East Tennessee. A random area survey technique was used to select the sample units. A subsequent interview was given to a randomly selected subset of part-time farmers.

All farmers interviewed were grouped according to specific criteria. The data collected from two of the groups of farmers classified as full-time and part-time operators were analyzed. Production factors of land, labor, and farm capital on part-time farms were described. Other areas examined which completed the typical situation existing on part-time farms included types of farm enterprises, expenses, and farm incomes. Actual size of part-time farms was small (averaging 36.1 acres) with only an average of 4.3 acres being used for crop production. Pasture and hay acreage remain the single most important land-use pattern

on part-time farms (averaging 32.5 acres). Hired labor utilized on part-time farms was limited due to the expense involved. The average expenditure for farm labor hired in 1975 was $356. Family labor was the most important source of labor in the part-time farming operation. Farm investment items studied on part-time farms in the study area were land, farm machinery, and farm buildings. Investment in land was the highest investment item on these farms averaging $25,908 at time of acquisition. The 1975 gross farm income was the single significant variable accounting for the variation of investment in farm machinery in a multiple linear regression analysis. Burley tobacco and cow-calf herds were the dominant crop and livestock enterprises on part-time farms in the study area. Crop expenses during 1975 which averaged $664 were found to be the highest of all type expenses accounted for on part-time farms. Fertilizer, sprays, seed, and fuel were typical costs which were included in crop expenses. Gross farm income for 1974 on part-time farms was related to the size of the farm according to the results of a chi-square statistical analysis. Others which were found to be significant as specified by calculated correlation coefficients were land rented in, row crop and pasture acreage, and total household income.

Off-farm employment by part-time farmers and the income derived from it was a major factor contributing to the well-being of farm families. Characteristics of the off-farm job which were studied included commuting distances traveled, type of nonfarm employment, and vocational training. Commuting distances traveled by part-time farmers averaged almost 17.7 miles one way. These commuting distances involved significant amounts of time which were needed for the farm work. The most

common type of nonfarm occupation among farmers in the study area was the skilled mechanical trades occupational group. It was also found that of those farmers having vocational training, most had training related to mechanical skills.

Attitudes and personal feeling among both part-time and full-time farmers were accounted for by a series of questions designed to indicate how the farmers felt toward a certain item. A test of mean scores for each of the nine determinations was employed to test for significant differences. Of the nine determinations, only one was found to be significantly different between the two groups of farmers. The numerical mean score in the determination of attitude toward risk was statistically different for the farmers. Interpretation of the mean score for both groups of farmers indicated that on the average, part-time farmers assume risk more readily than full-time farmers.

Several of the characteristics relating to the farm and operator were compared by a t-test of the means of specific variables. Part-time farmers were younger and had larger families than full-time farmers. Full-time farmers, however, consulted their local county extension agent significantly more often than part-time operators. Among some of the farm characteristics found to be significantly different were total farm acreage owned, acreage being used for row crops, pasture, timber, and the amount of acreage rented in. All of these farm characteristics were significantly larger on full-time farming operations than on part-time farms.

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# CHAPTER I

## INTRODUCTION

In recent years the American family farm has undergone many structural changes. One of these involves the incidence of farm people working off the farm. As low farm incomes persist in many areas, farm families are no longer depending on agriculture for the total of their economic well-being. They are turning to nonfarm employment for sources of additional income to supplement their farm income. In 1930, data on farmers who held employment off the farm were first reported in the Census of Agriculture.[1] Since then, the importance of this group has increased to the point where it now includes most of the United States farm operators. According to the Bureau of Census, more than four out of five United States farm operators received income from nonfarm sources in 1969.[2] In 1971, for the first time, nonfarm income of farm people exceeded net farm income from the sale of crops and livestock.[3]

Tennessee is no exception to these structural changes. Low farm income continues to be a problem for many Tennessee farmers. According to the 1969 Census of Agriculture, 43.2 percent of Tennessee farms having

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[1] R. J. Hanson and R. G. F. Spitze, "Farm Size Characteristics Affecting Off-Farm Earnings of Illinois Farmers," Illinois Agricultural Economics, Volume XIV, No. 1 (Urbana: The University of Illinois Agricultural Experiment Station, January, 1974), p. 26.

[2] Bruce B. Johnson, "Farm and Off-Farm Earnings of United States Farm Families" (unpublished paper for the Economic Research Service, United States Department of Agriculture, July, 1974), p. i.

[3] Don Paarlberg, "America's Leading Crop: Non-Farm Income," Sickle and Sheaf, Winter, 1972, p. 5.

gross incomes of $2,500 or more in that year had a total gross farm income below $5,000.[4] Increased production on the farm or off-farm employment of the farm operator is necessary for these farmers if they are to earn an income comparable to their nonfarm counterparts. In 1969, almost 65 percent of all Tennessee farm operators turned to off-farm employment for additional income.[5] This shift toward more nonfarm employment has resulted in the farm family being involved in elements of both rural and urban life. The effects of both rural and urban environments may influence some of the traditional values held by farmers.

As farmers turn to off-farm employment to supplement their farm income, time becomes a scarce resource. In fact, as the off-farm job competes for the farm operator's time during critical farm production periods, farm jobs may go unattended causing farm production to decline on the affected enterprises. This situation can be frustrating for the farm operator and his family. Thus, in spite of research indicating part-time farming as an economically feasible means of adjustment to the low income farm problem, part-time farming may not be a satisfying solution for all low income farmers.[6]

Another important problem encountered by part-time farmers may be

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[4]United States Bureau of the Census, United States Census of Agriculture: 1969, Tennessee Counties (Washington: Government Printing Office, 1971), p. 300.

[5]Ibid., p. X.

[6]B. L. Dillman and T. C. Meadows, Human Resource Adjustments Through Part-Time Farming in the Northeast Coastal Plain Region of South Carolina, Agricultural Economics Report No. 327 (Clemson: Department of Agricultural Economics and Rural Sociology, October, 1969), p. IV.

commuting costs to their place of employment. As petroleum costs continue to rise, part-time farmers may find it more economical to return to farming on a full-time basis.

According to Pavlick, several previous studies concluded that "Appalachian farmers earn less and live at lower economic levels than other farmers."[7] But The Upper East Tennessee counties of the Appalachian area of Tennessee have both agricultural and industrial sectors providing an environment conducive to part-time farming. A documentation of the existing nature of part-time farming in this area can be useful to both the agricultural and industrial sectors. It can serve as a guide for agricultural policy purposes as well as for industrial expansion into rural areas where agricultural labor needs additional off-farm opportunities.

## Purpose and Objectives

The purpose of this study was to document the existing nature of part-time farming in 12 Upper East Tennessee counties. Involved was a description of the economic activities of part-time farmers and a subsequent description of attitudes held by these farmers toward various aspects of life.

The specific objectives:

1. To distinguish between part-time and full-time farmers according to established criteria and indicate their significance.

2. To establish a profile of land, labor, and capital resources of typical part-time farm families.

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[7] Anthony L. Pavlick, Toward Solving the Low-Income Problem of Small Farmers in the Appalachian Area, Bulletin 499T (Morgantown: The University of West Virginia Agricultural Experiment Station, June, 1964), p. 9.

3. To determine the type and amount of some variable cost items on part-time farms.

4. To compare part-time farmers with other farmers according to economic activities, farm household characteristics, attitudes relating to farming, levels of satisfaction with life and farming, and personal feelings about managerial abilities.

## Review of Literature

Studies have been conducted throughout many regions of the United States concerning off-farm employment of farm operators. According to Douglas and Mackie, research efforts prior to the 1940s concerning these farmers were restricted to regions outside the South.[8] Among the postulated reasons for this limited research activity were: a limited degree of industrialization in the South during the depression of the 1930s, thus causing a limited economic effect; and a significant portion of the rural population was engaged in farming on a full-time basis. The author, recognizing the limited time frame of previous research activities, has presented the available results and conclusions of previous studies for East Tennessee in an effort to find characteristics of the typical part-time farmer. Several other studies in the United States were included in order that the findings could be documented along with the approach taken by the various studies. A common characteristic of the literature concerning off-farm employment of farmers in East Tennessee is that most

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[8] George V. Douglas and Arthur B. Mackie, Some Social and Economic Implications of Part-Time Farming, Tennessee Valley Authority Report No. T57-1AE (Knoxville: Division of Agricultural Relations Agricultural Economics Branch, June, 1957), p. 4.

studies have focused upon the adjustments rural areas make in accommodating industrial growth.

Bonser began examining farmers working off their farms in the Knoxville area in 1946.[9] Among the key areas investigated by Bonser were off-farm incomes of part-time farmers, commuting distances, investment on part-time farms, and vocational training of the farm operators. His major conclusions were:

1. Off-farm income was an important income supplement for many farmers.

2. The average communing distance of those farmers was between 11 and 14 miles from the farm to their off-farm job.

3. Overinvestment in the farming operation by farmers with off-farm jobs was found to be a problem for many.

4. Vocational training can help many farmers in finding off-farm employment.

These conclusions were found to be important distinguishing characteristics of farmers having days of work off the farm in the Knoxville area.

A study which investigated some of the marketing problems faced by part-time farmers in the Sullivan County area of Upper East Tennessee was completed by Keller in 1955.[10] Keller found most part-time farms to be small, averaging 34.3 acres. Almost no labor was hired to do farm work.

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[9]Howard J. Bonser, Part-Time Farming in the Knoxville Farm-Industrial Area of East Tennessee, Bulletin 210 (Knoxville: The University of Tennessee Agricultural Experiment Station, May, 1949), pp. 64-67.

[10]Luther H. Keller, "Marketing Activities and Problems of Part-Time Farmers" (unpublished Master's Thesis, The University of Tennessee, Knoxville, 1955), pp. 11-48.

Most of the labor needs were accomplished by the part-time farm operator. The wife and children made important contributions in operation of the farm. At the time of this study, the average age of a part-time farmer was 43. An important crop enterprise found on 71 percent of the part-time farms was tobacco. This single crop composed 42 percent of the farm sales. Keller concluded his investigation by identifying the current marketing situation and problems existing on part-time farms. Due to production characteristics, part-time farms had little impact on the total market, since their production was small. It was concluded that part-time farmers have to use existing market channels due to their insignificant production and bargaining power. Even though part-time farmers could benefit from market modification, existing market channels will continue to be utilized due to small production characteristics of part-time farms. The valuable resource of time was also identified as a problem in marketing due to the off-farm employment work schedule.

An important study completed concerning 7 of the 12 counties in this study area was done in 1958 by Henderson.[11] A major finding of this work was that almost one-half of all the farms included in the study had farm operators working 100 or more days per year off the farm. Farm incomes were also found to incorporate a small portion (less than $1,000) of the total income of 66 percent of the total number of farm households. Also, the number of members of rural households desiring to obtain an off-farm job was significant (25 percent of the total number of households).

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[11] H. A. Henderson, Resources and Incomes of Rural Upper East Tennessee People, Bulletin 312 (Knoxville: The University of Tennessee Agricultural Experiment Station, March, 1960), pp. 16-18.

Schneeberger, Comer, and Edwards have approached the situation of part-time farming in the South Central Tennessee area by making comparisons with full-time operations.[12] In their sample, part-time farmers incorporated almost 30 percent of the 344 cases. Results of this study indicated that part-time farmers were less intensive users of cropland and seldom operated labor intensive livestock enterprises. The part-time group was also found to be less profit oriented than full-time farmers.

A South Carolina study by Dillman and Meadows concluded that part-time farming had been in existence for many years and would continue into the future as a stable type of farming.[13] This study also reported that part-time farmers viewed the farming operation as secondary with the primary efforts being devoted to the off-farm job. In comparing part-time operators with full-time operators, no significant differences were found regarding education, levels of living, type of farm ownership, value of land and buildings, farm size, type of farm, or years of farm experience. Significant differences were found between the two farmer groups concerning operator age (part-time operators being younger), and family size (part-time operators having larger families). Finally, job training periods were significantly longer for part-time farmers.

In the Kendrick Project farms in Wyoming, Stevens and Portwood concluded that part-time farming was more of "a way of life than a way to

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[12] K. C. Schneeberger, Sam Comer, and Richard Edwards, "Part-Time and Full-Time Farm Operators: Some Comparisons," paper presented at the American Agricultural Economics Association Meeting at Pennsylvania State University, College Park, Pennsylvania, August, 1976.

[13] Dillman and Meadows, Human Resource Adjustments Through Part-Time Farming in the Northeast Coastal Plain Region of South Carolina, pp. 1-50.

make a living."[14] Off-farm incomes in nearly all cases helped raise the level of living for part-time farmers. Major differences existed between full-time and part-time farms concerning farm size, capital invested, average debt, net worth, percent of owned investment, farm incomes, and acreage of leased land. Full-time farms had an average farm size of 1,130 acres while part-time farms owned an average of 348 acres. All measures of capital conditions including capital invested, average debt, net worth, and percent of owned investment were higher for full-time farmers. Net farm incomes averaged $2,983 for full-time operators and only $164 among part-time farmers. Significant amounts of leased acreage was utilized by more full-time than part-time operators.

One study which was based totally on comparison between part-time and full-time farming was conducted in Michigan.[15] Areas of comparison in this study included characteristics of the farm and operator, financial progress over a 5-year period, and productivity of farm resources. The average ages of full-time and part-time farmers were 46 and 43 years respectively. In response to questions dealing with the farmers' degree of satisfaction with farming as a way of life, full-time operators were more satisfied than part-time operators. Full-time operators, on the average, owned 25 acres more than part-time farmers in the Michigan study area. Financial progress comparisons found full-time farmers owning more

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[14] Delwin M. Stevens and Duane A. Portwood, A Socio-Economic Study of Part-Time Farming on the Kendrick Project, Research Journal 7 (Laramie: The University of Wyoming Agricultural Experiment Station, March, 1967), pp. 17-23.

[15] Ralph A. Loomis and M. E. Wirth, "Financial Progress on Michigan Farms--A Contrast Between Part-Time and Full-Time Farming," Quarterly Bulletin, Vol. 44, No. 4 (Ann Arbor: Michigan State University, May, 1962), pp. 625-643.

of the farm assets than part-time operators in 1953. Farm incomes for both groups of farmers were also compared. In 1958, the average full-time farm gross and net incomes were $12,172 and $5,545, respectively. Gross and net farm incomes among part-time farmers for the same year averaged $10,993 and $3,677, respectively. Loomis and Wirth concluded that, on the average, farm resources utilized in a part-time farming operation were less efficiently used than on a full-time farm.

Justus and Brown in Kentucky compared both farm and operator characteristics of full-time and part-time farmers.[16] In a stratified area sample of farmers in Kentucky, it was observed that part-time farmers had both lower ages and higher levels of formal education than full-time farmers. Part-time farmers in the Kentucky study were found, on the average, to have less acreage of total farm land and cropland than full-time farmers. The average acreage for each type of land use for full-time and part-time farmers was 207 and 106 acres for cropland, respectively, 42 and 46 acres for pasture, respectively, and 292 and 190 acres for total land, respectively. Pasture acreage was the only land use class in which part-time farmers averaged more than the full-time farmers. Specific items studied by Justus and Brown were crops, livestock, and gross farm incomes on part-time farms. Gross farm incomes on part-time farms were less than $5,000 for over half of the sample. Burley tobacco was identified as the most important crop grown on part-time farms for nearly all areas studied in Kentucky. Beef cow herds were

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[16] Fred E. Justus, Jr., and Vernon C. Brown, Part-Time Farming in Kentucky, Information Series 15 (Lexington: The University of Kentucky Agricultural Economics Extension, May, 1974), pp. 13-16.

existent on more part-time farms on a proportion basis than on full-time farms. Nearly 75 percent of the part-time farms had a beef cow herd on their farm.

Several studies by Hanson and Spitze have documented the significance of part-time farming in Illinois.[17, 18, 19] The results of their research indicated that 45 percent of all Illinois farmers had income during 1971 from nonfarm employment. Both Hanson and Spitze found that as farm incomes decline, more and more farmers increase their dependence on income derived from nonfarm sources. Several farm and personal characteristics influenced off-farm earnings among Illinois farmers that had farm incomes below $10,000 in 1971. The most significant characteristics identified by Hanson and Spitze were age, education, and family size of the farmer. Among the employment characteristics that had significant correlation coefficients with off-farm earnings were length of employment, number of miles in commuting distance to work, and number of days of employment off the farm per year. Results of the research in Illinois confirmed that most farmers with low farm incomes wanted to continue to operate the farm. Hanson and Spitze implied that a part-time farming

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[17] R. J. Hanson and R. G. F. Spitze, "Farm Size Characteristics Affecting Off-Farm Earnings of Illinois Farmers," Illinois Agricultural Economics, Volume XIV, No. 1 (Urbana: The University of Illinois Agricultural Experiment Station, January, 1974), pp. 26-30.

[18] R. G. F. Spitze and R. J. Hanson, "Off Farm Employment Earnings by Farmers with Low Farm Incomes," Illinois Research, Volume XIV, No. 3 (Urbana: The University of Illinois Agricultural Experiment Station, Fall, 1972), pp. 6-7.

[19] R. G. F. Spitze and R. J. Hanson, "More Farm Operators Are Supplementing Their Income With Off-Farm Earnings," Illinois Research, Volume XIV, No. 3 (Urbana: The University of Illinois Agricultural Experiment Station, Fall, 1972), pp. 16-17.

operation offers the best and probably most realistic way for low farm income farmers to continue in agriculture.

Most of the literature reviewed by this study has compared part-time farming with full-time farming. These comparisons have centered on the characteristics of the operator, his household, and the farming operation. Studies conducted thus far have found part-time farmers to be younger and more educated than full-time operators. The part-time farmers studied in many areas were found to have some type of vocational training. Family size among part-time farm households were larger than for other farm groups. The most distinct differences found between part-time and full-time farms relating to the farming operation were land use characteristics and farm incomes. Amounts of acreage used for crop production were less among part-time than full-time farms. Pasture acreage, conversely, was greater for part-time farmers; indicating the possibility of a predominance of livestock operations on these farms. To date, no relationship has been established concerning the occurrence of beef cattle enterprises which utilize pasture acreage and part-time farming. Total farm acreage was documented by the literature reviewed as being higher for full-time farming operations than for the part-time farms. Farm incomes were always found to be lower among the part-time farm study group than for full-time farmers.

The view part-time farmers have toward the farming operation differs from that of the full-time farmers. Part-time farmers were generally less satisfied with farming than farmers that operated the farm on a full-time basis. Also, profit orientation was less among part-time than full-time farmers.

Most of the studies reviewed attempted to determine if part-time farming is a solution to the low income farm problem. For many, off-farm income is and will continue to be an important element in the well-being of many farm households. Due to the farm resource limitation existing on many small farms, increases in farm income are difficult.

Methodology

A random area sample was taken in 12 contiguous counties in the Appalachian area of Tennessee. Areas were selected randomly in proportion to the number of farms per county as reported by the 1969 Census of Agriculture. Greene County, which reported the most farms (4,831) had nine randomly selected survey areas, while Unicoi County with 612 farms had only one survey area.[20]

Each household in the survey area was contacted to determine if a farm operator resided there.[21] A personal interview was arranged and completed with each farm operator. Data were collected during the summer and fall of 1975 for the business year 1974.

The initial survey covered household characteristics, off-farm employment characteristics, occupational experience, places of residence, interest of farm operator in wanting to farm, future anticipation of family members continuing the farm enterprises, farm incomes, land characteristics, farm management, job satisfaction, and attitudes of farm

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[20] United States Bureau of Census, United States Census of Agriculture: 1969, Tennessee, Counties (Washington: Government Printing Office, 1971), p. 300.

[21] The United Census of Agriculture 1969 definition of a farm operator was used in determining whether a resident qualified as being a farm operator.

operator toward various items.

A total sample size of 287 farms was achieved which represented 1.23 percent of the total number of farms in the area. After the initial survey was completed, all the data were coded and a preliminary analysis was made. Results of the analysis aided the task of grouping farm operators into four defined groups. These groups were: (1) part-time farmers; (2) full-time farmers; (3) older farmers classified as part-time, full-time, and others; (4) other farmers employed part-time off the farm (Table I). Part-time groups were defined as farmers less than 65 years of age that worked 240 or more days in 1974 off the farm. Farmers less than 65 who had not worked off the farm any days in 1974 were classified as full-time farmers. Older farmers were identified as any farmer 65 years of age or older. Other farmers who worked under 240 days off the farm in 1974 were classified among the four groups. Part-time farmers included 44.6 percent of the total sample of farm operators (128 farmers) as shown in Table I. The criteria used to identify part-time farmers in this study differs from the 1969 Census of Agriculture definition.[22] Gross farm sales requirement was not included in the criteria in Table I, and the number of days employed off the farm per year was increased to include only those farmers with full-time jobs off the farm.[23] The definition used by this study of a part-time farmer differs from the

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[22]Part-time farm as defined in the 1969 Census of Agriculture was defined as a farm having gross farm sales ranging from $50 to $2,499 with a farm operator less than 65 years of age, and who works off the farm 100 days or more each year.

[23]For the purposes of this study, all subsequent references to part-time farmers will pertain to the study's definition unless otherwise noted.

TABLE I

NUMBER AND PERCENTAGE OF FARM OPERATORS IN THE STUDY AREA CLASSIFIED BY GROUPS, 1974

| Farmer Groups | Number | Percent |
|---|---|---|
| Part-time farmers[a] | 128 | 44.6 |
| Full-time farmers[b] | 83 | 28.9 |
| Older farmers[c] | | |
| Full-time | 30 | 10.5 |
| Part-time | 5 | 1.7 |
| Other | 11 | 3.8 |
| Other farmers[d] | 30 | 10.5 |
| Total farmers | 287 | 100.0 |

[a]Part-time farmers: Farmers less than 65 years of age that work 240 or more days per year off the farm in 1974.

[b]Full-time farmers: Farmers less than 65 years of age that did not have any days of work off the farm in 1974.

[c]Older farmers: Farmers, either part-time or full-time, 65 years of age, or older.

[d]Other farmers: Farmers less than 65 years of age that work less than 240 days off the farm in 1974.

census. The definition used here was designed to include farmers with full-time nonfarm employment.

Other major groups of farmers, defined according to specified criteria, were listed in Table I. The full-time farmers were found to be the next numerically important group after the part-time farm group. This group accounted for 28.9 percent of the total.

A random subsample of 32 farmers from the part-time group was taken and a second survey schedule was completed for these farmers in the spring of 1976. Data on commuting distances to the nonfarm job, farm and off-farm incomes, farm machinery and building inventories, farm expenses, and farm problem identification were obtained by the second survey.

Data collected from both survey schedules were recorded for the group of part-time farm operators. Frequency counts for all variables were initiated by use of the Statistical Package for the Social Sciences (SPSS) for all the data collected in the first survey.[24] Numerical means, ranges along with statistical tests such as Pearson correlation, multiple linear regression, T-test, and chi-square were accomplished by use of the prepared programs listed in the Statistical Package for the Social Sciences (SPSS) user's guide.[25]

Hypothesized relationships which were thought to exist between variables were examined by correlation analysis, chi-square analysis or multiple linear regression analysis. A significance level of 0.05 was

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[24]Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences, Kenneth J. Bowman and Matthew Cahill, Eds, 2nd Edition (New York: McGraw-Hill, Inc., 1975), p. 194.

[25]Ibid., pp. 223, 267, 572.

used in this study. This significance level had been an acceptable level in determining statistical significance. All areas of comparison between part-time and full-time farm groups were accomplished by use of the T-test of significant difference between two means.

Sociological considerations of this study were made by use of 52 statements included in the initial survey schedule. These statements measured 10 different items pertaining to attitudes, levels of satisfaction, and anomia. Specific instructions were verbally given to each farmer in the initial survey concerning the selection of the score which best represented the individual's feelings.

Five sociological areas of attitudes, including farmers' attitudes toward profit, independence, credit, progressivism, and risk were examined by this study. Statements and scoring techniques used in determining attitudes toward profit, credit, and progressivism along with the levels of satisfaction farmers have with farming were employed by Yetley in determining the attitudes held by managers of farmer grain cooperatives.[26] Each statement had the proper edification necessary to be applicable to farmers. Upon completion of the scoring of each statement, a composite score was determined for each set of statements measuring attitudes towards specific items. The mean scores for full-time and part-time farmers were checked for significant differences at the 0.05 level of significance for each item measured.

The set of statements used to measure each item was checked for

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[26]Mervin J. Yetley, "Sociological and Economic Factors Related to Managerial Success" (unpublished Ph.D. dissertation, Iowa State University, Ames, Iowa, 1973), pp. 285-289.

reliability. Reliability in this context refers to the degree with which results from a repeated test of the sociological areas identified would yield similar score results. In this test each score for every statement in the set was grouped in odd-even categories and then Pearson correlation coefficients were used in the reliability determinations for each set of statements. The Horst reliability formula was used in the determination of the reliability of the test for specific attitudes whereby:

$$R = \frac{r\left[\sqrt{r^2 + 4pg\ (1 - r^2)} - r\right]}{2pg\ (1 - r^2)}$$

and R = reliability of sum of the two parts, r = correlation between the two parts, p = proportion of total test devoted to one part, and g = 1 - p.[27] For example, in a situation where an attitude was being studied by results of six statement scores, each of the statements numbered one through six would be grouped into odd-even parts. The scores of both parts would then have a correlation coefficient calculated and this value is represented as r in the formula. The value of p and g in the formula was calculated based on the odd-even proportion of statements used in the attitude being studied. Use of the Horst reliability formula was used as an indicator of how well each set of statements measured how the farmer felt toward specific items. Intrinsic validity or index of reliability, which is the square root of the computed reliability value, was used to measure the extent to which the specific

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[27] J. P. Guilford, Psychometric Methods, 2nd ed. (New York: McGraw-Hill, Inc., 1954), pp. 378-379.

test for each attitude was measuring what it was designed to measure.[28]

All of the described calculations were also made for the remaining five determinations which were anomia, manifest anxiety, self-esteem, and satisfaction with life and farming. Tabular presentation of the compiled data was made for each of the 10 determinations.

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[28] Ibid., p. 398.

# CHAPTER II

## THE STUDY AREA

### I. PHYSICAL CHARACTERISTICS

The Southern Appalachian region of Tennessee includes 12 Upper East Tennessee counties (Figure 1). The counties comprising the study area were Carter, Cocke, Grainger, Greene, Hamblen, Hawkins, Hancock, Jefferson, Johnson, Sullivan, Unicoi, and Washington. The total land area was 2,573,500 acres which made up 32 percent of the total land area of the East Tennessee region of Tennessee.[1]

An examination of this area, without reference to the remainder of the state to which it belongs, would not portray an adequate identification of the physical characteristics which are influential in the economic development of the area. Among the important physical characteristics found in the area were those of climate, soil, and geographic features. These were selected to provide a geophysical background leading to the economic development of the area with respect to the remainder of the state.

The entire study area and portions of the East Tennessee region possess a unique and definite climate not found in any other area of Tennessee. A humid and cool mountain climate similar to the northwestern coast of the United States occurs in East Tennessee while the remainder

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[1] United States Soil Conservation Service, 1967 Tennessee Soil and Water Conservation Needs Inventory (Nashville: Tennessee Conservation Needs Committee, January, 1970), pp. 7-10.

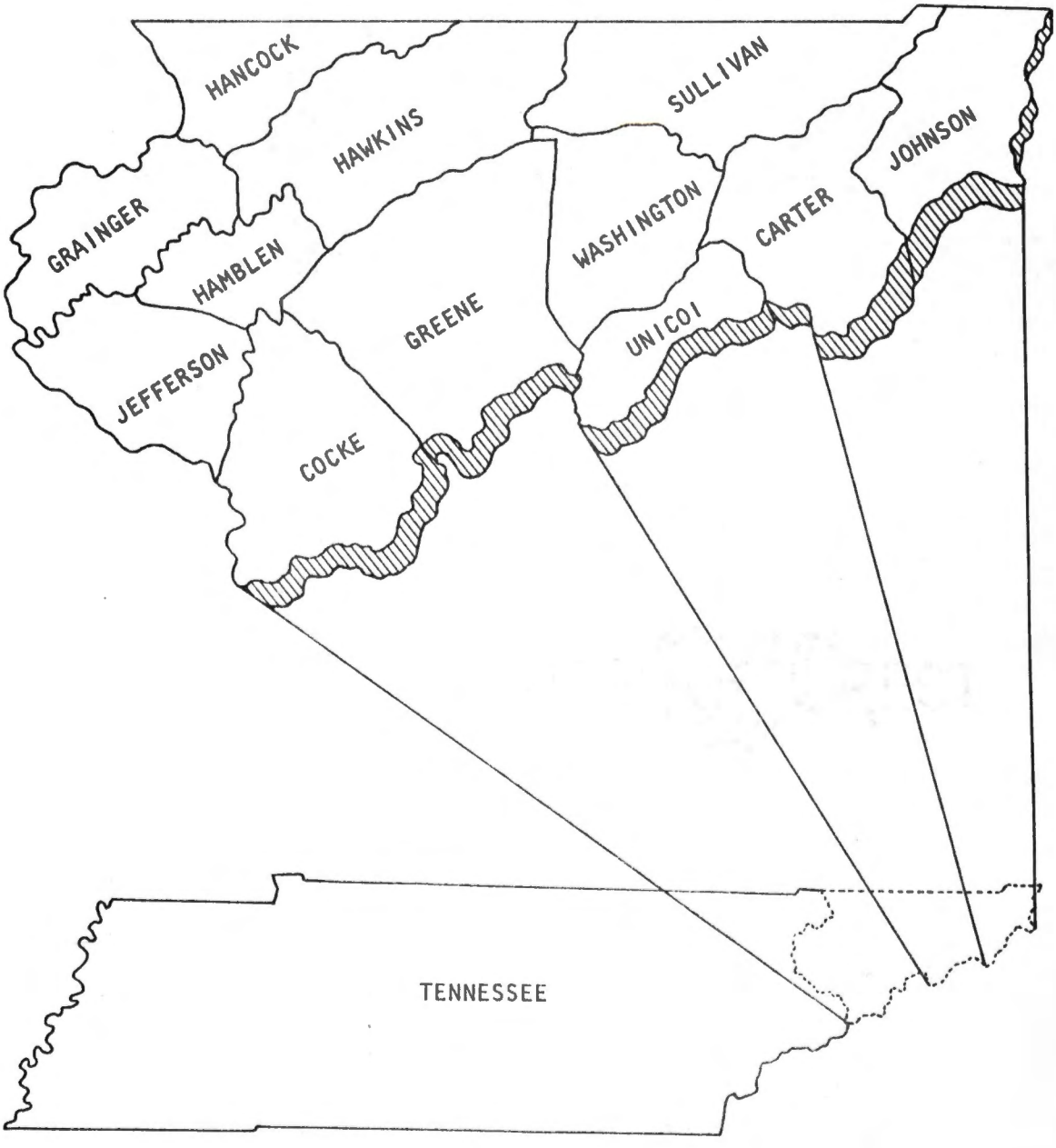



**Figure 1.** Counties comprising the study area.

of the state has a humid mesothermal climate.[2] Both climatic features in Tennessee are within the Genial Belt.[3, 4]

Edaphic features of Tennessee incorporate two soil provinces. These are the Gray-Brown Podzolic soils and the Red and Yellow soils. The former soil province group is characteristic of that found in the study area. This type of soil is less acidic and leached having higher amounts of organic matter than the Red and Yellow soils.[5] Generally speaking, the soil complexities of both identified provinces in Tennessee can easily be indicated by observing the difference in vegetation. The growth pattern of deciduous forests can be used to delineate the two soil provinces of Tennessee, since deciduous trees grow more readily in Gray-Brown soil areas.[6]

Soil fertility varies according to the parent material from which it was formed. Parent materials associated with the study area were sandstone and shale. Soils originating from these parent materials are less fertile than the wind laid loess soil deposits found in West Tennessee.[7]

Land use can often illustrate the soil fertility. In 1969, total

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[2]Richard Bodamer and Milos Sebor, The Economic Geography of Tennessee (Nashville: Tennessee State Planning Commission Report, December, 1965), pp. 3-5.

[3]The Genial Belt is the zone between the poleward side of the yearly isotherm of 40F, and on the equator side by the yearly isotherm of 64F. This zone represents the most favorable climate for mental and physical work.

[4]Bodamer and Sebor, The Economic Geography of Tennessee, pp. 3-5.

[5]Ibid., p. 5. [6]Ibid. [7]Ibid., p. 7.

cropland acreage of the study area was 34 percent.[8] According to the 1967 soil inventory data collected by the Soil Conservation Service, 240,695 acres of cropland in the study area were Class I and Class II land capability class.[9, 10] This comprised 54 percent of the total 1967 cropland acreage. Both capability Class I and II require few crop selection restrictions and soil conservation practices.

Perhaps the most definite physical characteristic of the study area is the geographic features. Geographic variations are very prominent throughout the 12-county area. The Appalachian Mountains originate near the mouth of the St. Lawrence River and extend 1,300 miles south into northern Georgia and Alabama.[11] Each portion of the mountain chain in each state has been given a name. In Tennessee, the mountain chain is known as the Unaka Mountains. Portions of this mountain range are

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[8] United States Census of Agriculture: 1969, p. 300.

[9] According to the Soil Conservation Service, Land Capability Classes I and II are defined as follows:

Class I: The principle physical characteristics are little or no slope, well drained with almost no erosion hazards, thus requiring little or no soil management practices. A wide range of land uses accompany this class.

Class II: These soils require proper selection of plants and proper soil conservation practices. These requirements are few and easily managed. Among the various Class II soils are pasture, cultivated crops, orchards, and woodlands.

[10] 1967 Tennessee Soil and Water Conservation Needs Inventory, pp. 11-30.

[11] J. B. Killebrew, Introduction to the Resources of Tennessee (Nashville: Tavel, Eastman and Howell, 1874; reprint ed., Spartanburg: The Reprint Co., 1974), p. 428.

found in Cocke, Unicoi, Greene, Washington, Carter, and Johnson counties. West of the Unaka Mountain Range is the East Tennessee Valley which runs parallel between the Unaka Mountains and smaller localized mountain ranges. Among these local mountain ranges are the Bays, Clinch, and Holston formations.

The most fertile soils in the Appalachian region of Tennessee are found in the East Tennessee Valley. Flooding problems were once a factor in the valley until the Tennessee Valley Authority established a complex of dams which eliminated periodic flooding hazards in the area. Four major waterways flow through the study area. These are the Holston, French-Broad, Nolichucky, and Watauga Rivers.

The diversity of physical characteristics in Tennessee are important factors in the development of each area. Physical characteristics found in the study area have historically influenced the economy. Both industry and agriculture have had to solve problems involving transportation and communication, particularly in the mountainous terrain of East Tennessee.

## II. ECONOMIC HISTORY

The former economic activities of an area directly influence the development of present economic conditions; therefore, any examination of the existing economy must also include a discussion of the area's economic historical perspectives. This study examines both the agricultural and industrial sectors of the 12-county area in Upper East Tennessee.

Growth of the industrial sector has occurred along with a growing population and the elimination of subsistence agriculture. Natural

resources such as mineral deposits of coal and iron, lumber, and the potential to generate water power established the first localized industry in the area.[12] Since the Civil War, industrial expansion has continued with per capita value added by manufacturing for the study area surpassing the state's per capita total in 1929 (Table II). Per capita value added by manufacturing has since grown to the point in 1963 where the area's per capita value added by manufacturing exceeded that of the United States as shown in Table II. Substantial increases in per capita value added by manufacturing have occurred since 1963.

The figures in Table II indicate that industrial expansion has occurred in this portion of East Tennessee. This, in turn, provides additional off-farm employment opportunities for farmers wishing to supplement their total income with a resultant increase in part-time farming in the 12-county area.

Farmers began to settle the Upper East Tennessee and Tennessee Valley areas in 1768.[13] The majority of these first farm settlers migrated from Virginia and North Carolina. Since land was more fertile in the Nashville Basin than in East Tennessee, the Middle Tennessee areas introduced a more intensive type agriculture into the state while sections of East Tennessee remained at a subsistence level of agriculture.[14] Early farming techniques and resources such as cropping practices and

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[12] Ibid., p. 441.

[13] H. A. Henderson, Resources and Incomes of Rural Upper East Tennessee People, Bulletin 312 (Knoxville: The University of Tennessee Agricultural Experiment Station, March, 1960), p. 5.

[14] Thomas H. Freeman, Economic History of Tennessee (Nashville: Tennessee State Planning Commission Report, September, 1965), p. 11.

## TABLE II

PER CAPITAL VALUE ADDED BY MANUFACTURING FOR COUNTIES, STUDY AREA, TENNESSEE, AND UNITED STATES, DESIGNATED BELOW, 1899-1972
(Numbers in parenthesis are ranks)

| County | 1899[a] | 1919[a] | 1929[a] | 1939[a] | 1947[a] | 1954[b,c] | 1958[c,e] | 1963[c,e] | 1967[c,e] | 1972[c,e] |
|---|---|---|---|---|---|---|---|---|---|---|
| | dollars | | | | | | | | | |
| Carter | 21.78(4) | 49.15(6) | 212.15(1) | 389.47(1) | 640.41(2) | 593.86(3) | --[f] | --[f] | 789.97(8) | 881.58(9) |
| Cocke | 10.29(5) | 78.54(3) | 50.02(6) | 46.15(6) | 167.34(6) | 193.40(6) | 392.31(5) | 737.57(4) | 1,173.23(4) | 1,900.00(4) |
| Grainger | 3.35(10) | 2.69(11) | 3.73(11) | .85(11) | 29.45(10) | 11.72(10) | 11.47(10) | --[f] | 132.81(11) | 500.00(11) |
| Greene | 7.88(7) | 21.37(8) | 22.56(7) | 25.64(7) | 122.71(7) | 520.47(4) | 812.20(3) | 1,751.13(3) | 3,467.10(1) | 4,783.67(1) |
| Hamblen | 8.25(6) | 59.75(5) | 60.66(5) | 83.09(3) | 267.04(3) | 848.53(2) | 1,185.29(2) | 1,793.75(2) | 2,220.55(3) | 4,459.29(2) |
| Hancock | 1.26(12) | -0.20(12) | 4.95(10) | 0(12) | 2.31(12) | 10.00(11) | --[f] | 6.03(10) | 13.51(12) | 14.08(12) |
| Hawkins | 3.38(9) | 7.59(9) | 2.61(12) | 12.54(10) | 60.60(8) | 59.54(9) | 168.59(7) | 254.69(8) | 284.83(10) | 1,859.60(5) |
| Jefferson | 5.76(6) | 28.63(7) | 7.88(9) | 18.46(9) | 57.11(9) | 186.31(7) | 516.65(4) | 703.64(5) | 1,076.92(5) | 1,613.64(7) |
| Johnson | 2.74(11) | 7.20(10) | 16.34(8) | 19.90(8) | 5.39(11) | 8.41(12) | 15.66(9) | 167.16(9) | 352.38(9) | 830.64(10) |
| Sullivan | 21.78(2) | 110.02(1) | 176.84(2) | 374.23(2) | 1,069.24(1) | 1,189.48(1) | 1,581.23(1) | 2,059.25(1) | 3,193.49(2) | 3,869.39(3) |
| Unicoi | 20.00(3) | 71.14(4) | 115.32(3) | 68.35(5) | 253.72(4) | 184.15(8) | 112.05(8) | 384.86(7) | 798.66(7) | 1,276.73(8) |
| Washington | 29.29(1) | 91.27(2) | 87.75(4) | 72.38(4) | 207.21(5) | 234.51(5) | 292.01(6) | 398.06(6) | 960.75(6) | 1,778.51(6) |
| area | 11.12[b] | 52.37[b] | 147.86[b] | 148.33[b] | 424.88[b] | 587.58 | 815.61 | 1,234.54 | 1,848.00 | 2,680.99 |
| Tennessee | 21.91[b] | 90.46[b] | 123.41[b] | 109.86[b] | 297.67[b] | 510.00 | 632.40 | 905.95 | 1,272.62 | 1,909.13 |
| United States | 74.47[b] | 236.89[b] | 259.70[b] | 187.46[b] | 506.49[b] | 722.77[d] | 822.89 | 1,025.59 | 1,328.46 | 1,706.11 |

[a]Source: William H. Nicholls. "Human Resources and Industrial development in Upper East Tennessee Valley, 1900-1950," Quarterly Journal of Economics, Volume LXXI May, 1972), p. 290.

[b]Ibid., p. 298-299. Area values were calculated from reported population data.

[c]Source: United States Bureau of Census. United States Census of Manufactures 1954. Volume III, Area Statistics. (Washington: Government Printing Office, 1958); United States Bureau of Census. United States Census of Manufactures: 1967. Volume III, Area Statistics. (Washington: Government Printing Office, 1970); United States Bureau of Census. United States Census of Manufactures: 1972. Volume III, Area Statistics. (Washington: Government Printing Office, 1975).

[d]Population estimates used in calculating per capita value added by manufacturing for the United States in 1954 was from: United States Bureau of Census. Statistical abstract of the United States: 1960. Eighty-first edition, No. 6, (Washington: Government Printing Office, 1963), p. 10.

[e]Population estimates used in calculating per capita value added by manufacturing from 1958 to 1972 was from: "The Basic Survey Data... The State County-City Section," Sales Management the marketing magazine, Volume 80 Number 10 (May, 1958), pp. 670-680; "County-City Data Population, Income, Sales, for States, Counties, Cities," Sales Management the marketing magazine, Volume 90 Number 12 (June, 1963), pp. 489-496; "County-City Population Sales, Income Data," Sales Management the marketing magazine, Volume 98 Number 12 (June, 1967), pp. D-239-D-243; "County-City Population, Income, Retail Sales Data," Sales Management the marketing magazine, Volume 109 Number 1 (July, 1972), pp. D-109-D-112.

[f]Data in the Census of Manufactures was withheld to avoid disclosing figures for individual companies.

major capital items used for farming were not efficient.[15] After the Civil War, the number of farms increased rapidly while the average size of farms continued to decline.[16]

Several adjustments have taken place on farms in the East Tennessee area since the turn of the century. The early twentieth century continued to have a large portion of the population involved in farming. After 1930, the proportion began to decline until 1950 when agriculture lost its status as the leading industry in East Tennessee and the remainder of the state as well.[17]

Henderson's study concerning resource adjustments of rural households in East Tennessee identified several farm adjustments in response to the developing industrial sector. Three of these adjustments involved production changes such as: "tobacco replaced grain as a cash crop; cattle, primarily dairy, replaced hogs; and mechanization, technology and fertilizer replaced animal and human power."[18] These adjustments became more evident as farmers began adopting new technology.

Another adjustment farmers have made during the economic history of agriculture in the study area has been securing employment off the farm. Table III illustrates the growth of part-time farming in the study area. The number of farms has continued to decrease since 1950,

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[15] Killebrew, Introduction to the Resources of Tennessee, p. 438.

[16] Freeman, Economic History of Tennessee, p. 29.

[17] Ibid., p. 42.

[18] H. A. Henderson, "Economic Progress and Resource Adjustments of Rural Households in the Upper East Tennessee Valley" (unpublished Ph.D. dissertation, Purdue University, January, 1963), p. 18.

TABLE III

NUMBER AND PERCENTAGE OF FARM OPERATORS IN STUDY AREA REPORTING 100 OR MORE DAYS OFF-FARM WORK IN AREAS DESIGNATED BELOW, 1940-1969

| | 1939 | | 1944 | | 1949 | | 1954 | | 1959 | | 1964 | | 1969 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area | Number | Per-cent | Number | Per-cent | Number | Per-cent | Number | Per-cent | Number | Per-cent | Number | Per-cent | Number | Per-cent |
| County | | | | | | | | | | | | | | |
| Carter[a] | 855 | 31 | 1,519 | 49 | 1,519 | 52 | 1,245 | 49 | 1,002 | 55 | 628 | 47 | 786 | 57 |
| Cocke | 525 | 17 | 340 | 13 | 441 | 17 | 596 | 25 | 535 | 29 | 541 | 33 | 733 | 46 |
| Grainger | 350 | 14 | 362 | 16 | 457 | 20 | 505 | 22 | 565 | 30 | 638 | 33 | 856 | 51 |
| Greene | 850 | 15 | 538 | 9 | 1,075 | 18 | 1,507 | 25 | 1,410 | 29 | 1,632 | 34 | 2,290 | 47 |
| Hamblen | 329 | 18 | 270 | 14 | 491 | 29 | 500 | 34 | 488 | 37 | 492 | 41 | 649 | 54 |
| Hancock | 282 | 16 | 128 | 8 | 280 | 15 | 290 | 17 | 224 | 16 | 240 | 18 | 382 | 30 |
| Hawkins | 854 | 22 | 594 | 15 | 1,054 | 26 | 1,157 | 32 | 945 | 31 | 894 | 33 | 1,210 | 45 |
| Jefferson | 315 | 15 | 244 | 13 | 530 | 23 | 635 | 29 | 635 | 37 | 725 | 41 | 899 | 53 |
| Johnson | 403 | 23 | 534 | 24 | 514 | 29 | 521 | 28 | 471 | 28 | 477 | 31 | 696 | 50 |
| Sullivan | 1,084 | 28 | 1,078 | 26 | 1,411 | 39 | 1,583 | 45 | 1,236 | 48 | 1,141 | 48 | 1,260 | 57 |
| Unicoi | 299 | 27 | 392 | 37 | 353 | 38 | 395 | 41 | 267 | 36 | 281 | 42 | 328 | 53 |
| Washington | 858 | 27 | 926 | 23 | 1,186 | 32 | 1,313 | 36 | 1,182 | 40 | 1,022 | 41 | 1,394 | 50 |
| Area[b] | 7,004 | 21 | 6,925 | 20 | 9,311 | 28 | 10,247 | 31 | 8,960 | 35 | 8,720 | 37 | 11,483 | 49 |
| Tennessee[c] | 43,057 | 18 | 42,000 | 18 | 52,230 | 23 | 58,318 | 29 | 50,412 | 32 | 46,981 | 35 | 58,474 | 37 |
| United States | 943,581 | 15 | 1,079,054 | 18 | 1,254,610 | 23 | 1,333,725 | 28 | 1,105,729 | 30 | 1,010,514 | 32 | 1,171,277 | 43 |

[a]Percentage figures for counties were calculated from the total number of farms reported for each county.

[b]Percentage figures for area were calculated from the total number of farms reported for all 12 counties.

[c]Percentage figures for Tennessee were calculated from the total number of farms reported for the state.

Source: United States Bureau of Census, United States Census of Agriculture: 1944, Tennessee Counties (Washington: Government Printing Office, 1946); United States Bureau of Census, United States Census of Agriculture: 1954, Tennessee Counties (Washington: Government Printing Office, 1956); United States Bureau of Census, United States Census of Agriculture: 1964, Tennessee Counties (Washington: Government Printing Office, 1966); United States Bureau of Census, United States Census of Agriculture: 1969, Tennessee Counties (Washington: Government Printing Office, 1971).

while the adjustment toward part-time farming has increased for all years delineated in Table III. An interesting statistic shown in Table III is the comparison between the percent of farmers working 100 days or more off the farm for the study area and the percent for the entire state. The apparent significance of part-time farming in the study area can be directly related to the industrial growth in the area as shown by the per capita value added by manufacturing.

Growth in the number of farmers working off-farm and industrial sectors has continued simultaneously. The combination of these different growth patterns has led to the occurrence of part-time farming in the study area.

# CHAPTER III

## ECONOMIC ACTIVITIES OF PART-TIME FARMERS

In this chapter, both the farm and nonfarm economic activities were described. The farming activities of the part-time farmers were described by establishing five major items. Among these items were factors of farm production, capital investment, farm enterprises, farm expenses, and farm incomes.

## I. FARMING ACTIVITIES

### Factors of Production

Three factors of farm production were described in this chapter according to the data collected from part-time farmers in the study area. Land, labor, and various farm capital items were among the three factors of production considered in this chapter.

Land. A basic resource involved with any farming enterprise is land. The use of this valuable resource in farming is influenced and often determined by the physical quality of the soils, climate, topography, and the desires of society. Data collected during the initial farm survey were used to establish a profile of land use on part-time farms in the study area.

Farm size. Among the 128 part-time farms identified in the study area, it was found that the average farm size owned by the operators was 36.1 acres, ranging from a minimum of 0 to a maximum of 290 owned farm acres (Table IV). Six part-time farmers owned zero acres; these

TABLE IV

LAND-USE PATTERNS AND LAND TENURE CHARACTERISTICS FOUND ON PART-TIME FARMS IN THE STUDY AREA, 1974

| Type Land Use | Owned and/or Rented Acreage Ranges Per Farm | Average Owned and/or Rented Per Farm |
|---|---|---|
| Row cropland | 1-33 | 4.3 |
| Pasture and hayland | 2-214 | 32.5 |
| Timberland | 1-70 | 13.7 |
| Other land | 1-38 | 1.7 |
| Total land owned | 0-290 | 36.1 |
| Total land rented in | 0-250 | 12.6 |
| Total land rented out | 0-66 | 1.6 |

farmers were considered tenant farmers.

Land-use patterns. The various land-use patterns were categorized into four types. Among these were row crop, pasture and hay, timber, and other land uses. These specific land-use patterns found on part-time farms were actual uses existing at the time of the survey. As indicated in Table IV, land used for pasture and hay had the largest number of acres found on part-time farms in the study area averaging 32.5 acres. Land use for row crops on part-time farms accounted for the second smallest land-use category. The average number of row crop acres used per farm was only 4.3, ranging from 1 to 33 acres. A total of 70.4 percent of all part-time farms reporting (105) had between one and five acres of row crops.

According to the land-use patterns found on part-time farms included in this study, pasture and hay, and timber remain the two largest average acres of land uses on part-time farms in Upper East Tennessee. Factors which contribute toward these prominent land-use types for any farming activity in the study area are: the geographic mountainous terrain and the high erosion hazards which characterize much of the Appalachian region of Tennessee.

Methods of land acquisition. Before any farming activity can occur either on a full-time or part-time basis, land has to be acquired and utilized. Land can be acquired by purchase, land rental, or lease agreement. Land tenure characteristics and methods of land acquisition were examined on all farms included in the initial survey. Two of the methods of land acquisition examined by this study were inheritance or gift and land purchases. A preliminary hypothesis concerning the means

by which people become involved in farming while remaining employed at a full-time job was that many people inherited farm land while working on a nonfarm job, thus providing the opportunity to leave the town or city and move to the farm and begin farming.

A total of 185 parcels of land was accounted for on 128 part-time farms in the survey area. Over half of the farmers in the sample acquired all of the farm land at one time. The first parcel of land acquired by most part-time farmers was by purchase. Only 28 percent of the first parcels were inherited, with the remaining 72 percent acquired through purchase. This result tends to discount the hypothesized significance of land inheritance to part-time farmers as a group in the study area.

Sixty percent of the 45 parcels purchased on 32 of the part-time farms surveyed on the second schedule financed the purchase. At the time of the interview, 27.5 percent of the financed parcels of land were under some financial terms.

Investment in land. The highest investment item for the 32 part-time farmers in this study was land. Investments in land ranged from 0 to $352,000 and accounted for an average of 76 percent of all investments for the farmers surveyed. The variation in investment may be partly due to differences in time of land acquisition among farmers. Individuals who have recently begun a farm enterprise would necessarily have large land purchase investments, while the investments of farmers who inherit land or continue to manage family farms would be smaller.

Land tenure. One of the land tenure characteristics studied was the rented acreage on part-time farms. Thirty-five percent of all

part-time farmers questioned rented an average of 12.6 acres (Table IV). The total acreage rented out on part-time farms averaged 1.6 acres per farm (Table IV). Of the 128 part-time farmers in the sample, only 10 farmers or 7.8 percent rented land out to other farmers. Only a total of 212 acres were involved in this tenure arrangement.

Labor. A critical resource needed by all farmers is labor. The availability of farm labor remains limited at the price the farmers are willing to pay. For part-time farmers the demand for labor remains high due to his own inability to work on the farm when needed. Part-time farmers have peak labor requirement periods during the planting and harvest seasons. Labor needs for both the farm and off-farm job necessitate a constant labor management program to handle these peak labor requirement periods. Sixty-eight percent of the part-time farmers interviewed in the second survey indicated labor shortage or limited time to manage the farm as being a problem on their particular farms. The incidence of farmers identifying the availability of farm labor as a farm problem would seem to be an indication of the situation existing on many part-time farms.

Family labor. The farm labor shortage on part-time farms had two direct effects on the families of those part-time farmers. First, family labor was utilized in the part-time farming operation by nearly all farmers. Second, 68 percent of the farm operators indicated that they used their vacation period from their off-farm job to perform farming tasks. By devoting vacation periods to the farm operation, these part-time farmers were able to harvest and/or market their crops.

Several of the part-time farmers' wives were actively involved in the farm operation. No data were collected specifically on participation by wives in the management of the farms. Sixty-five percent of the part-time farm wives had zero days of off-farm employment in 1974. Most of these wives appeared to have time available to help operate the farm. Isolated situations were encountered where the wife managed the farm operation. This was particularly evident when the husband's off-farm job required an unusual amount of time. The women who ran the farm operation appeared to be knowledgeable of farm management and most had farm backgrounds. All the part-time farmers interviewed indicated that in peak labor demand periods, every member of the household participated in the farm operation. Planting and harvest periods were cited most frequently as peak labor demand periods. Third and fourth family members over 12 years old that worked 240 or more days off the farm included 94 and 75 percent, respectively. These percentages would appear to indicate that labor for the farm from these family members would be limited based upon the time devoted to off-farm employment.

Most part-time farmers interviewed in the initial survey were concerned with the continuation of the farm operation by a family member after the present operator's retirement. Those desiring other family members to continue the farm operation included 70.1 percent of 123 part-time farmers answering the question. Over half (52.3 percent) stated that they felt it would be necessary to be employed in a full-time job while running the farm. Reasons part-time farmers reported as to why the farm should be operated on a part-time basis included: the size of the farm being too small to operate on a full-time scale; the stability and

dependability of a regular income from a nonfarm source; and a full-time farming operation appeared to be unprofitable. These reasons were the most significant given by the part-time farmers. Among the 19.5 percent of part-time farmers who did not want a family member to continue the farm operation, 47 percent stated that the farm was too small and would not be profitable for their children to operate.

Hired labor. Data collected concerning hired labor used on part-time farms was in the form of expenditures for hired labor on the farm. These data were collected from the subsample of 32 part-time farms for 1975. According to the results of those farmers interviewed, the average expenditure for farm labor hired in 1975 was $356. This constituted 11 percent of the total farm expenses for that year.

## Capital Investment

In order to determine the capital investment items used on part-time farms in the study area, a profile of farm buildings and farm machinery was established. Investment made for both of these items was important in identifying high capital investment items.

Methods of avoiding high investment in farm machinery. A hypothesis of this study assumed that most part-time farmers try to avoid excess investment in farm machinery. Part-time farmers must acquire sufficient farm machinery in order to operate a farm enterprise efficiently. The average investment in machinery for 32 part-time farms in the study area was $4,770 (Table V) which accounted for 14 percent of the total average farm investment in capital items (exclusive of livestock and supplies). Part-time farmers averaged eight pieces of farm machinery (Table V).

TABLE V

AVERAGE TOTAL INVESTMENT FOUND ON PART-TIME FARMS FOR LAND, MACHINERY, AND BUILDINGS, 1975[a]

| Investment Item | Average Units[b] | Ranges of Investment at Time of Acquisition[c] | Average Total Investment at Time of Acquisition | Percent of Total Average Investment |
|---|---|---|---|---|
| Land | 1 | $600-352,500 | $25,908[d] | 76.3 |
| Machinery | 8 | 0-16,625 | 4,770 | 14.0 |
| Buildings | 2 | 90-20,550 | 3,281 | 9.7 |

[a]Sample size included 32 part-time farmers. Capital investment calculations were based upon acquisition cost and not on the current worth of the investment item.

[b]Average units acquired by the part-time farm was based on number of parcels for land, number of pieces of farm machinery, and number of farm buildings other than the residences on the farm.

[c]Investment items which were acquired as a gift or inherited were not considered.

[d]The average acquisition price per acre of an average size part-time farm (36.1 acres) was $718.

One way these part-time farmers avoided excessive investment in farm machinery was by hiring farm custom work, purchasing used farm machinery, and borrowing machinery from other farmers in the area. Sixty-five percent of the part-time farmers borrowed farm machinery from other farmers. Seventy-one percent loaned farm machinery to other farmers. The types of farm machinery borrowed by 28 percent of the 21 part-time farmers borrowing farm machinery was fertilizer distributors and tobacco setters. It is important to note that high capital items such as tractors were borrowed by only 18 percent of the farmers borrowing farm machinery.

Tractors were considered to be a major farm investment item for part-time farmers. Those owning one or more tractors included 84 percent of the farmers interviewed. Several of these farmers (16 percent) owned two or more tractors. The age of each tractor was also recorded. Tractors less than 5 years old accounted for 21 percent of the total inventoried number. A total of 24 tractors (75 percent) were 5 years or older. Acquisition of used tractors was identified as another way to limit the farm investment. Other types of farm machinery found on 32 part-time farms in 1975 were accounted for in Table VI. Tractors and turning plows were the most common farm machinery on part-time farms in the survey area (Table VI).

Farm custom work on part-time farms was identified as another method in avoiding excess investment in farm machinery. Half of all part-time farmers in the second survey hired farm custom work in 1975.

Factors affecting investment in farm machinery. Several relationships were hypothesized concerning investment in machinery by part-time

TABLE VI

FARM MACHINERY, BY TYPE, AND NUMBER AND PERCENT OF FARMS REPORTING, ON 32 PART-TIME FARMS IN THE STUDY AREA, 1975[a]

| Kind of Machinery | Farm Reporting | | Average Age of Machinery |
|---|---|---|---|
| | Number | Percent | |
| Tractor #1 | 27 | 84 | 11 |
| Tractor #2 | 5 | 16 | 17 |
| Turning plow | 27 | 84 | 7 |
| Fertilizer spreader | 15 | 47 | 6 |
| Hay mower | 20 | 63 | 7 |
| Disk | 21 | 66 | 9 |
| Manure spreader | 9 | 28 | 7 |
| Hay rake | 10 | 31 | 6 |
| Cultivator | 18 | 56 | 6 |
| Hay baler | 9 | 28 | 6 |
| Subsoiler | 6 | 19 | 8 |
| Tobacco setter | 14 | 44 | 6 |
| Cultipacker | 4 | 13 | 8 |
| Machinery trailer | 5 | 16 | 6 |
| Rotary mower | 6 | 19 | 5 |
| Hay wagon | 9 | 28 | 5 |
| Boom pole | 4 | 13 | 6 |
| Post hole digger | 3 | 9 | 4 |
| Grader blade | 3 | 9 | 4 |
| Hay elevator | 3 | 9 | 10 |
| Corn planter | 3 | 9 | 4 |
| Ripper (Renovator) | 3 | 9 | 8 |
| Front end loader | 2 | 6 | 4 |

[a]The remaining farm machinery was identified only once in the study area: tractor #3, grain elevator, grain drill, milker, milk tank, crop sprayer, hay conditioner, irrigation pump, carry-all box, rotary tiller, chain saw. A total of three part-time farmers (9 percent) had farm machinery powered by farm animals.

farmers in the study area. Variables such as open acres, operator's age, off-farm employment income (1975), gross farm income (1975), and family size were all expected to have a positive relationship with investment in machinery. A multiple linear regression analysis was used to investigate these possible relationships. A total of 29 observations were included in the analysis.

The structural model used in this analysis is given below:

$$I = B_o + B_1 O_a + B_2 A + B_3 I_o + B_4 I_g + B_5 S$$

where:

$I$ = total investment in farm machinery and equipment dollars.

$O_a$ = open acreage.

$A$ = age of farmer.

$I_o$ = off-farm income from nonfarm employment for 1975 dollars.

$I_g$ = gross farm income for 1975 dollars.

$S$ = family size.

Results of the analysis indicated that the model accounted for 38 percent of the variation in machinery investment ($R^2 = .38$).

$$\hat{I} = -1324.23 + 20.31 O_a + 1.35A + .12 I_o + .78 I_g^{*} + 268.63S$$

(4963.77) (31.14) (78.15) (.17) (.30) (487.40)

where:

$\hat{}$ = Estimated value.

* = Significant at the .05 level.

The numbers in parentheses are standard errors of the estimated coefficients. The t-values for the only significant variable, gross farm income for 1975, was 2.57 where:

$$t = \frac{\beta_i}{S_{\beta_i}}$$

The regression model accounted for a small portion of the variation in farm machinery investment. Gross farm income for 1975 was found to be significantly related to investment in machinery at the 0.05 level. The other variables had the hypothesized sign, but were not significantly related to investment in machinery at the 0.05 level. This analysis suggests that levels of machinery investment on part-time farms is significantly related to the income producing capacity of the farm.

Capital investment in farm buildings. Farm buildings accounted for 12 percent of the investments made by part-time farmers. In this study, a farm building was defined as any nonresidential structure located on the farm which was utilized for farm purposes. An average of two farm buildings per farm was calculated for the part-time enterprises in the study area. In accounting for capital investment in buildings by farmers, buildings which were attached to the land parcel when purchased were excluded and only buildings for which the present farm owner had paid construction costs were recorded. The average investment in farm buildings for the 32 part-time farmers interviewed was $3,281.

## Farm Enterprises on Part-Time Farms

Farm enterprises found on part-time farms in the study areas were identified and described in this chapter. Both crop and livestock enterprises were found in various combinations on part-time farms.

Crop enterprises. The major crops that were grown on part-time farms in the study area for the 1974 season were burley tobacco, hay and corn. Tomatoes and various other vegetable crops were raised by a limited number of farmers (Table VII). Burley tobacco was found to be

TABLE VII

CROPS GROWN ON PART-TIME FARMS IN THE STUDY AREA,[a] 1975

| Crop | Percent Part-Time Farmers Growing the Crop | Average Acreage | Average Yield Per Acre | Percent Total 1975 Gross Farm Income of Those Farmers Producing the Crop | Percent Total 1975 Net Farm Income of Those Farmers Producing the Crop |
|---|---|---|---|---|---|
| Burley tobacco | 94 | 1.28 | 2,239 pounds | 72 | 89 |
| Hay (All species) | 59 | 10.92 | 96 bales | 7 | n/a |
| Corn | 46 | 3.61 | 74 bushels | 13 | 14 |
| Tomatoes | 3 | 1 | 500 bushels | 100 | 100 |
| Other | 3 | .5 | n/a | 6 | 5 |

[a]Sample size included 32 part-time farmers.

grown by 94 percent of all the part-time farmers interviewed in the second survey. Average yields for burley tobacco were 2,239 pounds per acre. The most revealing characteristic displayed in Table VII is the percent contribution of burley tobacco sales to the 1975 gross and net farm incomes of those farmers producing the crop. Contribution to gross income was 72 percent, while the contribution to net income was even higher at 89 percent. From these results it would seem that burley tobacco exists as a very adaptive part-time farm crop enterprise. The farm incomes derived from tobacco made an important contribution to the total 1975 farm income.

Hay, including all species, and corn were found to be grown by many farmers (Table VII). Over 50 percent of all part-time farmers grew hay while 46 percent grew corn. The highest average acreage for a crop enterprise was 10.92 acres devoted to hay. Conversely, hay sales made the lowest contribution to the 1975 gross farm income. The disparity between the large acreage and small sales for hay may be attributed to the fact that many farmers reported that both hay and corn were utilized in running the farm's livestock enterprise and were, therefore, not considered cash crops by most farmers.

Livestock enterprises. The second important category of farm enterprises on part-time farms was livestock. For the purposes of this study, four classes of livestock were identified on the part-time farms surveyed during the spring of 1976. These categories were: beef, dairy, swine, and other livestock.

Part-time farmers having a beef cattle operation included 72 percent of the total sample. The average number of beef cattle on these

farms was 14 head. Table VIII illustrates the apparent significance of beef cattle enterprises for part-time farmers in the study area.

Many part-time farm families, by concentrating on a limited number of enterprises, such as burley tobacco, are able to have a beef cattle operation in addition to a full-time job off the farm. Since so many part-time farmers have cow-calf livestock enterprises, it appears to require only a limited amount of time.

Only one part-time farmer operated a dairy, but several other part-time farmers owned dairy cattle for family use. One farmer raised dairy calves under a contract arrangement. He was the only part-time farmer with dairy calves.

The remaining livestock classes shown in Table VIII include swine and other livestock. The number of swine livestock found on these farms was relatively small. One commercial egg producer was interviewed in the study area.

## Farm Expenses on Part-Time Farms

Several types of farm expenses were identified and computed from the data obtained from the farm survey. Crop expenses incurred on 32 part-time farms in 1975 averaged $2,481 (Table IX). Seed, fertilizer, sprays, and fuel composed the total average crop expense accounted for in Table IX. These expenses comprised 26 percent of the total expenses listed in Table IX for the 1975 crop year on part-time farms in the study area. Repair and feed costs were the next most significant type expenses identified.

TABLE VIII

LIVESTOCK, BY CLASS, PERCENT OF FARMS REPORTING, AND AVERAGES PER FARM, FOR 32 PART-TIME FARM OPERATORS IN THE STUDY AREA, 1975

| Class of Livestock | Farms Reporting | Per Farm | |
|---|---|---|---|
| | | Farms Reporting | All Farms |
| | percent | number | |
| Beef | | | |
| Cows and heifers | 69 | 9.2 | 6.34 |
| Feeder cattle | 44 | 7.0 | 2.63 |
| Beef calves | 19 | 4.2 | 1.19 |
| Steers | 16 | 3.4 | .53 |
| Bulls | 38 | 1.1 | .44 |
| Dairy | | | |
| Cows and heifers | 16 | 10.1 | 1.78 |
| Dairy calves | 3 | 50.0 | 1.56 |
| Bulls | 3 | 4.0 | .13 |
| Swine | | | |
| Brood sows | 16 | 1.6 | .25 |
| Gilts | 6 | 1.0 | .06 |
| Pigs | 6 | 1.0 | .09 |
| Barrows | 9 | 3.0 | .22 |
| Boar | 6 | 1.0 | .06 |
| Other | | | |
| Chickens | 19 | 1,675.5 | 314.16 |
| All other | 22 | 4.5 | 1.00 |

TABLE IX

FARM EXPENSES INCURRED ON PART-TIME FARM IN THE STUDY AREA, 1975[a]

| Type Expense | Average Expense | Percent of Average Total Expenses |
|---|---|---|
| Labor | $ 277.8 | 11.2 |
| Feed | 351.0 | 14.1 |
| Repair | 425.6 | 17.1 |
| Utilities | 56.3 | 2.3 |
| Livestock[b] | 71.5 | 2.9 |
| Interest[c] | 189.5 | 7.6 |
| Insurance | 153.2 | 6.2 |
| Tax | 182.0 | 7.3 |
| Crop[d] | 664.2 | 26.8 |
| Miscellaneous | 110.7 | 4.5 |
| Total | $2,481.8 | 100.0 |

[a]Each type expense was estimated by each of the 32 sampled part-time farm for the farm business year 1975. Depreciation expenses were not included.

[b]Typical livestock expenses included transportation, marketing cost, veterinary expenses.

[c]Interest expenses on all farm loans were included.

[d]Typical crop expenses included fertilizer, insecticides and herbicides, and seed cost.

Farm Incomes

Both gross and net farm incomes for all farm enterprises in 1974 were tabulated from collected sales data in the initial farm survey. The average 1974 gross farm income for the 114 valid observations of part-time farmers in the survey was $2,817. Average 1974 net farm income for 96 of these part-time farmers was $1,033. Among the 32 part-time farmers interviewed in the second survey, the average 1975 gross and net farm incomes were $3,191 and $1,425, respectively.[1]

Relationship between 1974 gross farm income and farm size. A hypothesis of this study concerns the possible relationship existing between gross farm income and farm size. The indicator used in Table X for farm size was total farm acreage owned by the part-time farmer. Both income and acreage groups were included in a contingency table and a chi-square statistic was calculated to determine the relationship between gross farm income and farm size.[2] The chi-square statistic which was found significant at 0.05 level indicates that a systematic relationship exists. From these results presented in Table X it can be stated that the higher part-time farm incomes were found on the large acreage group farms.

Relationship between 1974 gross farm income and other variables. In order to determine the possible relationships existing between certain

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[1]Net farm income for 1974 and 1975 was based upon each farmer's own estimate of farm sales and expenses.

[2]Chi-square is computed from the general formula $X^2 = \Sigma = \frac{(f - f_c)^2}{f_c}$ where f is the observed frequency and $f_c$ the computed frequency.

TABLE X

COMPARISON OF 1974 GROSS FARM INCOMES AND LAND OWNED ACREAGE GROUPS ON PART-TIME FARMS IN THE STUDY AREA

| Gross Farm Income (1974) Groups | Acreage Owned Groups | | | | | |
|---|---|---|---|---|---|---|
| | $0-5 | 6-15 | 16-25 | 26-50 | 51 and Greater | Totals |
| Less than 1,000 | (2.6)[a] 3 | (9.6) 11 | (3.5) 4 | (0.9) 1 | (3.5) 4 | (20.2) 23 |
| 1,000 - 1,999 | (5.3) 6 | (4.4) 5 | (8.8) 10 | (7.9) 9 | (4.4) 5 | (30.7) 35 |
| 2,000 - 2,999 | (2.6) 3 | (4.4) 5 | (0.9) 1 | (4.4) 5 | (7.0) 8 | (19.3) 22 |
| 3,000 and greater | (4.4) 5 | (2.6) 3 | (2.6) 3 | (7.2) 9 | (9.2) 14 | (29.8) 34 |
| Totals | (14.9) 17 | (21.1) 24 | (15.8) 18 | (21.1) 24 | (27.2) 31 | (100.0) 114 |

Chi Square = 27.69

Degrees of Freedom = 12

Significance = .006

[a]Numbers in parenthesis are percent totals.

variables and farm income, a Pearson correlation analysis was calculated.[3] Rented land acreage and pasture acreage were the highest calculated coefficients. They were significant at the .001 level (Table XI). One might assume from these results that livestock operations, utilizing pasture acreage, contribute to some degree toward the total farm income on part-time farms. Results of this analysis underline previous findings in Table X. Land rented in, row crop, and pasture acreage all increase the farm size and hopefully the productive capacity of the farm. Therefore, with this increase in farm size and production, a subsequent increase in farm income can result.

## II. THE NONFARM EMPLOYMENT ACTIVITIES

Nonfarm economic activities were studied by analysis of the data concerning time devoted to nonfarm employment, type of nonfarm occupation, commuting distances, the farmer's perception of nonfarm employment opportunities, nonfarm income, vocational training, and off-farm employment by farm wives. Farm incomes were found to be low for many part-time farmers in the study area averaging $2,817 gross and $1,033 net farm incomes in 1974. Three of the farmers interviewed lost as much as $3,000 in their farm operations in 1974. For these part-time farmers, the nonfarm job was required to provide income needed to recoup the money lost on the farm as well as support the farm household living expenses. In reality, the off-farm income for the part-time farmers in the study

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[3] Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences, Kenneth J. Bowan and Matthew Cahill, Eds., 2nd Edition (New York: McGraw-Hill, Inc., 1975), pp. 280, 281.

TABLE XI

PEARSON CORRELATION COEFFICIENTS FOR 1974 FARM INCOMES ON PART-TIME FARMS IN THE STUDY AREA

| Variable | 1974 Gross Farm Income | 1974 Net Farm Income |
|---|---|---|
| Land rented in[a] acreage | .40 | .29 |
| Row crop[a] acreage | .28 | .28 |
| Pasture[a] acreage | .39 | .41 |
| Family size | .08 | .11 |
| Operator age | -.13 | -.12 |
| Vocation agriculture in school | .14 | .00 |
| Total 1974 household income[a,b] | .22 | .27 |
| Number of sons | .06 | .08 |

[a]Significance level of 0.05.

[b]Included net farm income for 1974 estimated by farmer.

was the main and most dependable source of income. Part-time farmers, as defined by this study, averaged 246 days per year of off-farm work in 1974.

Since the off-farm occupation of part-time farmers was found to be of economic importance in distinguishing these farmers as a group, it became apparent that nonfarm employment characteristics would be worthy of investigation. Among these nonfarm employment characteristics were number of days worked off the farm per year, type of nonfarm occupation, commuting distance to the off-farm job, the vocational training in part-time farmers, off-farm income, and the off-farm job opportunities of the study area. These characteristics were selected for study to provide a profile of existing nonfarm occupations in the study area.

Off-Farm Income

Part-time farm households with small farming operations (farm sales below $2,000) included 50.9 percent of the sample reporting 1974 gross farm incomes. The 128 part-time farm managers added an average of $8,260 to the total household income in 1974 from off-farm wage and salary earnings. Off-farm incomes can be identified as a major source of income for many farm households in the study area. Industrial expansion in the 12-county area has provided many people with jobs. Part-time farmers included in the study appear to be enjoying the benefits of this industrial expansion through employment in occupations in the industrial sector.

A comparison between the 1974 gross farm income and off-farm earnings shown in Table XII presents both income figures according to specific income breakdowns. According to Table XII, individual farmers

TABLE XII

COMPARISON OF 1974 GROSS FARM INCOME AND 1974 OFF-FARM INCOME FROM NONFARM EMPLOYMENT OF PART-TIME FARMERS IN THE STUDY AREA

| 1974 Off-Farm Employment Income by Operator | 1974 Gross Farm Income Groups ($) | | | | |
|---|---|---|---|---|---|
| | Less than 1,000 | 1,000-1,999 | 2,000 2,999 | 3,000- and Greater | Totals |
| Less than 5,000 | (3.4) 4 | (5.3) 6 | (2.6) 3 | (3.5) 4 | (14.9) 17 |
| 5,000 - 5,999 | (0.9) 1 | (4.4) 5 | (2.6) 3 | (2.6) 3 | (10.5) 12 |
| 6,000 - 6,999 | (4.4) 5 | (7.0) 8 | (4.4) 5 | (4.4) 5 | (20.2) 23 |
| 7,000 - 7,999 | (1.8) 2 | (4.4) 5 | (2.6) 3 | (5.3) 6 | (14.0) 16 |
| 8,000 and greater | (9.7) 11 | (9.7) 11 | (7.0) 8 | (14.0) 16 | (38.4) 40 |
| Totals | (20.2) 23 | (30.7) 35 | (19.3) 22 | (29.8) 34 | (100.0) 114 |

Chi Square = 7.08

Degrees of Freedom = 12

Significance = .955

[a]Numbers in parenthesis are percent totals.

earning off-farm incomes are also obtaining above average gross farm incomes. The chi-square statistic presented in Table XII was not found significant at the 0.05 level. Therefore, the hypothesized relationship existing between gross farm income and off-farm income was not indicated by the chi-square statistic.

Type Nonfarm Occupations

Part-time farmers were employed in various types of occupations. Off-farm employment was examined by classifying each type of occupation into a specific group. Six occupational groups were established along with specific occupations applying to each group. Table XIII presents the listing and number of farmers in each occupational group. Mechanical skill trades contained the largest number of part-time farmers. The most frequent types of employment within this group were production and assembly in factories. Among the 128 part-time farmers interviewed, 31 percent were employed in a mechanical skilled trade. The occupational group of least significance was farm related occupations. Only one observation was found in this group. The miscellaneous category of Table XIII included all occupations which were unable to be classified due to insufficient information.

Commuting Distances of Part-Time Farmers

A nonfarm employment characteristic which relates part-time farmers to local industries is the commuting distances part-time farmers travel each day to their nonfarm jobs. The average number of miles to work for the 32 part-time farmers interviewed in the second survey was 17.7 miles. Some of the part-time farmers traveled out of their resident

TABLE XIII

OFF-FARM OCCUPATIONAL CLASSIFICATION OF PART-TIME FARMERS IN THE STUDY AREA[a]

| Occupational Group | Number of Part-Time Farmers | Percent of Total Cases |
|---|---|---|
| Farm related, occupation | 1 | .78 |
| Clerical and office, occupation[b] | 11 | 8.59 |
| Skilled trades, mechanical[c] | 40 | 31.25 |
| Skilled trades, building[d] | 23 | 17.97 |
| Skilled trades, services[e] | 13 | 10.56 |
| Professional, technical, and public service[f] | 9 | 7.03 |
| Miscellaneous | 31 | 24.22 |

[a]Sample size of 128 part-time farmers.

[b]Specific clerical and office, occupations were: nonprofessional supervisors and salesmen.

[c]Specific skilled trades, mechanical occupations were: general factory workers, production machine operators, machinist, and mechanics.

[d]Specific skilled trades, building occupations were: carpenter, electrician, and construction workers.

[e]Specific skilled trades, services occupations was: commercial truck driver.

[f]Specific professional, technical, and public service occupations were: teachers (elementary, secondary, and other) and engineer.

county to work. Total commuting distances ranged from 0 to 75 miles one way from the farm. Those who had to commute many miles from the farm reported difficulty in managing the farm. The time needed for the farm work was often limited because of the amount of time expended in commuting.

Off-Farm Employment Opportunities

Off-farm employment opportunities were assessed by all part-time farmers interviewed in the second survey. These farmers were asked to describe their perception of the availability of jobs paying a reasonable wage for a farmer who wanted to find an off-farm job or increase his amount of work off the farm. The availability of off-farm employment was described as "difficult to find" by 46.9 percent of the part-time farmers (Table XIV). Only 18.7 percent of farmers considered off-farm employment "easily available." Table XIV presents the perception of the remaining part-time farmers toward job availability.

Years of Off-Farm Employment

Another characteristic relating to off-farm employment of part-time farmers is the years employed in their present occupation off the farm. Part-time farmers averaged over 13 years of off-farm employment. Most of the part-time farmers planned to obtain retirement benefits from their present off-farm employment and to continue farming on a part-time basis. Farm and nonfarm occupation combinations appear to be a stable way of life for many part-time farmers in the study area.

Vocational Training Experience

The ease with which farmers could adapt to employment off the farm

TABLE XIV

DESCRIPTION OF OFF-FARM EMPLOYMENT OPPORTUNITIES AVAILABLE TO FARMERS IN THE STUDY AREA[a]

| Description | Number of Part-Time Farmers | Percent of Part-Time Farmers |
|---|---|---|
| Easily available | 6 | 18.7 |
| Sometimes available | 9 | 28.1 |
| Difficult to find | 15 | 46.9 |
| Not available | 2 | 6.3 |

[a]Sample size of 32 part-time farmers.

was an important consideration of this study. A single characteristic, vocational training, was selected to indicate the difficulty or ease with which off-farm employment could be obtained. Vocational training was needed by some farmers in order to acquire employment in a particular occupation. A total of 35.2 percent of the part-time farmers included in the initial survey had some vocational training. Of the part-time farmers with vocational training, 60.4 percent had training related to mechanical skill trades.

Off-Farm Employment by Farm Wives

Off-farm employment was not limited to the male farm operators alone. Out of 122 cases where the farm operator worked off the farm, 26 wives (21 percent) had some nonfarm income. The nonfarm income of the wives ranges from $2,400 to $10,176 per year with an average of $8,135. Among the part-time farm wives that worked, their total average salary from off-farm employment nearly equaled that of their male counterparts. The time spent by the wives in nonfarm occupations ranged from 240 to 300 days per year with an average of 247.2 days per year. Many of the occupations chosen by part-time farm wives were as time consuming as those of their husbands.

The occupational group having the most women was the service type skilled trade. Specific occupations which were included in the service type skilled trade were health service workers and waitresses.

The commuting distance from the part-time farm to the place of employment ranged from 0 to 20 miles for the 11 of the 32 farm wives reported in the second survey. The average one-way mileage traveled by

these wives was 9.54 miles which was considerably smaller than the average commuting distance for their husbands.

# CHAPTER IV

## CHARACTERISTICS OF PART-TIME FARMERS

Several characteristics of the farm operator were examined to obtain a better perspective of the part-time farm. Among the characteristics studied were age, family size, educational attainment, and physical disabilities. The total household income was calculated and a numerical average found. Finally, a historical review of the part-time farmer's life was examined concerning such characteristics as farm experience and number of residences.

### I. AGE AND EDUCATION OF THE PART-TIME FARM OPERATOR

The average age of 128 part-time farmers included in this study was 43 years ranging from 26 to 63 years (Table XV). Two (1.6 percent) of the part-time farmers were female, while the remaining 126 (98.4 percent) were male operators. On the average, the part-time operators had just over a 9th grade education. During their youth, 22.3 percent of the part-time farmers were involved with 4-H Club activities, while 26.4 percent were active in high school vocational agricultural programs (Table XV).

### II. PRECEPTION OF THE TYPE OF FARMING

Among the 128 part-time farmers interviewed in the initial survey, all were asked to classify themselves considering their existing farm operation into one of four types of farmers. These four types were:

TABLE XV

CHARACTERISTICS OF PART-TIME FARMERS
IN THE STUDY AREA, 1974

| Characteristic | Average Number | Percent of Farmers |
|---|---|---|
| Operator age (years) | 43 | 5.5[a] |
| Operator education (years) | 9 | 7.1[a] |
| Family size | 3.7 | 20.3[a] |
| Years of farming experience: | | |
| Farming with off-farm employment | 17.8 | --[b] |
| Full-time farming | 2.2 | --[b] |
| Participation in 4-H | --[b] | 22.3 |
| Participation in vocational agriculture | --[b] | 26.4 |
| Type farmer: | | |
| Part-time | --[b] | 97.6 |
| Full-time | --[b] | 1.6 |
| Hobby | --[b] | .8 |
| Health problem | --[b] | 7.2 |

[a]Percent of farmers having the average number.

[b]Computation was not applicable or data were not available in that form.

full-time, retired, hobby, and part-time farmer.[1] It appears significant in Table XV that 97.6 percent of the farmers classified as part-time by this study also classified themselves as part-time farmers. Only one farmer considered himself a hobby farmer, while two others considered their efforts on the farm to be intensive enough to classify themselves as full-time farmers. These results indicate the prespective with which individuals view their farming operation.

## III. HEALTH

Health among the part-time farmers was generally reported as good. Only 7.2 percent of the 128 farmers indicated a health problem (Table XV). The most common physical ailment was related to the back.

## IV. TOTAL HOUSEHOLD INCOME

Generally speaking, the total household income exists as one of the best indicators of economic well-being of a farm family. The methods used in this study to calculate the total household income of each part-time farm family was to sum the 1974 total net farm income along with the 1974 total wages and salaries of members of the farm household from nonfarm sources. Sufficient information was available from 94 observations to calculate total household income. Table XVI presents the percentage of part-time farm households for each income range group. Results of the calculation indicated the average 1974 total household

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[1] In this instance, the terms part-time and full-time farmer refer only to the individual's own evaluation and not to the criteria established by the study.

TABLE XVI

PART-TIME FARM 1974 HOUSEHOLD INCOME RANGES FOR THE STUDY AREA[a]

| Income Range | Percent Part-Time Farm Household |
|---|---|
| Under $5,000 | 2.13 |
| $5,000 to $8,000 | 28.72 |
| $8,000 to $10,000 | 10.64 |
| $10,000 to $12,000 | 19.15 |
| $12,000 to $15,000 | 15.96 |
| $15,000 and more | 23.40 |

[a]Sample size of 128 of which 94 were valid observation with all necessary data.

income for part-time farms in the study area was $11,739. Total household incomes ranged from $3,840 to $27,340. According to Table XVI, 28 percent of the 94 part-time farm household incomes fell between $5,000 and $8,000. The average 1974 net farm income of $1,033 for 96 part-time farmers accounted for only 9 percent of the total household incomes. Off-farm incomes for the family members accounted for the remaining composition of the total household income.

## V. FAMILY SIZE AND PER CAPITA HOUSEHOLD INCOME

The average size of the household was 3.7 members, ranging from one to nine family members. The average per capita family income was $3,187 ranging from $1,037 to $7,389.

## VI. FARMING EXPERIENCE OF PART-TIME FARMERS

Most part-time farmers interviewed grew up on a farm and, therefore, obtained a knowledge of different farming enterprises. Nearly 87 percent of the part-time farmers were reared on a farm. Virtually all part-time farmers stated that the experience they received as a youth on the family farm was influential in their decision to operate a farm.

The average practical farm experience, measured in years of continuous farming, was 2.2. A total of 34.4 percent of the part-time farmers had started farming on a full-time basis. The average number of years the sample of 128 part-time farmers had held off-farm employment while farming was 17.8 years. Clearly one can observe that more years have been devoted to operating a farm along with an off-farm job than any other type farming (Table XV). A very distinctive characteristic of

part-time farmers found that 65.6 percent began farming while having a job off the farm.

## VII. NUMBER OF RESIDENCES

Part-time farmers in the survey area were usually found to reside in their county of birth. Among the part-time farmers interviewed, 93.7 percent born in the survey area now lived in 1 of the 12 counties. Part-time farmers averaged 1.5 residences throughout their adult life. Over half (69.5 percent) of the part-time farmers continued to live in the county in which they were born.

## CHAPTER V

## SOCIOLOGIC CONSIDERATIONS OF PART-TIME AND FULL-TIME FARMERS

One objective of this study was to describe and distinguish some of the attitudes and levels of satisfaction relating to life and farming held by both part-time and full-time farmers. Personal feelings regarding anomia and its functional areas of manifest anxiety and self-esteem were also considered. The purpose of the subsequent analysis and evaluation of these sociological areas was to assist in providing added meaning to the economic profile presented thus far for both part-time and full-time farmers.

### I. ANOMIA

Anomia, according to Robinson, exists in contemporary society as a feeling of alienation.[1] Among farmers, this feeling may lead to dissatisfaction with life and a general state of discontentment. A total of seven statements shown in Appendix Table XXIII was used to measure the farmer's sense of anomia. These statements and scoring techniques were specifically designed to test the feeling of anomia among full- and part-time farmers.[2] The mean scores for both groups of farmers were not significantly different at the 0.05 significance level. Both full-time and part-time farmers seldom had any feelings characteristic of

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[1] John P. Robinson and Phillip R. Shaver, Measures of Social Psychological Attitudes, 3 vols. (Ann Arbor: Institute for Social Research, The University of Michigan, 1969), p. 161.

[2] Ibid., p. 41.

anomia. The average score for both groups of farmers concerning anomia in Table XVII indicates that most farmers were content with their own situation and did not feel out of place with respect to society.

## II. SATISFACTION WITH LIFE

Another determination, similar to the characteristics identified with anomia, was the satisfaction farmers have with life. Three statements were used in determining this level of satisfaction (Appendix Table XXIV). The composite score for all three statements in Table XVII indicated that both part-time and full-time farmers appeared to be very satisfied with life. Results of this analysis were supportive of the absence of anomia among both groups of farmers.

## III. MANIFEST ANXIETY AND SELF-ESTEEM

Manifest anxiety and self-esteem were identified as functions of anomia. Statements measuring manifest anxiety were similar to those used in Appendix Table XXIII for anomia. The four statements used in determining self-esteem were designed specifically for measuring and scoring a population's response relating to one's own personal evaluation.[3] Mean scores among both groups of farmers regarding manifest anxiety and anomia were similar. The average score for manifest anxiety and self-esteem among both groups of farmers was similar (Table XVII). All four statements determining self-esteem in Appendix Table XXVI indicated that both part-time and full-time farmers had favorable opinions of themselves

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[3] Ibid., p. 40.

TABLE XVII

SUMMARY ANALYSIS OF DETERMINATIONS OF ANOMIA, SELF-ESTEEM, MANIFEST ANXIETY, SATISFACTION, AND ATTITUDES FOR PART-TIME AND FULL-TIME FARMERS IN THE STUDY AREA

| Item | Reliability Test Values[a] | Intrinsic Validity Values[b] | Farmer Groups | | | | T-Values |
|---|---|---|---|---|---|---|---|
| | | | Full-Time | | Part-Time | | |
| | | | Number | Average Score | Number | Average Score | |
| Anomia | .94 | .96 | 70 | 3.5[c] | 116 | 3.6[c] | 1.01 |
| Self-esteem | .67 | .82 | 68 | 3.0[c] | 115 | 3.0[c] | 0.08 |
| Manifest anxiety | .94 | .97 | 69 | 3.8[c] | 118 | 3.8[c] | 0.92 |
| Satisfaction with-- | | | | | | | |
| Life | .66 | .81 | 71 | 1.5[c][d] | 117 | 1.5[c][d] | 0.25 |
| Farming | .93 | .97 | 71 | 7.3[d] | 112 | 7.5[d] | 0.68 |
| Attitude toward-- | | | | | | | |
| Profit | .66 | .81 | 71 | 6.3[d] | 114 | 7.0[d] | 1.52 |
| Independence | .88 | .94 | 71 | 8.2[d] | 116 | 8.5[d] | 1.07 |
| Credit | .83 | .91 | 66 | 7.3[d] | 107 | 7.2[d] | -0.55 |
| Progressivism | .84 | .92 | 69 | 7.4[d] | 113 | 7.5[d] | 0.28 |
| Risk | .77 | .88 | 71 | 7.8[d] | 114 | 7.3[d] | -2.24[e] |

[a]Reliability test values were determined by the following formula:

$$R = \frac{r\left[\sqrt{r^2 + 4_{pq}\,(1 - r^2)} - r\right]}{2_{pq}\,(1 - r^2)}$$

Table XVII, continued

where R = reliability of sum of the two parts; r = correlation between the two parts; p = proportion of total test devoted to one part; q = 1 - p.

[b]Intrinsic validity values were determined by calculating the square root of the reliability values.

[c]The scoring scale from 1 to 5 is interpreted as follows: 1 = almost always feel true; 2 = often feel true; 3 = sometimes feel true; 4 = seldom feel true; 5 = never feel true.

[d]The scoring scale from 1 to 11 is interpreted as follows: 1 and 2 = strongly agree; 3 to 5 = slightly agree; 6 = undecided; 7 to 9 = slightly disagree; 10 and 11 = strongly disagree.

[e]Mean scores of both farm groups were found to be significantly different at the 0.05 confidence level.

and their work. The statements in Appendix Table XXV examining feelings of manifest anxiety found that farmers sometimes experienced periods of manifest anxiety.

The reliability and intrinsic values for manifest anxiety in Table XVII were the highest of any determination which in turn indicated that those statements in Appendix Table XXV were very effective in measuring manifest anxiety among farmers.[4] Both reliability and intrinsic values calculated in Table XVII indicate how well the statements used in measuring the specific attitude or level of satisfaction accurately. Results of the determination of self-esteem were all supportive of those found for anomia and manifest anxiety. Table XVII indicates no differences between the mean score of both classified farmers for manifest anxiety and self-esteem.

## IV. SATISFACTION WITH FARMING

One of the most important determinations analyzed in this chapter concerns the level of satisfaction farmers have with farming. This was of particular importance in the comparison between full-time and part-time farmers. All eight of the statements measuring the level of satisfaction with farming appearing in Appendix Table XXVII were adapted from a study by Yetley.[5] These statements were found to be effective in measuring satisfaction levels according to the reliability and intrinsic

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[4]J. P. Guilford, Psychometric Methods, 2nd ed. (New York: McGraw-Hill, Inc., 1954), pp. 378-379.

[5]Mervin J. Yetley, "Sociological and Economic Factors Related to Managerial Success" (unpublished Ph.D. dissertation, Ames, Iowa: Iowa State University, 1973), p. 109.

values shown in Table XVII. Although no statistical difference was found between the level of satisfaction with farming scores for either farm group in Table XVII, significant differences were found for individual statements in Appendix Table XXVII. Part-time farmers appeared to be more satisfied with the progress in attaining specific goals relating to farming than the full-time group. Also, part-time operators, on the average, were more satisfied with the income received from all sources than full-time farmers. One reason for this higher level of satisfaction among part-time farmers was that total average income from all sources was much greater than that of the full-time farmers. Other statements used in determining the level of satisfaction concerned the amount of time necessary in operating the farm. The mean scores for both farm groups were significantly different at the 0.05 confidence level for this statement (Appendix Table XXVII). Most full-time farmers were more satisfied with the amount of time required to operate the farm than the part-time group. The remaining statements concerning satisfaction with farming (Appendix Table XXVII) asked the individual if he enjoyed the kind of work involved in managing a farm. A significant difference was found between the mean scores for both groups of farmers. Results of the average scores indicate that full-time farmers enjoy a higher level of satisfaction in managing the farm than part-time farmers. This suggests that part-time farmers may work off the farm in a nonfarm occupation because of a lower level of satisfaction relating to farm management or the necessity to have a nonfarm employment.

# IV. ATTITUDES

Attitudes concerning certain items were the final sociological consideration made by this study. Droba defines an attitude as "a mental disposition of the human individual to act for or against a definite object."[6] The mental disposition farmers had toward profit, independence, credit, progressivism, and risk were major concerns of this study. A desired goal in examining attitudes toward these items was to identify any differences which might exist between full-time and part-time farmers. All statements utilized in determining attitudes were measured by use of an 11-point scoring scale (Appendix Tables XXVIII through XXXII).

## Attitude Toward Profit

Attitudes of both groups of farmers toward profit was an important item determined by three statements in Appendix Table XXVIII. Results of the computed mean scores for profit attitudes found that full-time farmers appeared to be undecided in agreeing that profit was of major importance in a farming operation (Table XVII). According to the average scores in Table XVII, part-time farmers "slightly disagreed" with the statements determining profit attitude in Appendix Table XXVIII. The average scores for full-time farmers appeared to be in agreement that profit is important in farming while part-time farmers tended to be undecided about its importance.

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[6] Gordon W. Allport, "The Historical Background of Modern Social Psychology," Handbook of Social Psychology Theory and Method, Edited by Gardner Lindsey, Vol. 1 (Reading: Addison-Wesley Co., 1954), p. 45.

Attitude Toward Independence

Statements in Appendix Table XXIX were used in determining farmers' attitudes toward independence. All four statements were answered by each farmer interviewed, and their answers represented the farmer's feeling of independence. Average scores for each statement among both farm groups were not found to be significantly different at the 0.05 level of significance. Also, the mean score computed for all the statements used in determining the attitudes toward independence in Table XVII found no significant difference between the groups of farmers. The results in Table XVII indicate that both part-time and full-time farmers feel that independence is of minor importance.

Attitude Toward Credit

The attitudes held by both full-time and part-time farmers toward credit was determined by this study. Credit, in recent times, has become an important element in the operation of a firm. Hopkins concluded that East Tennessee farmers possessed a less favorable attitude toward credit than farmers in Middle and West sections of the state.[7] Statements in Appendix Table XXX were some of the same statements selected and utilized by Hopkins.[8] Results of the analysis in Appendix Table XXX and Table XVII indicated that both full-time and part-time farmers, on the

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[7]James G. Snell, Robert J. Hopkins, and Ralph Barnett, Attitude of Tennessee Farmers Toward Credit, Bulletin 497 (Knoxville: The University of Tennessee Agricultural Experiment Station, June, 1972), p. 7.

[8]Robert John Hopkins, "Knowledge and Attitude Toward the Use of Credit by Farmers in Middle and East Tennessee" (unpublished Master's thesis, The University of Tennessee, Knoxville, 1970), p. 66.

average, had a less than positive attitude toward credit for farm purposes. Generally speaking, farmers in the study area appeared to be not inclined to use credit. Both groups of farmers responded to a statement saying that "the use of credit in farming operations is necessary" in disagreement (Appendix Table XXX). Responses from both farm groups failed to have any significant difference in their average scores (Table XVII).

Attitude Toward Progressivism

The willingness of farmers in the study area to accept new methods and techniques used in farming was examined. The attitudes farmers have in accepting new technology were identified by a total of seven statements in Appendix Table XXXI. None of the statements in Appendix Table XXXI indicated any significant difference between the mean scores between the two groups of farmers. On the average, both full-time and part-time farmers interviewed in the study area feel that "new ideas" and "new practices" in farming are important, however, the cost in adaptation is sometimes prohibitive more so for the part-time farmers than the full-time operator (Table XVII).

Attitude Toward Risk

Determination of attitudes toward risk among full-time and part-time farmers attempted to establish their tendencies to involve themselves in risk or uncertainty situations. Appendix Table XXXII lists four statements which were used in determining farmers' attitudes toward risk. Results of the determination found that part-time farmers were more likely to accept situations having risks than the full-time farmers.

Both types of farmers, according to Table XVII, page 66, had negative attitudes toward risk positions; however, part-time farmers' degree of agreement with the statements was greater than that of full-time farmers. Therefore, one can assume, based on the significantly different mean score shown in Table XVII, that part-time farmers' attitudes toward risk differ from that of full-time farmers in the sense that they are more willing to assume risk than full-time farmers.

## VI. SUMMARY

Generally speaking, few significant differences were found to distinguish part-time from full-time farmers in areas of anomia, levels of satisfaction, and attitudes. A limited number of individual statements used in determining certain levels of satisfaction with farming and attitudes were discovered to have mean scores significantly different at the 0.05 significance level (Appendix Tables XXIII through XXXII). Only attitudes toward risk by part-time farmers was significantly different from that of full-time farmers at the 0.05 level of significance (Table XVII).

# CHAPTER VI

## SOME COMPARISONS BETWEEN PART-TIME AND FULL-TIME FARMS AND FARM OPERATORS

One objective of this study was to present a contrast between two alternative ways of earning income from different types of farming operations in the study area. The two methods of farming which were considered were part-time and full-time operations. Characteristics of the farmers and the farm were areas of comparison between a typical part-time and full-time farmer.

The data used in these comparisons were collected from 128 part-time and 83 full-time farmers in the study area. These two groups of the surveyed population comprised 73.5 percent of the total 287 farms. The full-time farmers composed 28.9 percent of the total sample while the part-time farmers encompassed 44.6 percent.

### I. OPERATOR CHARACTERISTICS

The average age of part-time farmers in the study area was 43 years, as compared with 48 years for full-time operators during the initial survey in 1974 (Table XVIII). The difference between the average age of both groups was found to be significantly different at the 0.05 significance level. Part-time farmers, on the average, appear to be younger than full-time operators. One possible reason to account for the significant age difference between part-time and full-time farmers is the ease with which younger individuals, having full-time nonfarm employment, may enter farming on a part-time basis. These farmers

TABLE XVIII

COMPARISON OF FARMER CHARACTERISTICS AND SIGNIFICANT DIFFERENCES BETWEEN THE PART-TIME AND FULL-TIME GROUPS OF FARMERS

| Characteristic | Farm Groups | | | |
|---|---|---|---|---|
| | Part-Time Farmers | | Full-Time Farmers | |
| | Number | Mean | Number | Mean |
| Operator age[a] | 128 | 43 | 83 | 48 |
| Operator education | 127 | 9.5 | 82 | 9.3 |
| Family size[a] | 128 | 3.7 | 83 | 3.0 |
| Frequencies of contacts with county extension agent[a] | 118 | .5 | 74 | 1.3 |

[a]Significantly different at the 0.05 level.

could have begun farming at an earlier age than full-time farmers, thus avoiding much of the high investment necessary to farm on a full-time basis.

On the average, part-time farmers had 9.5 years of formal education while full-time farmers averaged 9.3 years. No significant difference was found between the average years of education for the two groups. Comparisons of the average level of education for both groups are shown in Table XVIII.

Another characteristic of the farmers which was compared was the size of the family. The average size of the part-time farm family was 3.7 members while that of the full-time group was 3 members. According to the results of the t-test of significance between the average family size of both groups referred to in Table XVIII, the average family size among part-time and full-time farmers was significantly different at the 0.05 confidence level. Family members were important in accomplishing much of the labor requirements on a part-time farming operation.

## II. CONTACTS WITH COUNTY EXTENSION AGENT

An indirect characteristic of farmers which relates directly to the operation of the farm is the use of farm information services. One of these types of services identified by this study was the annual contacts farmers had with their local county extension agent. During the initial farm interview, each farmer was asked how often do they consult such a service. The average frequency of contacts with county extension agents was less than once a year (.5) for part-time farmers and just over once a year (1.3) for full-time farmers (Table XVIII). The frequency

with which these two groups of farmers made contact with this information service was found to be significantly different, at the 0.05 significance level. One reason full-time farmers consulted their county extension agent more often than part-time farmers could be that the size of the full-time operation is larger than that of the part-time operation resulting in larger and more numerous enterprises than those on part-time farms.

## III. FARM RECORD KEEPING

The incidence of farm management practices was an important area selected in comparing part-time and full-time farming. An indicator used to determine if any kind of farm management practices were existent was accomplished by asking each farmer if farm records were kept. If farm records did exist, then each farmer was subsequently questioned regarding the purpose of these records. Table XIX indicates that the majority of both part-time and full-time farmers had annual farm record reports. A major purpose in instituting management necessary in maintaining farm records was for income tax purposes (Table XIX).

## IV. QUALITY OF FARM MANAGEMENT

One final consideration made by this study regarding farm management of both groups of farmers concerned a personal evaluation of their ability to manage a farm. Each farmer was asked to respond to the following question: "If you were asked to apply for a position as manager of a large, modern farm of the same type you now operate and most other farm managers that you know were also applying, how would you rank

TABLE XIX

DETERMINATION OF FARM RECORDS BEING MAINTAINED AND THEIR PURPOSE ON FULL-TIME AND PART-TIME FARMS

| Question | Response | Farm Groups | | | |
|---|---|---|---|---|---|
| | | Full-Time Farmers[a] | | Part-Time Farmers[a] | |
| | | Number | Percent | Number | Percent |
| Are farm records maintained on this farm? | Yes | 57 | 74.0 | 87 | 70.2 |
| | No | 20 | 26.0 | 37 | 29.8 |
| For what purpose are farm records maintained? | Income tax purposes | 45 | 78.9 | 77 | 89.5 |
| | Farm management purposes | 12 | 21.1 | 9 | 10.5 |

[a]No significant difference was found between the average response of both part-time and full-time farmers maintaining farm records and purposes of these records. The confidence interval used in the t-test was 0.05.

yourself among these managers as being suited for the position?" A scale from 1 to 10 was established to supply a choice of response. The rating of 1 represented being the 10 percent most suited to manage a farm, while subsequent declining numbers indicated lower 10 percentage categories of farmers. The average rating was 6.55 for full-time farmers and 5.95 for part-time farmers. Average rating for both groups of farmers was not significantly different at the 0.05 significance level. Percentage composition for both groups is displayed in Table XX.

## V. FARM CHARACTERISTICS

### Land Use Characteristics

Among the farm characteristics which were investigated were land use pattern and land tenure on both part-time and full-time farms. Distinguishing differences between the averages for each group were studied. Several farm characteristics were hypothesized to be significantly different. The average size of farm acreage was thought to be significantly different between both farm groups. Also, the average acreage use patterns were thought to be higher for full-time farmers than part-time and, thus, be significantly different. These farm characteristics were thought to be statistically different because of the higher demands a full-time operator may have on farm resources. Average farm characteristics relating to land use patterns were all found to be significantly different at the 0.05 significance level (Table XXI). The farm land use patterns listed in Table XXI included total farm size, row crop, pasture, and timber acreage. Full-time farmers owned an average of 79.2 acres while part-time farmers averaged 36.1 acres. The number of

TABLE XX

COMPARISON OF FARM MANAGEMENT EVALUATION PERCENTAGE RATING SCALES FOR FULL-TIME AND PART-TIME FARMERS IN THE STUDY AREA[a]

| Ten Percentage Rating Scale Categories[b] | Farm Group | | | |
|---|---|---|---|---|
| | Full-Time Farmers | | Part-Time Farmers | |
| | Number | Percent | Number | Percent |
| 1 | 8 | 11.1 | 9 | 8.0 |
| 2 | 0 | 0.0 | 2 | 1.8 |
| 3 | 0 | 0.0 | 5 | 4.4 |
| 4 | 1 | 1.4 | 7 | 6.2 |
| 5 | 20 | 27.8 | 41 | 36.3 |
| 6 | 5 | 6.9 | 6 | 5.3 |
| 7 | 6 | 8.3 | 5 | 4.4 |
| 8 | 14 | 19.4 | 17 | 15.0 |
| 9 | 4 | 5.6 | 5 | 4.4 |
| 10 | 14 | 19.4 | 16 | 14.2 |

[a]Results of t-test for significance of differences between means for both farm groups were not found to be significantly different at the 0.05 confidence level.

[b]Ten percentage rating scale categories represent each farmer's own opinion. Rating scale category of 1 indicates that a farmer considers himself to be in the top 10 percent of the farmers in the hypothetical situation described in the survey.

TABLE XXI

COMPARISON OF FARM LAND USE CHARACTERISTICS AND SIGNIFICANT DIFFERENCES BETWEEN THE PART-TIME AND FULL-TIME GROUPS OF FARMERS, 1974

| Characteristic | Farm Groups | | | |
|---|---|---|---|---|
| | Part-Time Farmers | | Full-Time Farmers | |
| | Number | Mean | Number | Mean |
| Total owned farm acreage[a] | 127 | 36.1 | 82 | 79.2 |
| Total row crop acreage[a] | 105 | 4.3 | 68 | 16.8 |
| Total pasture acreage[a] | 101 | 32.5 | 64 | 70.5 |
| Total timber acreage[a] | 70 | 13.7 | 47 | 39.0 |
| Rented in acreage[a] | 127 | 12.6 | 82 | 39.1 |

[a]Means for both farm groups were significantly different at 0.05 confidence level.

average acres used in 1974 for row crops among full-time and part-time farmers was 16.8 and 4.3 acres, respectively. Average pasture acreage which was one of the largest land use classes found on part-time farms in the study was 32.5 acres. Full-time farms' average acreage of pasture was significantly different averaging 70.5 acres. Timber acreage averaged higher for full-time farms at 39 acres than the 13.7 acres found on part-time farms.

Total average acreage rented in by both groups of farmers were compared in Table XXI. Average acreage rented in by full-time farmers and part-time farmers was 39.1 and 12.6 acres, respectively. Results of this comparison appear to be consistent with the other comparisons which indicate full-time farming operations to be larger than those on part-time farms.

Farm Incomes

One apparent difference between full-time and part-time farmers in the study area was farm income. Figure 2 presents the ranges of both 1974 gross and net farm incomes for both groups of farmers. In Figure 2 full-time farmers in the study area during 1975 usually had higher gross farm incomes than part-time farmers. In Table XXII, full-time farmers had the highest farm incomes for 1974. Gross farm incomes for 1974 averaged $8,505 for full-time operators and $2,817 for the part-time group (Table XXII). Full-time farmers' average net farm income in 1974 exceeded that of part-time operators by 45 percent. Numerical average incomes of both farm groups were found to be significantly different at the 0.05 significance level (Table XXII).

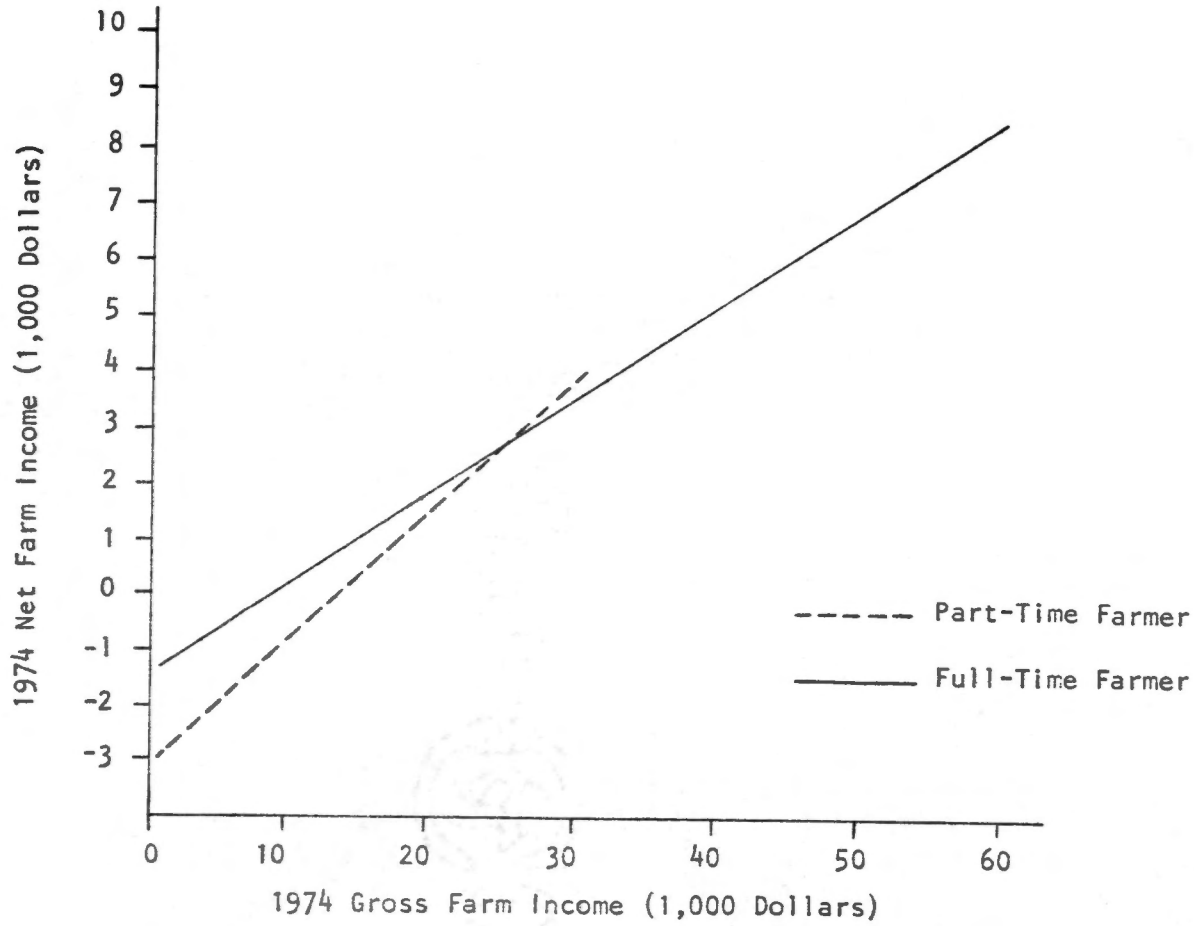



Figure 2. Relationship Between 1974 Net Farm Income and 1974 Gross Farm Income of Part-Time Farmers in the Study Area[a]

[a]The 1974 gross farm income included 68 and 114 full-time and part-time farmers, respectively. The 1974 net farm income included 52 and 96 full-time and part-time farmers, respectively.

TABLE XXII

COMPARISON OF AVERAGE FARM INCOMES FOR FULL-TIME AND PART-TIME FARMERS

| Farm Group | Average 1974 Farm Incomes | |
|---|---|---|
| | Gross Farm Income[a] | Net Farm Income[a] |
| | dollars | |
| Full-time | 8,505 | 2,305 |
| Part-time | 2,817 | 1,033 |

[a]Means for both farm groups were significantly different at the 0.05 level.

Part-time farmers in the study area appear to have a higher ratio of 1974 net to gross farm incomes than the full-time farm group. For full-time operators, this ratio was 27 percent while for the part-time group, the ratio was 36 percent. These percentages represent the calculated ratio of net to gross farm income at the respective group averages and do not apply for the entire sample. A higher ratio of net to gross farm incomes represents a better ability to regulate costs. Results of the preceding ratio calculations for part-time farmers indicate that, on the average, part-time farmers appear to be in a better position to achieve more net farm income dollars from the total gross farm income than full-time operators could in 1974. It should be noted that net farm income was based on estimates made by each farmer.

# CHAPTER VII

## SUMMARY

Part-time farming in the 12-county study area of Upper East Tennessee has grown in significance to include a large percentage of the farm population. An attempt was made by this study to establish a profile of a typical part-time farmer regarding farm resources and operator characteristics. Comparisons of these characteristics and attitudes were also made between full-time and part-time operations in the study area. Specifically, the purpose of this study was to document the existing nature of part-time farming and to distinguish it from other types of farming.

In 1975, an initial survey was conducted in a 12-county area of Upper East Tennessee. Among the 287 farmers interviewed, 128 farmers were identified as part-time farmers, according to a specified criteria relating to the amount of time devoted to nonfarm employment. Farm operators that worked 240 or more days in 1974 in an off-farm job were considered as part-time farmers. A subsample of 32 part-time farmers were randomly selected from the 128 identified in the initial survey. These farmers were interviewed a second time during 1976 to collect specific data relating to their off-farm job and inventory of land, labor, and capital on the farm.

The typical part-time farm in the study area was found to be small averaging only 36.1 acres among the 128 operators. Land being used for row crops was particularly small averaging only 4.3 acres. The most

significant land-use pattern was the 32.5 average acres used for pasture on part-time farms.

The most common type of land acquisition method for the first parcel of land acquired by part-time farmers was by purchase. Only 28 percent of the first parcels were inherited by part-time farmers.

Part-time farmers rented in more land for their own operation than they rented out. An average of 12.6 acres was rented in by part-time farmers. The total average acreage rented out among the part-time farmers interviewed was only 1.6 acres.

One of the most crucial resource needs identified by over half of the 32 farmers interviewed was labor. Managing the labor needs of the typical part-time farm was observed as being a problem for many. Time was the most limiting factor regarding the farm labor management by the operator.

The majority of all part-time farms appeared to have had a sufficient amount of farm machinery. Average total investment in this capital item was $4,770. This total average investment among 32 part-time farmers accounted for an average of eight pieces of farm machinery per farm. Many of the farmers (65 percent) were able to farm with limited amounts of farm machinery by borrowing from other farmers in the area. This in turn helped to limit their capital investment in farm machinery. Half of the 32 part-time farmers had farm custom work done on their farm which helped in limiting the machinery investment.

Variation in amount of investment in farm machinery was accounted for by one significant variable according to the results of a multiple linear regression analysis. Gross farm income for 1975 was found to be

significantly related to investment in farm machinery. It accounted for 38 percent of the variation in the investment in farm machinery. These results appeared to suggest that income derived from the farming operation was used for machinery investment purposes.

The single resource item which had the highest investment value was land. Among the 32 part-time farmers, amount of investment in land accounted for 70 percent of the total farm investment.

Farm buildings varied in size and condition on each part-time farm. The average investment found for these buildings was $3,281 for an average of two farm buildings which were built after acquisition of the farm.

Virtually all part-time farms contacted in the study area produced burley tobacco. Income derived from this crop alone composed 90 percent of the total 1975 net farm income of those farmers growing tobacco. Burley tobacco fit well into the part-time farm operation since it required limited amounts of acres and could easily be marketed in the Upper East Tennessee area.

The most popular livestock enterprise existing on part-time farms in 1975 for the study area was beef cows and heifers. A total of 69 percent of the 32 part-time farms had beef cows and heifers. The average size of the herd was only six cattle. Both swine and dairy livestock enterprises were not reported on many farms. Since pasture acreage on part-time farms is appreciably higher in total acreage than other land uses, it seems to lend itself to many livestock enterprises. Livestock investment was not accounted for in the study.

Farm expense data gathered in the second survey of 32 part-time farmers for the business year 1975 averaged $2,481. Crop expenses such

as seed, fertilizer, sprays, and fuel composed 26.8 percent of the average total farm expenses on part-time farms in 1975. Repair and fuel expenses were next in significance after crop expenses.

Farm incomes were found to be low for the typical part-time farmers. The average 1974 gross and net farm incomes were $2,817 and $1,033, respectively. Several significant relationships were found between 1974 gross farm income and other variables. The larger farms in total owned acreage usually had an above average gross farm income in 1974. Other variables found to be significantly related to both gross and net farm incomes in 1974 according to calculated Pearson correlation coefficients were land rented in, row crop, and pasture acreage, and total 1974 household income. From these results, it would appear that low farm incomes found on part-time farms could logically be an indicator of the size of the farm business.

Investigated characteristics relating to the part-time farmer's nonfarm employment activities were his off-farm income, type occupation, commuting distance traveled, opportunities for off-farm employment in the area. Nonfarm incomes were significant in raising the level of living for nearly all part-time farm families.

An average of over $8,000 was added to the total household income through the off-farm employment of the farm operator. The nonfarm occupation having the most (31.2 percent) part-time farmers was in the mechanical skill trade occupational group. Factory workers, production machine operators, machinists, and mechanics were typical occupations in this particular occupational group. Commuting distance part-time farmers traveled averaged 17.7 miles one way. Usually, the greater the commuting

distance traveled, the more difficult it becomes to manage the farm due to the scarcity of time. Finally, the off-farm employment opportunities as perceived by the part-time farmers were noted. It was found that almost half of the 32 part-time farmers described off-farm job opportunities as being "difficult to find."

The average part-time farm household income for the whole family unit was $11,739 in 1974. Net farm income in 1974 composed only 9 percent of the total household income for that year. The average per capita total 1974 household income for an average part-time farm family size of 3.7 members was $3,187. These calculated income figures indicate the importance off-farm income has on the economic well-being of the part-time farm household.

Attitudes and feelings held by both full-time and part-time farmers did not differ significantly. Although the attitude these farmers have toward risk was numerically different, the interpretation of these determinations was not different. Part-time farmers were determined to accept a risky situation more readily than a full-time farmer. Perhaps the steady flow of income part-time farmers receive from nonfarm employment would cause them to accept losses in their farming operations more readily than full-time farmers.

According to the calculations of reliability and intrinsic validity values, all determinations appeared to correctly measure all sociological items. The lowest value for the calculated reliability was for the determination of satisfaction with life. These values, however, appeared to be high enough to use all statements relating to satisfaction with life.

The next significant type farming found in the study area other than part-time was full-time farming. Several characteristics relating to the operator and farm were found to be significantly different between full-time and part-time farmers.

Part-time farmers were younger than full-time farmers averaging 43 and 48 years, respectively. These results would appear to indicate that part-time farmers have a greater opportunity to begin farming at an earlier age than full-time farmers. The steady flow of off-farm income could easily have provided this opportunity.

Family size was another distinguishing characteristic of the part-time farm household. The average number of family members was found to be significantly different with part-time and full-time farmers having 3.7 and 3.0 family members, respectively. All family members on the part-time farm made important labor contributions in the farm operation.

In 1974, full-time farmers on the average consulted their local county extension agents significantly more than part-time farmers. Full-time farmers averaged over one contact with their extension agent while part-time farmers made less than one contact. The larger farming operations found on full-time farms could have been respondible for the variation of contacts between the two groups of farmers.

Several other sources of information used among 54 part-time farmers listed in order of importance were: Agricultural Stabilization and Conservation Service (20 percent), other farmers and local farmers' cooperative (each 15 percent), Soil Conservation Service (13 percent), and veterinarian (7 percent). A total of 16 or 30 percent of the 54 farmers

indicated that no information service was utilized in operation of the farm.

All farm characteristics relating to land use and farm incomes were found to be significantly different between part-time and full-time farms. The size of the farms as represented by the average total farm acreage owned by the two groups of farmers was significantly different. Average farm acreage owned was 36.1 acres for part-time farms and 79.2 for full-time operations. Row crop acreage also averaged more on full-time than on part-time farms. The average row crop acres found on part-time and full-time farms in the study area were 4.3 and 16.8 acres, respectively. Average acreage devoted to pasture on both part-time and full-time farms was the highest among all land uses (32.5 and 70.5, respectively). All of the land uses examined indicated that full-time farming operations in the study area were larger than part-time farms.

The most apparent farm characteristic distinguishing part-time and full-time farms in the study area was farm income. In 1974, gross farm income averaged $8,505 for full-time operators and $2,817 for the part-time farm group. Net farm incomes among full-time and part-time farmers averaged $2,305 and $1,033, respectively, in 1974. Both average gross and net farm incomes in 1974 were significantly different. The average farm incomes indicate that on the average part-time farmers appear to be in a better position to achieve a higher percentage of gross farm income in the form of net farm income dollars than full-time operators in 1974.

## Implications

Based on results of this study, one can only speculate as to the growth of part-time farming in Upper East Tennessee. If the historical

trend continues in the area, part-time farming will continue to grow. However, as land values increase, more farmers may want to sell out and discontinue all farming activities. Thus, the future growth of part-time farming may depend on the income generating capacity of the farm. If farm incomes decline, full-time farmers may resort to farming on a part-time basis. The stability of the nonfarm income attracts small farmers that may not have the agricultural resources enabling the farm to generate a sufficient household income. Also, the stability of nonfarm incomes may attract the full-time farmers during periods of declining farm prices. As farm production costs rise in the years ahead, the off-farm income component of farm household income will grow in importance.

Data presented in this study suggest that the interest in part-time farming is wide spread in each of the 12 counties. Even though production costs remain prohibitive to individual farmers just getting started in farming, the desire to farm remains strong with these people. Whether it is producing tobacco on a specified allotment or operating a cow-calf livestock enterprise, farmers appear to enjoy the farm and off-farm work combination.

Average farm income of part-time and many full-time operators was well under $5,000 while off-farm income remains well over $8,000. Since agricultural resources of land, farm machinery, and buildings continue to be very valuable assets from an economic view, liquidation of these assets on part-time farms with low farm incomes would be advantageous. The monetary interest derived from the existing value of these assets would provide an income generating capacity equal to or greater than annual net farm income. In situations where this economic adjustment

could occur, the part-time farmer continues to be involved with farming.

Several aspects support the continued uneconomical farming activity by some part-time farmers. First, the part-time farmer may not have the knowledge at hand to adequately provide justification for such an economic decision. On the average, part-time farmers had just over a 9th grade education. Second, part-time farmers may derive nonmonetary value by farming. Life in the country, freedom or independence, and the farm way of life are among a few reasons why part-time operators farm. Among 121 part-time farmers answering the question concerning why they started farming, over 22 percent stated that the enjoyment of the farm life created the initial desire to farm. Third, participation in farming on a part-time basis may be done because of tax advantages.

In conclusion, the results of this study indicate that part-time farmers may not select the most economical alternative regarding the use of their resources because of personal preferences for the nonmonetary aspects of life associated with part-time farming.

## Additional Research Needs

In view of the results of this study, further research appears to be needed. Several of these further research needs are:

1. To investigate the effect of off-farm employment on farm mechanization management practices and agribusiness sales and services needed by part-time farmers.

2. To determine various production alternatives conducive to part-time farming.

3. To identify economic conditions of feasibility for the occurrence of farming on a part-time basis.

4. To evaluate part-time farming from a rural development perspective.

5. To determine the potential for increasing incomes of rural residents.

6. To establish profiles of part-time farming in Middle and West Tennessee.

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TABLE XXIII

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING FEELINGS OF ANOMIA AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values[b] |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| When you get right down to it, no one cares what happens to me and my family. | 1 to 5 | 72 | 3.8 | 118 | 4.1 | 1.51 |
| The life of the average man is getting worse--not better. | 1 to 5 | 72 | 2.9 | 116 | 3.0 | 0.35 |
| People don't really care what happens to the next fellow. | 1 to 5 | 72 | 3.1 | 118 | 3.2 | 0.60 |
| I get the feeling that life is not very useful. | 1 to 5 | 71 | 4.3 | 118 | 4.5 | 1.29 |
| These days I get the feeling that I'm just not a part of things. | 1 to 5 | 72 | 3.9 | 118 | 4.0 | 0.41 |
| These days I don't know who I can depend on. | 1 to 5 | 72 | 3.4 | 118 | 3.4 | 0.02 |
| It is hardly fair to being a child into the world the way things look now. | 1 to 5 | 71 | 2.9 | 118 | 3.0 | 0.43 |

[a]The scoring scale from 1 to 5 is interpreted as follows: 1 = almost always feel true; 2 =

Table XXIII, continued

often feel true; 3 - sometimes feel true; 4 - seldom feel true; 5 - never feel true.

[b]No significant difference of mean scores was found at the 0.05 confidence level between part-time and full-time farmers.

TABLE XXIV

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING SATISFACTION WITH LIFE AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values[b] |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| I find a good deal of happiness in life. | 1 to 5 | 72 | 1.5 | 117 | 1.5 | -0.20 |
| I generally feel in good spirits. | 1 to 5 | 72 | 1.5 | 118 | 1.6 | 0.37 |
| I am very satisfied with life. | 1 to 5 | 71 | 1.5 | 118 | 1.5 | 0.44 |

[a]The scoring scale from 1 to 5 is interpreted as follows: 1 = almost always feel true; 2 = often feel true; 3 = sometimes feel true; 4 = seldom feel true; 5 = never feel true.

[b]No significant difference of mean scores was found at the .95 confidence level between part-time and full-time farmers.

TABLE XXV

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING MANIFEST ANXIETY AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| I am calm and not easily upset. | 1 to 5 | 71 | 2.1 | 118 | 2.6 | -2.63[b] |
| I feel such great restlessness that I cannot sit long in a chair. | 1 to 5 | 72 | 3.6 | 118 | 3.4 | -0.71 |
| I feel difficulties piling up so high that I cannot overcome them. | 1 to 5 | 71 | 4.1 | 118 | 4.3 | 0.97 |
| I shrink from facing a crisis or difficulty. | 1 to 5 | 72 | 4.2 | 118 | 4.3 | 0.61 |
| I am a high strung person. | 1 to 5 | 71 | 4.0 | 118 | 4.0 | 0.00[b] |
| I feel that I am about to go to pieces. | 1 to 5 | 71 | 4.6 | 118 | 4.6 | -0.11 |

[a]The scoring scale from 1 to 5 is interpreted as follows: 1 = almost always feel true; 2 = often feel true; 3 = sometimes feel true; 4 = seldom feel true; 5 = never feel true.

[b]Mean scores of both farm groups were found to be significantly different at the .95 confidence interval.

TABLE XXVI

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING SELF-ESTEEM AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values[b] |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| I am a useful guy to have around. | 1 to 5 | 71 | 1.9 | 117 | 2.0 | 0.82 |
| I feel that I can't do anything right. | 1 to 5 | 72 | 4.1 | 118 | 4.4 | -1.61 |
| When I do a job, I do it well. | 1 to 5 | 71 | 1.6 | 118 | 1.4 | -1.85 |
| I feel that my life is not very useful. | 1 to 5 | 69 | 4.5 | 116 | 4.5 | 0.10 |

[a]The scoring scale from 1 to 5 is interpreted as follows: 1 = almost always feel true; 2 = often feel true; 3 = sometimes feel true; 4 = seldom feel true; 5 = never feel true.

[b]No significant difference of mean scores was found at the .95 confidence level between part-time and full-time farmers.

TABLE XXVII

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING SATISFACTION WITH FARMING AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| Are you satisfied with your present situation when you compare it to similar farmers in this area? | 1 to 11 | 72 | 8.8 | 116 | 8.4 | -0.94 |
| Are you satisfied with the progress that you are making toward the goals which you set for yourself in farming? | 1 to 11 | 72 | 6.2 | 116 | 7.5 | 2.46[b] |
| Are you satisfied that people of your community give proper respect to you as a farmer? | 1 to 11 | 72 | 9.7 | 114 | 9.3 | -1.53 |
| Are you satisfied with your present farm income? | 1 to 11 | 72 | 4.3 | 117 | 4.4 | 0.22 |
| Are you satisfied with your present income from all sources? | 1 to 11 | 71 | 4.4 | 117 | 6.5 | 3.65[b] |
| Are you satisfied with the amount of time which you must devote to your farm? | 1 to 11 | 72 | 8.1 | 117 | 6.9 | -2.34[b] |

Table XXVII, continued

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| Are you satisfied with your present situation when you think about what you hoped for when you first began farming? | 1 to 11 | 72 | 6.1 | 117 | 7.1 | 1.86 |
| Do you enjoy the kind of work that you do as the manager of your farm? | 1 to 11 | 72 | 10.5 | 117 | 9.8 | -3.21[b] |

[a]The scoring scale from 1 to 11 is interpreted as follows: 1 and 2 = strongly dissatisfied; 3 to 5 = slightly dissatisfied; 6 = undecided; 7 to 9 = slightly satisfied; 10 to 11 = strongly satisfied.

[b]Mean scores of both farm groups were found to be significantly different at the .95 confidence level.

TABLE XXVIII

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING ATTITUDES TOWARD PROFIT AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values[b] |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| The only real goal in farming is to make money. | 1 to 11 | 72 | 5.0 | 115 | 5.5 | 0.81 |
| The greatest satisfaction in farming comes in running a highly profitable operation. | 1 to 11 | 71 | 7.3 | 115 | 7.8 | 0.90 |
| The most successful farmer is the one who makes the most profit from his farm operation. | 1 to 11 | 72 | 6.7 | 117 | 7.5 | 1.52 |

[a]The scoring scale from 1 to 11 is interpreted as follows: 1 and 2 = strongly agree; 3 to 5 = slightly agree; 6 = undecided; 7 to 9 = slightly disagree; 10 to 11 = strongly disagree.

[b]No significant difference of mean scores was found at the .95 confidence level between part-time and full-time farmers.

TABLE XXIX

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING ATTITUDES TOWARD INDEPENDENCE AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values[b] |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| For the most part an individual should "go it alone" and make his own decisions. | 1 to 11 | 72 | 5.0 | 116 | 6.0 | 0.57 |
| I don't like to feel obligated to other people. | 1 to 11 | 72 | 8.3 | 116 | 8.6 | 0.62 |
| Perhaps the greatest reward in running a farm is the opportunity to make your own decisions. | 1 to 11 | 71 | 9.2 | 116 | 9.5 | 0.57 |
| Having the freedom to make up my own mind is, to me, one of the major advantages in farming. | 1 to 11 | 72 | 9.5 | 116 | 10.0 | 1.42 |

[a]The scoring scale from 1 to 11 is interpreted as follows: 1 and 2 = strongly agree; 3 to 5 = slightly agree; 6 = undecided; 7 to 9 = slightly disagree; 10 to 11 = strongly disagree.

[b]No significant difference of mean scores was found at the .95 confidence level between part-time and full-time farmers.

TABLE XXX

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING ATTITUDES TOWARD CREDIT AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values[b] |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| The government should support credit agencies so that they can better supply credit to the farmer. | 1 to 11 | 72 | 9.2 | 115 | 8.8 | -0.97 |
| Farmers who borrow money to put in their crops are not good managers. | 1 to 11 | 72 | 3.8 | 116 | 4.3 | 0.57 |
| It is easier for the average farmer to obtain long-term credit now than it was 10 years ago. | 1 to 11 | 66 | 6.7 | 109 | 6.2 | -0.85 |
| Farmers who use credit lose some of their freedom to make their own decisions. | 1 to 11 | 72 | 6.1 | 116 | 7.0 | -1.53 |
| A good farm manager will borrow money to buy land and machinery, etc., even if he has to mortgage some of his farm operation. | 1 to 11 | 72 | 8.2 | 116 | 7.4 | -1.50 |
| The use of credit in farming operations is necessary. | 1 to 11 | 72 | 9.5 | 116 | 9.2 | -0.69 |

[a]The scoring from 1 to 11 is interpreted as follows: 1 and 2 = strongly agree; 3 to 5 =

Table XXX, continued

slightly agree; 6 = undecided; 7 to 9 = slightly disagree; 10 to 11 = strongly disagree.

[b]No significant difference of mean scores was found at the .95 confidence level between part-time and full-time farmers.

TABLE XXXI

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING ATTITUDES TOWARD PROGRESSIVISM AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values[b] |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| Before trying any new practice or idea, it is pretty wise to wait and see how it is working out for some of the other farmers. | 1 to 11 | 70 | 7.0 | 115 | 7.7 | -1.35 |
| The best way to solve problems is to dig in and work on them immediately instead of wasting time trying to think of better or easier solutions. | 1 to 11 | 72 | 8.4 | 116 | 8.2 | -0.37 |
| In deciding about making changes in his business a farmer's first consideration should be "is it profitable"? | 1 to 11 | 72 | 9.1 | 116 | 9.5 | 1.00 |
| A farmer's willingness to spend time running the day-to-day operations, such as cultivating or toping the tobacco crop, is more important in a successful farming operation than all the new ideas he reads or hears about. | 1 to 11 | 72 | 7.3 | 117 | 8.1 | -1.54 |
| New ideas in farming are allright but I don't use very many of them. | 1 to 11 | 72 | 6.1 | 116 | 7.2 | -1.95 |

Table XXXI, continued

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values[b] |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| A farmer really can't afford to experiment with different ideas in the farming business. | 1 to 11 | 72 | 5.9 | 116 | 4.8 | 0.23 |
| Many farmers spend too much time trying to think through different ways of doing a job rather than going ahead and doing the job the way they already know. | 1 to 11 | 71 | 7.7 | 114 | 6.9 | 1.49 |

[a]The scoring from 1 to 11 is interpreted as follows: 1 and 2 = strongly agree; 3 to 5 = slightly agree; 6 = undecided; 7 to 9 = slightly disagree; 10 to 11 = strongly disagree.

[b]No significant difference of mean scores was found at the .95 confidence level between part-time and full-time farmers.

TABLE XXXII

STATEMENTS AND ANALYSIS OF SCORES USED IN DETERMINING ATTITUDES TOWARD RISK AMONG FULL-TIME AND PART-TIME FARMERS

| Statements | Scoring Scale[a] | Farm Groups | | | | T-Values |
|---|---|---|---|---|---|---|
| | | Full-Time Farmers | | Part-Time Farmers | | |
| | | No. | Ave. Score | No. | Ave. Score | |
| I would rather take more of a chance on making a big profit than to be content with a smaller but less risky profit. | 1 to 11 | 71 | 5.0 | 115 | 4.6 | -0.85 |
| A farmer must be willing to take a great number of risks to get ahead. | 1 to 11 | 72 | 9.9 | 116 | 9.8 | -0.45 |
| I regard myself as the kind of person who is willing to take a few more risks than the average farmer. | 1 to 11 | 72 | 6.7 | 115 | 5.8 | -1.54 |
| It's good for a farmer to take risks when he knows his chance of success is fairly high. | 1 to 11 | 72 | 9.7 | 116 | 8.8 | -2.57[b] |

[a]The scoring from 1 to 11 is interpreted as follows: 1 and 2 = strongly agree; 3 to 5 = slightly agree; 6 = undecided; 7 to 9 = slightly disagree; 10 to 11 = strongly disagree.

[b]Mean scores of both farm groups were found to be significantly different at the .95 confidence interval.

# VITA

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