Analysis of Employment Choices with Special Emphasis on Farm Employment

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TABLE OF CONTENTS

ANALYSIS OF EMPLOYMENT CHOICES WITH SPECIAL EMPHASIS ON FARM EMPLOYMENT

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Choice of occupation is based in part on economic considerations such as opportunity costs and comparative advantage. Much research has been devoted to the study of labor markets but farm workers and operators are routinely excluded from the samples studied. Most of the reports concerning the farmer are based on accounting techniques or rooted in sociological and anthropological interpretations. In contrast, this report includes farm workers and farm operators in the economic analysis of returns to labor. A model is developed that evaluates the contribution of individual productivity, and social and locational characteristics to earnings. The opportunity cost of a worker remaining in farming while qualified to be in another employment category is evaluated.

The purpose of this study is two-fold. First, economic theory concerning choice of occupation is evaluated for farm employment. Second, the information sought is vital to policy decisions for manpower programs as well as in farm policy.

The first objective of this study is to provide data and information on the characteristics of a cohort of young men, some of whom are engaged in farming activities. Second, the economic returns to productivity characteristics of the average individual in six different employment categories are examined. Earnings profiles are presented and the opportunity cost of remaining in farming when qualified for alternative employment is evaluated.

The presentation of the study is as follows: First, an economic model of the choice of occupation is presented. Then, the cohort survey is described

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followed by a section on the productivity, social and locational characteristics of the cohort. In the next section the econometric model which describes the contribution of those characteristics to earnings is formulated. Then the regression analysis is conducted and the resultant age-earnings profiles are presented. The report ends with a section which summarizes the work and discusses the implications of the results of the model.

Economic Model

Economists assume that rational choices are made by individuals when they choose their various occupations. The rational choices are made on the basis of comparative advantage, suggesting that individuals with the greatest potential advantage in occupation i will choose to be employed in that occupation. Each alternative is composed of an "average" worth plus some random component that is unique to the situation. The random effect is composed of unobservable characteristics of the alternatives and deviation of the preferences of the individual from the "average" individual. A change in occupation (migration) is assumed to be strongly influenced by the worker's anticipated earnings in alternative i versus anticipated earnings resulting from working in occupation j. The selection of occupation is interpreted as an economic choice.

The economic role of labor mobility, then, is to shift workers from jobs in which the value of their marginal contribution to production is low to jobs in which it is higher. However, the transition is not smooth. Involuntary unemployment may exist because of downward inflexible wages, immobility of labor or lack of skills. Certain individuals may require relatively higher wages to compensate for relocation. Opportunity costs describe the value sacrificed by the decision to chose one alternative over the next best alternative. The opportunity cost of employment is the wages in the next best job foregone by the worker as a result of devoting his time to the current job.

Earnings Are Based on Productivity Characteristics

In production theory, the incentive to expand and improve physical resources depends on the expected rate of return. The same theory can be used to explain returns to improvements in the effectiveness and amount of human resources. Investments made by the individual (or employer) which improve effectiveness of the human resource add to the efficiency of production just as occurs with investments in capital goods. By making investments in schooling, training and health, the productivity of the worker is enhanced. The enhancement is called investment in human capital and the model has been used to describe the costs incurred by people to attain utility gains.

The basic framework of the human capital model (Mincer, 1958, 1974; Schultz,1961; Becker, 1975; and Chiswick, 1974) is one in which the returns to an individual from labor market activity are a function of the individual's stock of training. Capital is defined as anything produced at a cost and providing useful services over time in either production or consumption. Increasing the stock of knowledge required to perform a job would be a capital cost. However, the capital embodied in a person is vastly different from the capital costs of a washing machine. The knowledge gained can not be sold, but can be rented to others. The conditions under which the rental takes place are also important.

Because we have no way of directly measuring units of human capital, the effect that capital investment has on earnings potential can be a good proxy. The simple schooling model of Mincer (1958) is given by:

$$\ln Y = a_0 + a_1 S + e$$

where lnY is the natural log of earnings, S is schooling, and e is an error term to account for the unobserved determinants of earnings. Mincer treats all workers homogeneously in terms of capacity and opportunity for earnings. If income equals initial endowment plus the average rate of return to investment multiplied by the volume of the investment, the coefficient on schooling could be interpreted as the average returns to schooling.

The human capital model is augmented by Chiswick, DeVanzo (1976), Griliches (1977), and Heckman and Hotz (1986) to include hours of work, regional dummy variables and variables to control for socio-economic characteristics. Other authors (Cebula, 1979; Snipp and Tienda, 1984; and Lyson, 1986) have used a combination of human capital and status attainment models to explain income differentials.

Human capital models of self-investment predict that the declining pattern of on-the-job investments will cause an individual's earnings to grow rapidly when young and inexperienced and then increase much less rapidly later on. A parabolic experience-earnings profile is the result (Figure 1). It shows up in nearly all cross-sectional data and is taken as confirmation of the human capital investment hypothesis.

The choice of an occupation does not guarantee payback of foregone wages in the form of additional income. The previously mentioned job aspects and other factors may well contribute to utility associated with employment in a particular job. A rational participant is assumed to have information about the market and to act on that information. That a worker receives consistent low returns to labor may indicate other compensating variables contribute to make utility received from one occupation relatively equal to employment in another. The value placed on lifestyle, physical environment and personal relationship may supersede income.

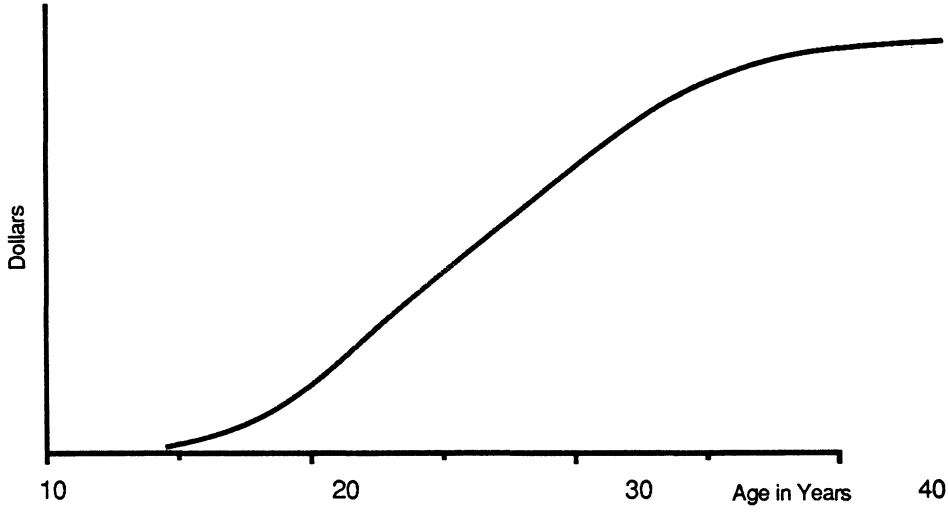

Figure 1. Typical Age Earnings Profile

Description of Survey

The Center for Human Resource Research at the Ohio State University has conducted surveys with repeated interviews over a twenty-year period with five groups of the U.S. population. The National Labor Survey (NLS) data for the original four cohorts was collected by the U.S. Bureau of the Census. Data used in this study are from the Young Men's Cohort which consists of men who were age 14 to 24 in 1966. The group is a multi-stage probability sample located in 235 sample areas comprising 485 counties and independent cities representing every state and the District of Columbia. The Young Men's Cohort includes 5,225 individuals who were interviewed 12 times between 1966 and 1981. Documentation and discussion of the project is found in the NLS Handbook, 1988, Center for Human Resource Research, The Ohio State University. A comparison of a similar survey taken at the University of Michigan and the NLS data can be found in Bilsborrow and Akin (1982).

Employment Categories Used in the Study

Six categories were use to classify the types of jobs held by the young men in the sample. White collar and blue collar jobs were divided into two groups according to the complexity of the job and the amount of education or training required. The farm category was divided into those who managed or operated a

farm and those who were farm laborers. These categories are similar to those used by Featherman and Hauser (1978) and Snipp and Tienda (1984). Three digit occupational codes associated with each category can be found in Table 1. The indicators of occupation were coded directly by Census Bureau personnel from verbal descriptions obtained during the interviews. A review of the three digit codes can be found in the 1960 Census of Population Alphabetical Index of Occupations. If the occupational code was missing the individual was placed in the "not categorized" group. The "not categorized" group was not included in the regression analysis.

A sub-sample of Young Men with ties to Farming (YMF) was drawn from the larger sample. To be included, the respondents had to 1) be employed in a farming occupation, 2) live on a farm at 14, or 3) have a parent or wife employed in a farming occupation. This sub-sample includes 1311 respondents.

Table 1. Employment Categories and Census Occupations.

Employment Category*	Census Occupations	3-digit code
Upper white collar (UPWHT)	Highly skilled nonmanual labor, occupations such as professional, technical and kindred workers.	001-200 250-300
Lower white collar (LOWHT)	Lesser skilled nonmanual labor, occupations such as clerical, sales and kindred workers.	301-395
Upper blue collar (UPBLU)	Skilled manual labor, occupations such as craftsmen and kindred workers in all industries.	400-545
Lower blue collar (LOBLU)	Unskilled manual labor, operatives, laborers and service workers except those in transportation, farm and domestic activity.	601-890 960-985
Farm worker (FWORK)	Farm laborers.	901-905
Farm Operator (FOPER)	Farm managers and proprietors.	200 222
Not Categorized (N.C.)	No category listed.	

*Those persons in the armed services are coded 555, employed but occupation not reported is coded 995 and do not know (for instance when asked for future occupation) is coded 999. Persons with these codes are excluded from the study.

Characteristics of Cohort

A primary purpose of this study is to identify variables which contribute to the distribution of annual and life-time earnings. Ability, experience, and choice of occupation are the main components explaining the differences in individual earnings potential. Other social characteristics including race, marital status, and family background and their influence on earnings will be discussed. The influence that place of residence has on earnings potential is also presented.

Individual Characteristics

This section reviews the individual characteristics which affect the productivity of the worker. It is difficult to identify particular skills which contribute to productivity and therefore earnings. Formal education and IQ affect skill levels of the individual and can be used as proxies for skill and ability.

The average annual real earnings for the cohort in 1966 was $5,060 (1980=100). The YMF subgroup received annual real earnings of $4,562 or 90 percent of the YMT average. Farm operators received $6,427 or 127 percent of YMT average earnings in 1966. Earnings for farm workers is very low and may be indicative of youth employed as unpaid family members. In addition, farm workers received the greatest income from secondary jobs. In 1981, when the youngest respondent was 29, average annual earnings for farm workers was $2,036 at their primary job and $6,692 at the secondary job.

In 1981, real average earnings for YMT increased to $18,295 for a 9.7 percent real average annual increase from 1966-1981. The average earnings for YMF in 1981 was $14,018 or 69 percent of YMT. Farm operators received average annual earnings of $14,953 in 1981. Wages increased with the number of years of education. Those workers in 1981 who had at least a high school education earned $8,335 on the average more than those workers who did not finish high school. College graduates earned $5,430 more than those who had more than 12 years of schooling but were not college graduates. In comparing YMT with YMF, the subgroup YMF had an average of one less year of education and earned approximately $4,277 less in 1981.

Educational attainment varied widely across respondents to the NLS. Higher educational attainment corresponds to employment category. Certain skill levels are required to achieve a given occupation. Average grade completed in 1966 was 11 with a range of 0 to 18 years of schooling. In 1966, 61 percent of the sample had not finished high school. The YMT cohort had completed an average of 13.6 years of schooling in 1981.

Upper white collar workers had the highest number of years of schooling, having better than 4 years of college in 1981. Those persons in the farming

categories consistently had fewer years of schooling than persons in other employment categories, except those in the lower blue collar category. Farm operators who were slightly older than YMT in 1966, had more years of schooling at the beginning of the survey, but by 1981 had fewer years of schooling than YMT. In 1981, the average number of years of schooling for farm workers was 10.9 and for farm operators it was 13.1.

Inherent ability contributes to earnings differentials. Earnings increase with individual ability as measured by IQ scores. An average score for an IQ test is 100. The average IQ score was 103 for the YMT. The range for YMT was 50 to 158. The YMF subgroup had an average IQ score of 99 with a range of 50 to 149. Those in the farm operator category and blue collar categories had approximately the same IQ score. Those persons with IQ scores of 100-140 had 1981 earnings of $2,873 more than those persons with lower IQ scores. Those with IQ scores over 140 had lower earnings than other respondents in the 1966 and 1971 surveys; presumably, the respondents were still attending school. In 1981, those with high IQ scores were earning $5,463 more than other respondents in the 100-140 category and $8,336 more than respondents with IQ scores less than 100.

Experience in the work place seems to contribute to increases in earnings. Mincer (1974) and Becker (1975) have shown that earnings reach a peak around age 40 and then show a decline after 40. The maximum age of persons in the cohort under study is 39, but in 1980 dollars the age-earnings profiles become flat and even decline for the average respondent at age 32. This decline in average real wages corresponds to the period of double digit inflation experienced in the late 1970s and early 1980s. Average earnings by age are graphed in Figure 2 for the YMT.

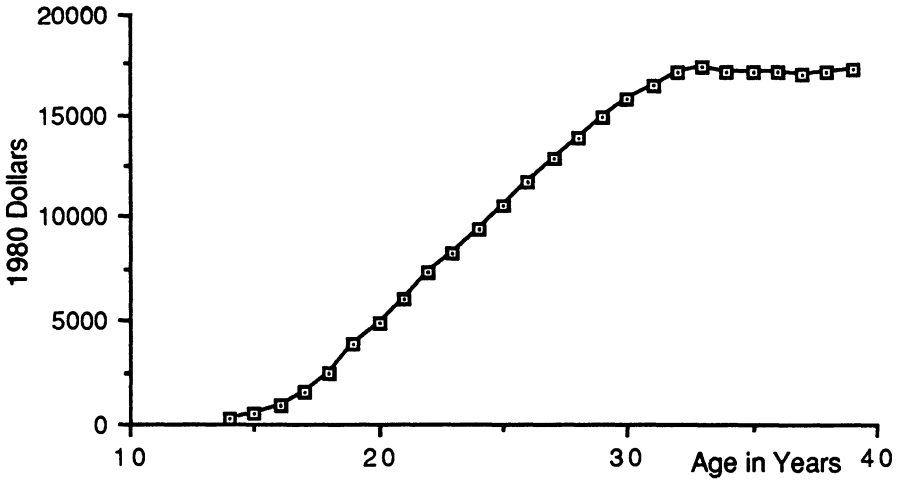

Figure 2. Age Earnings Profile for Young Men Total

There are three general explanations for the shape of the earnings profile. First, mental and physical maturity increases skills that determine earnings. Second, people are promoted or given raises according to performance over time. Finally, work experience, on-the-job training and learning by doing increases skills.

Experience can be proxied by age or by combining age and the first year in the labor market into a time in the labor market variable (TM):

$$TM = Age - Highest\ Grade\ Completed - 6.$$

If experience in the market is important, then education should have a separate effect on earnings than the variable TM. The average time in the market for the YMT sample in 1966 was 1.4 years; for YMF it was 4.8. By 1981 the variable TM had an average value of 14 years. For YMF, time in the market had increased to 15.2.

Payments to labor vary according to how the market values the results of the labor and the relative scarcity of willing and able workers. Non-pecuniary rewards will differ from one occupation to another. Thus individuals, in addition to being screened by ability, will screen the job market by choosing occupations which contribute the most to their welfare. A person's occupational choice is influenced by skills possessed and the potential earnings in that occupation. The earnings differentials according to employment category in this sample are shown in Table 2. In the YMT sample, workers in the upper white collar category in 1981 received an average of $22,540 or $8,447 more than lower blue collar workers. Upper white collar workers received an average of $7,587 more than farm operators in 1981.

This analysis is concerned with earnings from primary employment. However, it is of interest to compare secondary earnings for each employment category (Table 3). Wage earnings are considered for farm workers and operators and earnings from a second job or business are considered for the other categories. The respondents in the farm workers category are more likely to have secondary employment. Those who listed farm work as their primary job had an annual average of three times as much income from other employment in 1981 as from farm work. Farm operators listed approximately 15 percent of their total individual earnings as coming from wage employment. Respondents in the upper white collar category had average earnings from secondary employment equal to 14 percent of their total individual earnings in 1981.

Social Characteristics

Social characteristics describe the family and social environment of the respondent. Mean earnings for respondents varies according to marital status,

Table 2. Average Annual Earnings by Employment Category for YMT, 1966-1981.

Category[a]	1966	1971	1976	1981
	1980 Dollars			
TOTAL	$ 5,061	$12,561	$16,999	$18,295
UPWHT	9,584	16,277	21,067	22,540
LOWHT	5,185	11,432	17,063	19,043
UPBLU	8,958	14,271	16,088	16,941
LOBLU	4,825	10,219	13,147	14,093
FWORK	500	952	7,642	7,889
FOPER	6,654	11,184	13,955	14,953
N. C.	642	12,991	19,343	11,020

[a]UPWHT = Upper White Collar; LOWHT = Lower White Collar; UPBLU = Upper Blue Collar; LOBLU = Lower Blue Collar; FWORK = Farm Workers; FOPER = Farm Operator or Manager; N.C. = Not Categorized.

race and tie to farming. About 20 percent of YMT were married at the beginning of the survey. By 1981, three-quarters of the sample were married. In 1981, married respondents received $4,760 or 24 percent more earnings than unmarried respondents.

Approximately 87 percent of the sample in 1966 and 89 percent in 1981 is racially white. In 1981, white persons had an average earnings of $19,013 and 17 percent had earnings below $10,000. Non-white persons had an average earnings of $12,337 and 40 percent had earnings below $10,000. When racial characteristics of workers are considered, the upper white collar category has almost 95 percent whites. The farm worker's category is approximately 83 percent white. The farm operator's category has the highest percentage of whites with 98 percent.

The respondents in YMT were of draft age during the Viet Nam war. Approximately one-third of the cohort served in the armed services in the period covered by the NLS. Fewer respondents in YMF served in the military than the YMT, with 17 percent of the farm workers and 20 percent of the farm operators serving in the military. In 1981 those persons who were in the military received an average of $480 more than those who had not served. Military service did not

Table 3. Average Annual Earnings[a] from Primary and Secondary Employment, 1966-1981.

Year	Employment Category[b]	Earnings from Primary Employment	Earnings from Secondary Employment	Total Earnings	Secondary as Percent of Total
1966	TOTAL	$ 5,061	$ 226	$ 5,286	4.3
	UPWHT	9,584	539	10,123	5.3
	LOWHT	5,185	182	5,367	3.4
	UPBLU	8,958	235	9,193	2.6
	LOBLU	4,825	148	4,973	3.0
	FWORK	153	1,428	1,581	90.3
	FOPER	6,654	3,436	10,090	34.1
	N.C.	642	11	653	1.7
1971	TOTAL	$12,561	763	13,324	5.7
	UPWHT	16,277	1,368	17,645	7.8
	LOWHT	11,432	173	11,605	1.5
	UPBLU	14,271	674	14,945	4.5
	LOBLU	10,219	340	10,559	3.2
	FWORK	454	5,588	6,042	92.5
	FOPER	11,184	3,468	14,653	23.7
	N.C.	12,991	2,412	13,232	1.8
1976	TOTAL	$16,999	1,709	18,698	9.1
	UPWHT	21,067	2,791	23,858	11.7
	LOWHT	17,063	722	17,785	4.1
	UPBLU	16,088	994	17,082	5.8
	LOBLU	13,147	455	13,601	3.3
	FWORK	23	7,688	7,710	99.7
	FOPER	13,955	2,175	16,130	13.5
	N.C.	19,343	3,643	22,986	15.9
1981	TOTAL	$18,295	2,560	20,855	12.3
	UPWHT	22,540	3,586	26,123	13.7
	LOWHT	19,043	1,833	20,876	8.8
	UPBLU	16,941	1,739	18,681	9.3
	LOBLU	14,093	683	14,776	4.6
	FWORK	2,037	6,063	8,100	74.9
	FOPER	14,953	2,691	17,644	15.3
	N.C.	11,020	2,560	13,580	18.9

a Earnings in 1980 dollars.

b UPWHT = Upper White Collar; LOWHT = Lower White Collar; UPBLU = Upper Blue Collar; LOBLU = Lower Blue Collar; FWORK = Farm Workers; FOPER = Farm Operator or Manager; N.C. = Not Categorized.

contribute as much to an increase in average annual earnings for those in farming occupations as to earnings for those in other employment categories.

Respondents who had a tie to farming (YMF) had lower earnings on the average than YMT. In 1981, average real earnings for YMF was $14,542 compared to earnings of $18,365 for YMT. YMF who chose to remain farm operators in 1981 had earnings of $3,413 less than YMT.

Locational Characteristics

Finally, place of residence contributes to a wage differential among workers. Average earnings for those respondents who lived in the South were lower than those who live elsewhere. Residents of the South had average annual wages of 16.2 percent or $2,672 less than residents of the rest of the country in 1981. Approximately one-third of the YMT were residents of the South. More upper blue collar, lower blue collar, farm workers and farm operators lived in the South than persons in either of the white collar categories. Distribution of region of residence did not seem to vary by year, except farm workers. In 1966, 38 percent of the farm workers lived in the South while in 1976 that percentage had increased to over 56 percent. In 1981, 42 percent of the farm workers lived in the South.

Another variable is used to describe the employment situation in the respondent's census region. Taking 5 percent unemployment as the 'natural' rate of unemployment, a high rate of unemployment would be over 5 percent. Approximately one-half of the YMT respondents lived in areas with a high rate of unemployment. The percent of farm workers living in a high unemployment area was ten to fifteen points higher than YMT. In 1966, over 60 percent of the farm operators lived in high unemployment areas. By 1981 farm operators were found in areas of high unemployment at approximately the same rates as YMT. Respondents who lived in a high unemployment census area also received lower wages as well as those that lived in an area which had a large labor market.

Urban areas may be classified as Standard Metropolitan Areas (SMA) for federal and state funding purposes. SMA is defined as a population center of 50,000 people or more. Seventy percent of YMT lived in SMAs in 1966. In 1981, almost 72 percent of YMT were in SMAs. Eighty percent of the lower white collar respondents were located in cities. Approximately 70 percent of respondents in the other non-farm categories lived in urban areas. Approximately one-half of YMF lived in SMAs throughout the survey. Farm operators lived in SMAs least often. In 1981 only one-fourth of the farm workers lived in urban areas. Those who were residents of a SMA receive an average of 20 percent more than residents of non-SMAs throughout the survey. In 1981, SMA residents received over $4,000 more.

The final variable used to describe job opportunities for the place of residence is the size of the labor market in the area. This variable describes the number of persons in the labor force in the respondents' census area. The distribution of earnings of respondents who lived in the various sizes of labor markets for each of the years under consideration is found in Table 4. Respondents who lived in a census area whose labor market was over 500,000 persons earned about $4,000 more in 1981 than those living in labor markets of less than 50,000. Farm workers and operators generally did not live in areas which had large labor pools.

Econometric Model

An second objective of this study is to determine the contribution of productivity factors to the variability of earnings. This section presents the results of an extensive investigation of the earnings function of young men who were surveyed by the Census Bureau from 1966 to 1981. The regression model is a modified Human Capital Model (HCM). The HCM framework allows analysis of the relationship between earnings and various mobility selectivity factors.

If we assume that utility increases when expected income increases, then an expected rise in real earnings is one of the primary motivations behind decisions to change jobs. An individual is more likely to change employment (either from echoing parental occupation or from one job to another) if the earnings that could be received is perceived to be greater than current (or parental) income. If a

Table 4. Earnings of Respondents in the Various Labor Market Sizes, 1966-1981.

Size of Labor Market	1966	1971	1976	1981
		1980 Dollars		
Less than 50,000	$4,108	$10,590	$14,441	$16,086
50,000 to 199,999	4,980	12,760	17,117	17,937
200,000 to 399,999	4,785	14,243	17,382	18,546
400,000 to 499,999	4,948	14,243	17,382	18,546
500,000 to 799,999	6,290	14,132	18,324	20,298
800,000 to 999,999	5,616	19,323	18,953	19,758
1,000,000 to 2,999,999	5,879	12,967	20,025	20,879
3,000,000 and over	5,554	14,159	20,863	22,702

real wage differential prevails for different skill and educational categories of workers, then the disparities between wages paid to workers and those paid to comparably skilled laborers is a crucial factor in the decision to take a different job. The smaller the earnings of the target employment or the larger the costs of moving, the less likely an individual is to move to the new job. The opportunity costs associated with not moving would be the net difference in the value of expected earnings.

The general form of the earnings relationship to be estimated is:

$$\ln \text{WAGE} = a_0 + a_1 (\text{HSTGRADE}) + a_2(\text{GRADESQ}) + a_3 (\text{EXPERIENCE}) + a_4 (\text{DEMO}) + e$$

where WAGE is the wage rate alternately defined as annual earnings or present value of a stream of earnings;

HSTGRADE is the highest grade of schooling completed;

GRADESQ is the highest grade completed squared;

EXPERIENCE is defined as AGE minus SCHOOL minus 6;

DEMO is a set of dummy variables which includes IQ as a proxy for ability, race, marital status, military service, social status and residence characteristics; and

e is the error term.

Previous research has shown the logarithm of earnings to be the most appropriate form of the dependent variable (Mincer; Becker; Chiswick; Emerson, 1989). The coefficients on the independent variables can be interpreted as the percentage change in earnings associated with unit changes in the independent variables. The assumption that investment in education declines linearly over the life cycle implies a parabolic, rather than linear, experience-earnings profile. To capture this phenomena, squared terms for education are included in the equation. Goodness of fit tests will determine the final form of the earnings equations.

Zero-one dummy variables are used to represent categorical responses. Coefficients on these dummy variables indicate a net difference or range in average earnings between the reference group and a particular category, i.e. between residents of the South and non-South, with all other variables in the equation held constant. The dummy variable coefficients indicate the direct effects of variation between categories. Dummy variables also account for some

indirect effects; for example, many rural areas provide less money for schools than cities.

The underlying theory for this analysis is that pecuniary rewards (earnings) from working depend on the person's productivity. The various skills that determine productivity as well as tastes for risk and non-pecuniary rewards are partly inherited and partly environmental. The factors such as age and IQ score will be used as proxies for those inherited characteristics that determine productivity. Schooling and those factors which describe social and locational characteristics will serve as controls for the environmental influence on productivity.

Expected earnings are estimated for the various employment categories. As people move in and out of employment categories, their earnings are counted as part of the employment category they currently occupy. Earnings are first described as real annual earnings, then as discounted present value earnings over a 15 year period.

The farm worker category was analyzed but caution should be exercised in the interpretation of the results. Earnings for the farm workers in every year from farm work was not as variable as other groups and was mostly zero. Zero earnings for farm workers is assumed to be the results of members working for the family farm in return for non-monetary compensation. Farm worker's earnings from non-farm sources was up to 3 times as large as earnings from farm labor. In addition, not all the data of farm workers was of full column rank and many farm workers could not be included in the analysis.

Results of the Human Capital Model

To examine the dynamics of the parameter estimates, the data were disaggregated to account for the effects of time as well as employment category. Parameter estimates by employment category are presented in this section. Analysis is conducted for 1966, 1971, 1976 and 1981. The full models for 1966-1981 are presented in Appendix A. Regression analysis was conducted on YMF with little success and results of the YMF models by employment category are not reported.

It is rather easy to become bogged down in the midst of 6 employment categories, 4 time periods and 20 explanatory variables. The discussion here will be limited to coefficients representing a point in time (1981) and over time (1966 to 1981). The coefficients will be discussed in groups, with age and education discussed in the individual characteristics section followed by social and locational characteristics.

Individual Characteristics

This section presents the parameter estimates for the individual characteristics for each employment category and each year. Differences in the coefficients among employment categories are discussed. Special emphasis is placed on comparisons between non-farm and farm employment groups. Individual characteristics parameter estimates for 1981 are contained in Table 5.

Time in Market. The variable TM (time in market) is constructed by taking the respondent's age and subtracting the number of years in school and assuming the respondents began school at age six. TM is positive for all non-farm employment categories across the years indicating that earnings increase with the number of years in the labor market. At a = 0.10, TM is significant for all non-farm employment categories 1966-1976. In 1981, TM is a significant explanatory variable for all non-farm employment categories except Upper Blue Collar (Table 5). TM is negative but insignificant in the farm worker and farm operator categories in 1971 and 1976. In 1981, TM is positive and significant for farm operator.

Table 5. Parameter Estimates for Individual Characteristics by Employment Category, 1981.

Independent Variable	Upper White Collar (UPWHT)	Lower White Collar (LOWHT)	Upper Blue Collar (UPBLU)	Lower Blue Collar (LOBLU)	Farm Worker (FWORK)	Farm Operator (FOPER)
Dependent variable is log of real annual earnings by employment category						
INTERCEPT	6.6491	8.8433	6.9186	7.869	13.2977	13.8296
TM	0.0477	0.0223	0.0086*	0.0179	-0.0333*	0.0032
HSTGRADE	0.1292	-0.0324*	0.2639	0.1348	-0.2993*	-0.9129*
EDSQ	-0.0010*	0.0033*	-0.0088	-0.0026*	0.0129	0.0387*
IQ	0.0037	-0.0030*	0.0017*	0.0017*	-0.0786	0.0008*

*Insignificant at a = 0.10.

The TM coefficient decreases in magnitude across time. In the upper white collar category, the coefficient on TM decreases by about half with each successive 5-year period, beginning in 1966 at 0.22. By 1981, an additional year in the market contributes to a 5 percent increase in earnings. The coefficient decreases slightly more than half in the lower white collar category between 1966-1971 decreasing from 0.22 to 0.09. The TM coefficient in the lower blue collar category begins at 0.22 and decreases rapidly to 0.02 in 1981.

Education. Returns to skill as measured by HSTGRADE (highest grade) for the six employment categories were in general positive as expected. The EDSQ (education squared) coefficient is expected to be negative. HSTGRADE was positive and significant for the upper white collar category. EDSQ, while it is negative as expected, it is not a significant variable in 1981 in the upper white collar employment category. Because YMT is a young cohort and upper white collar respondents received more years of schooling on the average than other respondents, they may receive declining returns to education later in their careers than is measured here.

The number of years in the market has a profound effect on the earnings of the upper white collar respondents. An additional year of education actually decreased earnings by 6.8 percent in upper white collar category in 1966. However, when the effect of the decreased time in market is removed, they received 35.6 percent additional earnings for each year of additional education in 1966. Combining the coefficients on TM, HSTGRADE and EDSQ, the estimates indicate that for an additional year of schooling, respondents in the upper white collar category received a 5.2 percent increase in earnings in 1981. If the additional education was received without decreasing time in market, the upper white collar respondents potentially would receive a 9.6 percent increase in earnings for an additional year of education in 1981.

Returns to education for lower white collar were slightly lower than upper white collar across the years. In 1966 and 1971 the coefficient on HSTGRADE was positive and significant. However, in 1976 the coefficient became insignificant, indicating additional schooling past high school does not receive as great a return for lower white collar as it does for upper white collar. In 1981, the HSTGRADE coefficient was negative, but it was not significantly different from zero. In the lower white collar category, EDSQ is a significant explanatory variable and has the expected negative sign in 1966 and 1971. The EDSQ coefficient is positive in 1976 and 1981 but is insignificant in explaining variation in earnings.

Combining the effects of the TM, HSTGRADE and EDSQ parameters, the lower white collar respondents received a 4.6 percent increase in earnings for an additional year of schooling in 1966. In 1981, returns to education provided a 1.7 percent increase in earnings. If the effect of the TM parameter is not taken into account, lower white collar earnings increase 30.6 percent in 1966 and 6.4 percent in 1981 for an additional year of schooling in the respective years.

In 1966, the HSTGRADE coefficients for upper blue collar and lower blue collar categories were similar. The upper blue collar schooling coefficient varied from 0.41 in 1966 to 0.26 in 1981. For the 1966, 1971 and 1976 surveys lower blue collar followed upper blue collar. However, in 1981 the estimated contribution of an additional year of schooling (0.13) for lower blue collar was one-half that of upper blue collar. By combining TM, HSTGRADE and EDSQ parameters, an additional year of education provided a 4.2 percent increase in 1966 and a 3.6 percent potential increase in earnings in 1981 for the upper blue collar category. Neglecting the TM parameter effect, upper blue collar respondents received an average of a 22.4 percent increase in earnings in 1966 and a 4.5 percent increase in 1981. Additional schooling provided a 8.4 percent increase in 1966 and a 5.3 percent increase in earnings for the lower blue collar category in 1981, on the average. If time in market is held constant, lower blue collar earnings increase an average of 34.9 percent in 1966 and 7.2 percent in 1981 for an additional year of education.

Neither HSTGRADE nor EDSQ significantly explained variation in earnings for the farm categories. In 1971 and 1976, the HSTGRADE parameter was negative and insignificant for the farm operator category. By considering the effect of TM, HSTGRADE and EDSQ the importance of experience in the labor market is shown. When considering the effects of TM, HSTGRADE and EDSQ, an additional year of education potentially subtracts 15.7 percent from earnings in 1966. However, education becomes more important in 1981. An additional year of schooling adds 13.7 percent to earnings in 1981 for the farm operator respondents. If time in market is held constant, then earnings in 1966 increase 8.8 percent in 1966 and 0.18 percent in 1981.

Time in the market is relatively more important for farm workers than education. Farm workers potentially received a decrease in earnings of 1.2 percent for an additional year of schooling in 1966. Farm workers received a 3.1 percent return to an additional year of schooling in 1981. Holding time in market constant, farm worker respondents receive an increase in earnings of 10.6 percent in 1966 and a decrease of 0.3 percent in 1981 for an additional year of education.

Ability. Another individual characteristic that is believed to measure productivity possibilities is IQ score. As expected the upper white collar coefficient on IQ score was positive; the higher the IQ score, the more capable the person and the higher the earnings. In 1981, a one-point increase in IQ score contributed to 0.4 percent increase in earnings for respondents in the upper white collar category. IQ score was positive but insignificant for the remaining non-farm categories. In the farming employment categories, the IQ coefficient had a negative sign and was insignificant in explaining the variation in earnings.

Social Characteristics

Social characteristics can influence earnings indirectly through educational attainment or attitudes towards employment. Family wealth can be used to purchase items which increase skills or which allow the entry to exceptional opportunities through nepotism. However, child-rearing techniques and other family and social environmental characteristics are difficult to model. Proxies such as a socio-economic index which measures characteristics of the family of origin can be used, as well as parental occupation or education.

Parameter estimates for social characteristics by employment category for 1981 are presented in Table 6. Characteristics which were shown to influence earnings are race, marriage, and service in the military. Also included in the regression analysis were variables which describe parents' and spouse's occupation, and a social index (SEINDEX) of family of origin calculated by NLS. SEINDEX was found to be insignificant and was dropped from the final analysis. Father's, mother's and spouse's occupation were not significant for the

Table 6. Parameter Estimates For Social Characteristics by Employment Category, 1981.

Independent Variable	Upper White Collar (UPWHT)	Lower White Collar (LOWHT)	Upper Blue Collar (UPBLU)	Lower Blue Collar (LOBLU)	Farm Worker (FWORK)	Farm Operator (FOPER)
	Dependent variable is log of real earnings					
MARRIED	0.1664	0.5162	0.2349	0.3717	0.1242	-0.0929
MILITARY	0.0206*	0.0754*	0.0266*	0.0225*	-----	0.0907*
WHITE	0.2389	0.1466*	0.1612	0.2075	-0.2647	0.8464
STUDENT	-0.2423	-0.2913	0.0510*	-0.1120*	-----	----
UNEMP	-0.6162	-0.9453	-0.6918*	-0.8883*	-0.8033	----

*Insignificant at a = 0.10.

Note: No students were in the farm categories in 1981. No farm operators were unemployed and the degrees of freedom on military were too small for farm workers to have MILITARY included in the FWORK equations.

majority of the regressions and the variables were also dropped from the analysis. The variables MOMWORK and WIFEWORK were marginally significant, but did not add to the overall explanatory value of the regression.

As hypothesized, married respondents in all non-farm categories received greater earnings than non-married respondents. The least contribution to earnings from marriage was received by the upper white collar category, who received 17 percent higher earnings than unmarried respondents. Married respondents in the lower white collar category received the highest contribution to earnings: an increase of 52 percent. The parameter estimator for MARRIED in the farm operator category was negative and insignificant.

Military service was hypothesized to contribute positively to earnings. Although the coefficient for MILITARY is positive for each non-farm category, it is not significant at a = 0.10. The sign on military for farm operator is negative and is also insignificant. Military training, while imparting some skills that can be transfered to the market, may not be as useful for farm employment as for other categories.

In the section on characteristics of the sample, it was shown that earnings are distributed according to race. White respondents were hypothesized to have greater earnings than non-white respondents. The coefficient sign on WHITE was positive for every employment category except farm worker where it was negative but insignificant. Whites in the upper white collar category received 24 percent more than non-whites in 1981. The whites in the upper blue collar category received 16 percent additional dollars and 21 percent more in the lower blue collar category in 1981. WHITE was positive but insignificant for the lower white collar category. White farm operator in 1981 had 84 percent higher earnings than non-white farm operators.

Other social characteristics tested were student status and unemployment status. STUDENT and UNEMP serve as controls for not being a full-time participant in the labor market. Student status was hypothesized to have a negative influence on earnings. For the non-farm categories, STUDENT was negative and it was significant for all except for the upper blue collar category in 1981. There were no students after 1976 in the farm categories.

Being unemployed contributed negatively to annual earnings as was expected. The range for the UNEMP coefficient was 0.95 in lower white collar to 0.62 in upper white collar. The coefficient was negative but insignificant for the blue collar categories. No one in the farm operator category was classified as UNEMP.

Locational Characteristics

Locational variables were included in the regression to test the hypothesis that no market segmentation exists among geographical areas. Locational

variables are also proxies for personal preferences and regional characteristics of workers. The parameter estimates for CITY, HIGHRATE, MKTSIZE, and REGION are in Table 7. CITY places the individual in a SMA. HIGHRATE describes the unemployment situation of the census area labor market. MKTSIZE references the number of potential workers in the individual's census area. REGION describes whether the individual lived in the Southern part of the United States or not.

The coefficients for REGION and CITY had the expected signs for the non-farm categories. Those lower white collar respondents in the South received 28 percent more than non-Southern residents. Market segmentation by region is less apparent in the lower blue collar category whose Southern residents receive 4 percent less than non-Southern residents and in upper white collar whose Southern residents receive 1 percent less than non-Southern residents on the average. The REGION coefficient in the upper blue collar category was negative but insignificant.

Residence in an SMA (CITY) contributed to almost 22 percent higher earnings for the non-farm categories than non-urban residence. The CITY parameter estimate was positive for upper blue collar but insignificant. Farm operators who were residents of a SMA received 62 percent higher earnings, however the coefficient was insignificant. The coefficient for CITY was also negative but insignificant for farm worker.

Table 7. Parameter Estimates For Locational Characteristics by Employment Category, 1981.

Independent Variable	Upper White Collar (UPWHT)	Lower White Collar (LOWHT)	Upper Blue Collar (UPBLU)	Lower Blue Collar (LOBLU)	Farm Worker (FWORK)	Farm Operator (FOPER)
	Dependent variable is log of real earnings by Employment Category					
REGION	-0.0109*	-0.2770	-0.0715*	-0.0377	-1.4224*	0.5222*
CITY	0.2195	0.2413	0.0331*	0.2249	-0.1474*	0.6215*
HIGHRATE	-0.0621	0.0919*	0.0943	0.0494*	-1.7364*	-0.0055*
MKTSIZE	0.0104*	0.0036*	0.0531	0.0021*	-0.5757*	-0.4483

*Insignificant at a = 0.10.

The coefficient of MKTSIZE was positive for all non-farm categories but was a significant variable for only the upper blue collar category. It was negative but insignificant for farm operators and farm workers. A positive MKTSIZE would indicate that earnings increase with a larger labor pool. A negative MKTSIZE would indicate that earnings decrease if the respondent is a resident in an area with a large labor pool.

The HIGHRATE coefficient was expected to have a negative sign. If the unemployment rate was high, many potential workers would be looking for jobs, thus driving down wages. For the upper white collar category, the coefficient of HIGHRATE was negative and was significant. However, the sign on HIGHRATE coefficient was positive for lower white collar, upper blue collar and lower blue collar and the coefficient was significant for upper blue collar. Although the coefficient's sign was negative for farm operator and farm worker, it was not significantly different from zero.

Relative Earnings Profiles

The primary assumption of the competitive market is that resources will flow to their best use. This implies that peopzle will work in the productive process best suited for the quality and quantity of labor provided. The differentials in earnings received should reflect the market valuation of the quality and quantity of labor. Those people with similar productivity characteristics in similar jobs should receive similar wages.

Rates of return to productivity measures differ among employment categories. Several explanations are consistent with the variation in the parameter estimates. The evidence shows that the labor market is segmented and returns to experience and skill are not equivalent across employment categories. That is, the labor market is structurally different for the different employment categories because of factors influencing the demand for labor or because the supply of labor and mobility costs for resources are not negligible.

Parameters describing the employment potential of the place of residence may differ due to differences in demand for labor. For example, money spent on factors which alter the returns to schooling and ability differs by region. Opportunity costs measure the earnings foregone by remaining in a chosen job when alternative employment is available. Figure 3 illustrates the relative earnings profiles for the six employment categories. While upper white collar respondents enter the labor market later than other respondents, their future earnings are considerable higher than earnings in other categories. The curve for upper white collar earnings does not reach a plateau within the study period.

Following the upper white collar respondents are respondents in the lower white collar category. The curve representing lower white collar earnings is slightly lower than upper white collar until the respondents reach their mid 20s,

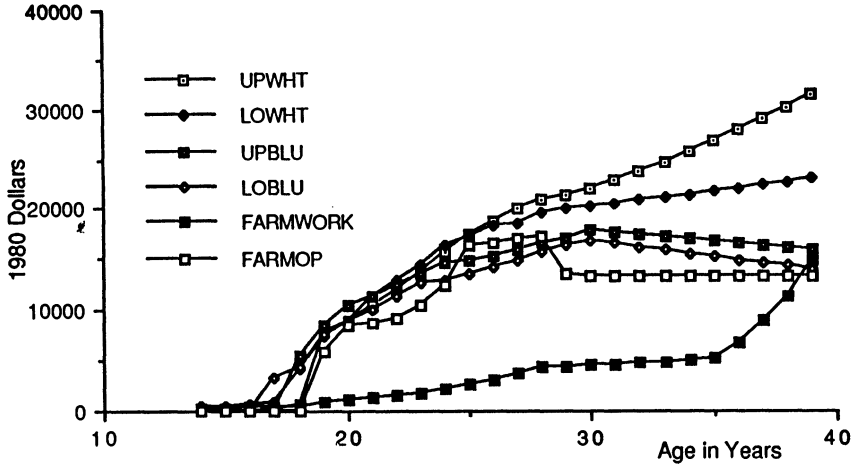

Figure 3. Relative Earnings by Category For Young Men Total

then it begins to increase more slowly after age 28. Lower white collar respondents were an average age of 28 in 1976. By 1981, upper white collar respondents earned approximately $8,000 a year (1980 dollars) more than lower white collar respondents. Upper blue collar and lower blue collar respondents also have income higher than upper white collar in the early years, reflecting their greater number of years in the labor market and lower educational attainment. However, they also reach a plateau and even experience a slight real dollar decline in earnings by their late 20s. On the average, upper blue collar respondents were 29 and lower blue collar respondents were 28 in 1976.

Farm operators have higher earnings in the early years of the survey. However, by age 25 farm operator annual earnings begin declining in real terms. In the 1971 survey, farm operators were an average of 25 years of age. Farm workers received very low average earnings in the early years of the survey. Presumably, many who indicated their occupation as farm worker worked as unpaid family labor. In 1976, farm worker respondents were an average age of 29, the point that earnings begin to increase rapidly. By 1981, when the oldest farm worker respondents were 39, their annual real earnings surpassed those of farm operators.

Opportunity costs could be measured by the sum of the vertical distances between earnings curves at every age. If the vertical distance between curves is summed, the opportunity costs among employment categories can be calculated. Table 8 presents opportunity cost of remaining in an employment category over the study period, assuming the respondent is qualified to be in another employment category. Respondents are qualified to move to another category if they have corresponding individual characteristics. Respondents are assumed to

Table 8. Opportunity Costs by Employment Category for YMT, 1966-1981.

Independent Variable	To category: Upper White Collar (UPWHT)	Lower White Collar (LOWHT)	Upper Blue Collar (UPBLU)	Lower Blue Collar (LOBLU)	Farm Worker (FWORK)	Farm Operator (FOPER)
			1980 Dollars			
Upper White Collar	0	-45,004	-107,951	-132,739	-334,508	-163,417
Lower White Collar	45,004	0	-62,947	-87,735	-289,504	-118,413
Upper Blue Collar	107,951	62,947	0	-24,788	-226,557	-55,406
Lower Blue Collar	132,739	87,735	24,788	0	-201,769	-30,678
Farm Worker	334,508	289,504	226,557	201,769	0	171,091
Farm Operator	163,417	118,413	55,466	30,678	-171,091	0

*Insignificant at a = 0.10.

be married, white, out of school and employed throughout the year. Situations are for respondents in the urban non-South region of the United States, with average unemployment.

Looking across the survey, all moves to the next higher skill level improve the earnings position. Moving out of the farm worker category to any other category improved the earnings position. Summing differences across the 15 year period, earnings were $334,508 higher in upper white collar and $289,504 higher in lower white collar categories than in farm workers. However, the older farm worker respondents were actually receiving higher earnings than farm operator in 1981. If farm operator moved to a non-farm category, they could potentially improve their earnings position.

In the non-farm categories, the most improvement in earnings came from moving from the lower blue collar to upper white collar category (+$132,739) and from the upper blue collar to upper white collar category (+$107,951). The next best moves were from the lower blue collar to lower white collar category (+$87,735) and from the upper blue collar to lower white collar category (+$62,947).

Differences among categories continue to grow as age and experience increase. The YMT cohort is young and the prime earnings years just beginning. Earning differentials will continue for almost 30 years for most of the respondents. Skill levels between farm categories and blue collar categories are similar. Earnings in blue collar categories are $30,000 to $55,000 higher than the 15-year earnings for farm operator. If they are qualified to move into a white collar position but choose to remain in farming, farm operators give up over $100,000 by the end of the period studied by the survey.

Summary and Conclusions

In this study farm workers and farm operators were included in the analysis of the returns to labor. The data used in the analysis were obtained from a 1966-1981 panel survey of young men conducted by the National Labor Survey at The Ohio State University. The 5,225 respondents were divided into six employment categories and earnings were estimated for each category.

The analysis documented the productivity characteristics and social and locational characteristics which were hypothesized to contribute to the earnings differential. Investments in human capital yield positive, measurable results for each of the employment categories. Farm operators received the greatest gains from an additional year of education.

On-the-job experience is also a means of obtaining additional human capital. The results obtained here show the importance of the amount of time in the labor market to the earnings differential. The results combined with the importance of off-farm employment to farm workers and farm operators indicate the importance of rural employment opportunities.

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APPENDIX A

PARAMETER ESTIMATES FOR YMT, 1966-1981

Table 9. YMT Parameter Estimates for 1966 by Employment Category.

Parameter	Upper White Collar (UPWHT)	Lower White Collar (LOWHT)	Upper Blue Collar (UPBLU)	Lower Blue Collar (LOBLU)	Farm Worker (FWORK)	Farm Operator (FOPER)
Dependent variable is log of real earnings						
INTERCEPT	0.3555	0.6432	4.6654	4.0196	6.6217	3.0337
TM	0.2189	0.2220	0.1608	0.2188	0.1695*	0.2553
HSTGRADE	0.8826	0.8541	0.4203	0.4124	-0.6526*	0.8193
EDSQ	-0.0253	-0.0235	-0.0095	-0.0049	0.0516*	-0.0294*
IQ	0.0052*	0.0051	-0.0022*	0.00003*	0.0057*	-0.0153*
STUDENT	-0.6082	-0.5107	-0.6035	-0.8062	-0.3619*	-0.3456
MARRIED	0.4537	0.3829	0.4439	0.3561	-0.3653	1.3230
MILITARY	0.1346	-0.2386	0.0589	-0.1269	---	-0.669*
WHITE	0.4612	0.2489	0.3495	0.1041	1.0152*	0.6038*
UNEMP	-0.4248	-0.7103	-0.6812	-0.3257	-0.7925	---
REGION	0.1105*	-0.0222*	-0.0017-	-0.1925	0.4873*	0.8157
CITY	0.1447	-0.0504*	-0.0159	0.0092*	-0.3916*	1.0102*
HIGHRATE	-0.1496	0.0689*	-0.0471*	-0.1013	-0.2533*	0.3879*
MKTSIZE	-0.0102*	0.0192*	0.0142-	0.0053*	-0.0928*	-1.1326*
R^2	0.6279	0.6649	0.6804	0.6226	0.5963	0.6041
F	46.75	89.92	73.03	302.67	4.31	1.65*
Root MSE	0.7739	0.8361	0.6837	0.8940	1.8302	1.1915
N	374	603	460	2399	48	26

*Insignificant at a = 0.10.

Table 10. YMT Parameter Estimates for 1971 by Employment Category.

Parameter	Upper White Collar (UPWHT)	Lower White Collar (LOWHT)	Upper Blue Collar (UPBLU)	Lower Blue Collar (LOBLU)	Farm Worker (FWORK)	Farm Operator (FOPER)
Dependent variable is log of real earnings						
INTERCEPT	6.9156	5.0321	6.8159	6.7883	-3.5039	17.1456
TM	0.1229	0.0957	0.0620	0.0659	0.0114*	-0.0508
HSTGRADE	0.0765	0.3524	0.2067	0.2461	0.4569*	-1.2300
EDSQ	0.0027	-0.0094	-0.0063	-0.0099	-0.0186*	0.0666
IQ	-0.0011	0.0028*	0.0015*	0.0004*	0.0297*	-0.0463
STUDENT	-0.5364	-0.4323	-0.2473	-0.3999	-0.2682*	-1.4679
MARRIED	0.3794	0.4144	0.3511	0.4234	-0.5855*	-0.3518
MILITARY	-0.0694	0.1639	0.0070*	0.0170*	---	-1.0133
WHITE	0.1901	0.1615	0.2933	0.2568	0.5546*	1.9297
UNEMP	-0.6518	-0.7131	-0.9842	-0.6183	---	---
REGION	-0.0123	-0.0341*	-0.1396	-0.1743	0.5295*	-0.9997
CITY	0.0736	0.1395*	0.0564*	0.0872	-0.5496*	-0.9446
HIGHRATE	-0.0532	0.0552*	-0.0493*	-0.0265*	-1.5941	0.3007
MKTSIZE		0.0355	0.0080*	0.0229	0.0132*	-0.2195*
R^2	0.4199	0.4148	0.4092	0.3604	0.1517	0.2534
F	42.82	27.53	33.83	68.79	1.59	0.85*
Root MSE	0.8043	0.7696	0.6498	0.8156	2.4644	2.3309
N	783	519	649	1601	110	43

*Insignificant at a = 0.10.

Table 11. YMT Parameter Estimates for 1976 by Employment Category.

Parameter	Upper White Collar (UPWHT)	Lower White Collar (LOWHT)	Upper Blue Collar (UPBLU)	Lower Blue Collar (LOBLU)	Farm Worker (FWORK)	Farm Operator (FOPER)
Dependent variable is log of real earnings						
INTERCEPT	8.1826	8.5864	6.1979	6.0410	8.4737	6.3910
TM	0.0719	0.0445	0.0221	0.0310	-0.0386	-0.0103*
HSTGRADE	-0.0202*	-0.0308*	0.4001	0.2811	0.1868	0.3673*
EDSQ	0.0042*	0.0040	-0.0152	-0.0094	-0.0108	-0.0105*
IQ	0.0007*	-0.0022*	0.0025*	0.0061	-0.0628	0.0084
STUDENT	-0.2882	-0.6381*	-0.1523	-0.0193*	-0.7725	---
MARRIED	0.2027	0.2298	0.3107	0.3143	-0.5899	0.4219*
MILITARY	0.0220*	-0.0105*	-0.0693*	-0.0321*	---	0.3398*
WHITE	0.1003	0.3023	0.1454	0.1739	0.6679	-0.9053
UNEMP	-0.9317	-1.3874	-0.7520	-0.7321	---	---
REGION	-0.0813	-0.0563	-0.1901	-0.1188	-1.0239	-0.0392*
CITY	0.0079*	0.3444	0.0716*	0.1975	-0.4199	0.0898*
HIGHRAT	-0.0648	-0.0738*	-0.0133*	0.0008*	-1.3135	-0.1902*
MKTSIZE	0.0285	-0.0215*	0.0128	0.0141*	0.09937	-0.0309*
R^2	0.2783	0.3023	0.2219	0.2197	0.2635	0.2572
F	30.02	12.80	14.87	24.45	1.20	1.16*
Root MSE	0.6154	0.7289	0.6247	0.7653	2.3187	0.9076
N	1026	398	692	1143	49	49

*Insignificant at a = 0.10.

Table 12. YMT Parameter Estimates for 1981 by Employment Category.

Parameter	Upper White Collar (UPWHT)	Lower White Collar (LOWHT)	Upper Blue Collar (UPBLU)	Lower Blue Collar (LOBLU)	Farm Worker (FWORK)	Farm Operator (FOPER)
Dependent variable is log of real earnings						
INTERCEPT	6.6491	8.8433	6.9186	7.869	13.2977	13.8296
TM	0.0477	0.0223	0.0086*	0.0179	-0.0333*	0.0032
HSTGRADE	0.1292	-0.0324*	0.2639	0.1348	0.2993*	0.9129*
EDSQ	-0.0010*	0.0033*	-0.0088	-0.0026*	0.0129	0.0387*
IQ	0.0037	-0.0030*	0.0017*	0.0017*	-0.0786	0.0008*
MARRIED	0.1664	0.5162	0.2349	0.3717	0.1242	-0.0929
MILITARY	0.0206*	0.0754*	0.0266*	0.0225*	----	0.0907*
WHITE	0.2389	0.1466*	0.1612	0.2075	-0.2647	0.8464
STUDENT	-0.2423	-0.2913	0.0510*	-0.1120*	----	----
UNEMP	-0.6162	-0.9453	-0.6918*	-0.8883*	-0.8033	----
REGION	-0.0109*	-0.2770	-0.0715*	-0.0377	-1.4224*	0.5222*
CITY	0.2195	0.2413	0.0331*	0.2249	-0.1474*	0.6215*
HIGHRATE	-0.0621	0.0919*	0.0943	0.0494*	-1.7364*	-0.0055*
MKTSIZE	0.0104*	0.0036*	0.0531	0.0021*	-0.5757*	-0.4483
R^2	0.2362	0.1936	0.1830	0.2633	0.4161	0.1567
F	25.54	6.04	11.15	24.34	1.68	0.96
Root MSE	0.5804	0.9297	0.6974	0.6881	1.5629	1.7884
N	1084	341	661	899	38	69

*Insignificant at a = 0.10.

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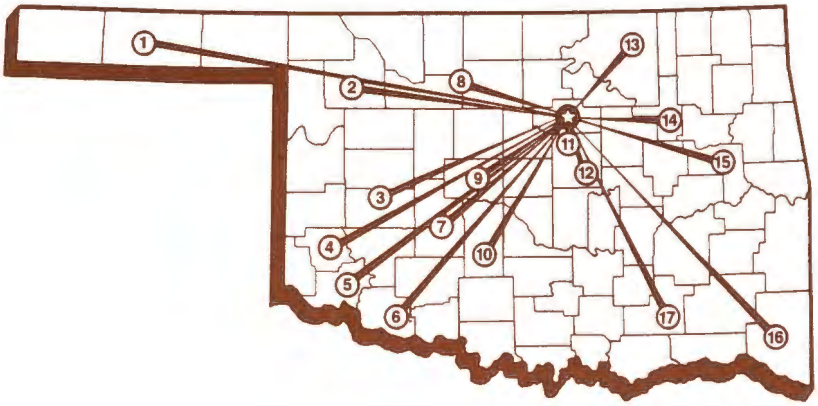

- Main Station — *Stillwater and Lake Carl Blackwell*
1. Panhandle Research Station — *Goodwell*
2. Southern Great Plains Field Station — *Woodward*
3. Marvin Klemme Range Research Station — *Bessie*
4. Sandyland Research Station — *Mangum*
5. Irrigation Research Station — *Altus*
6. Southwest Agronomy Research Station — *Tipton*
7. Caddo Research Station — *Ft. Cobb*
8. North Central Research Station — *Lahoma*
9. Forage and Livestock Research Laboratory — *El Reno*
10. South Central Research Station — *Chickasha*
11. Agronomy Research Station — *Perkins*
    Fruit Research Station — *Perkins*
12. Pecan Research Station — *Sparks*
13. Pawhuska Research Station — *Pawhuska*
14. Vegetable Research Station — *Bixby*
15. Eastern Research Station — *Haskell*
16. Kiamichi Forestry Research Station — *Idabel*
17. Wes Watkins Agricultural Research and Extension Center — *Lane*

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