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# A Comparison of Farm and Nonfarm Households 

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# A Comparison of Farm and Nonfarm Households 

by<br>Ani L. Katchova*


#### Abstract

This study compares the economic well-being of farm and nonfarm households using data from the 2001 Agricultural Resource Management Survey and the 2001 Survey of Consumer Finances. Comparisons are made in terms of income and wealth using Tukey-Kramer mean separation tests, regression analysis, and Gini coefficients. The results show that income and wealth of rural residence and intermediate farms are comparable to those of nonfarm households without businesses, while the well-being of commercial farms is similar to that of nonfarm households with businesses. Income and wealth vary across life-cycle stages, with a less pronounced cycle for the income of commercial farms.


Keywords: farm households, income, life-cycle hypothesis, non-farm households, wealth, wellbeing.

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## Introduction

The economic well-being of farm households and the parity of well-being between farm and nonfarm households have been of enormous interest to agricultural policy. However, comparisons between farm and nonfarm households are complicated because of their diversity. Many farm households have complex organization and structure while engaging in various farm and nonfarm activities. Nonfarm households also differ along several important dimensions, one of which is whether they engage in entrepreneurial/business activities.

The objective of this study is to undertake a comprehensive comparison of the economic wellbeing of farm and nonfarm households using two national, representative surveys. Specific objectives include: 1) to compare income and wealth of farm and nonfarm households using Tukey-Kramer mean comparisons tests, 2) to compare households based on their involvement in business activities for nonfarm households and on their diverse typology for farm households, 3) to examine the equality of the income and wealth distributions among different types of households using Gini coefficients, and 4) to examine the life-cycle differences in income and wealth of these households.

## Previous Studies

Several studies considered the life-cycle hypothesis. Jappelli (1999) confirmed the hump-shaped life-cycle of wealth using data from Italy. He also found that the wealth decumulation at higher age was much more pronounced for poorer households and households headed by individuals with lower education. Baek and Hong (2004) defined life-cycles not only by considering age but also by incorporating marital status, employment status, and the presence of children. Their results, using the 1998 Survey of Consumer Finances, confirm that the life-cycle stages are important determinants of consumer debt. Poterba and Samwick (1997) found that there are significant differences in the portfolio allocation of wealth across different life-cycle stages using the Survey of Consumer Finances. Milligan (2004) found similar results using data from Canada.

The Survey of Consumer Finances data have been extensively used for research. Two studies are particularly relevant to this research. Aizcorbe, Kennickell, and Moore provided various statistics on family finances of households and examined changes in finances between 1998 and 2001. Gentry and Hubbard (2004) considered the role of entrepreneurship (whether the households had a business) on wealth accumulation and found that entrepreneurial households had higher wealth and income than nonentrepreneurial households.

[^1]Carlin and Reinsel (1973) were among the first agricultural economists to define farm family well-being by combining income and wealth. Their approach combined the current income with the current net worth expresses as annuity into a single measure of well-being. Their findings showed that the distribution of well-being across farm families was more equally distributed when both income and wealth were considered together.

Only a few studies compared farm and nonfarm households using national, representative data sets. Mishra et al. (2002) provided statistics on the business income to total income ratio, the business net worth to total net worth ratio, the returns on assets, and Gini coefficients for both farm and nonfarm households. El-Osta and Morehart (2002) further analyzed the wealth distribution of farm households. Hopkins and Morehart (2004) compared the cumulative distributions of income and wealth for farm and nonfarm households. This study provides a more comprehensive analysis of the economic well-being between farm and nonfarm households, based on the type and life-cycle stages of the household.

## Methodology

The comparisons between farm and nonfarm households are conducted for all households and then by household type and age group. The life-cycle hypothesis is tested where households are expected to have highest income during their middle age stages and highest net worth in the last stages before retirement. Three methods are used to compare the economic well-being of farm and nonfarm households: the Tukey-Kramer mean separation tests, regression analysis, and Gini coefficients.

## Tukey-Kramer Mean Separation Tests

Tukey-Kramer tests are used to test for the equality of mean income and net worth for all farm and nonfarm households and also based on household type and age group. The $t$-test is used to compare means when only two groups are present. However, when the means of more than two groups are to be compared to each other, multiple comparison tests need to be used. With equal group sizes, the appropriate test is the Tukey test, while with unequal group sizes the appropriate test to compare multiple means is the Tukey-Kramer test. If a pairwise $t$-test is applied to compare multiple means, then the confidence level would not be (1- $\alpha$ ) but rather ( $1-k \alpha$ ), where $\alpha$ is the significant level and $k$ is the number of groups compared. With the TukeyKramer test, two means are significantly different from each other when
$\frac{\left|\bar{y}_{i}-\bar{y}_{j}\right|}{s \sqrt{\frac{\left(1 / n_{i}+1 / n_{j}\right)}{2}}} \geq q(\alpha ; k, v)$
where $\bar{y}_{i}$ and $\bar{y}_{j}$ are the means for group $i$ and $j, s$ is the root mean square error also known as the pooled standard deviation, $n_{i}$ and $n_{j}$ are the number of observations in the $i$ th and $j$ th group, and $q(\alpha ; k, v)$ is the critical value for the studentized distribution of $k$ normally distributed variables with $v$ degrees of freedom at the $\alpha$ significance level.

## Regression Analysis

The life-cycle hypothesis is also tested using regression analysis. Regression models account for the complex survey design in the estimations (see Dubman). Income and net worth for farm and
nonfarm households are compared across life-cycle stages represented by indicator variables. Education and family size are assumed to affect income and wealth and are included as control variables.

## Inequality Distributions

The inequalities in the distributions of income and wealth are measured using Gini coefficients. A Gini coefficient of 0 shows a perfectly equal distribution where all households have the same level of income or net worth. On the other hand, a Gini coefficient of 1 shows an extreme inequality where one household holds all income or net worth. A difference of 0.01 is considered statistically significant. The Gini coefficient is calculated using the following formula:

$$
G=1+\frac{1}{n_{i}}-\frac{2}{\bar{y}_{i} n_{i}^{2}} \sum_{i=1}^{n_{i}}\left(n_{i}-i+1\right) y_{i}
$$

where the households are ranked in ascending order of $y_{i}$ an $\bar{y}_{i}$ and $n_{i}$ are the mean and number of observation of group $i$, respectively.

## Data and Results

This study uses data from two national surveys: the Survey of Consumer Finances (SCF) and the Agricultural Resource Management Survey (ARMS). Both data sets include weights to expand the sample households in the data to represent all farm and nonfarm households in the U.S. The SCF is conducted triennially by the Federal Reserve Board, while ARMS is conducted annually by the U.S. Department of Agriculture. The most recent 2001 SCF data include information for 4,442 households. Fifty one households in the SCF data reported that they had a farm business and are subsequently excluded from the analysis, leading to 4,391 nonfarm households. The nonfarm households in the SCF are further subdivided into 3,088 households without businesses and 1,303 households with businesses. The ARMS data for 2001 include information for 7,343 households. Based on the USDA's farm typologies, farm households are grouped into 1,940 rural residence farms (limited-resource, retirement, and residential/lifestyle), 2,435 intermediate farms (those with sales less than $\$ 250,000$ and whose operators report farming as their major business) and 2,968 commercial farms (those with sales greater than $\$ 250,000$ ).

## Descriptive Statistics

Table 1 and table 2 provide descriptive statistics for farm and nonfarm households. On average, farm households have slightly lower income of $\$ 63,983$ than nonfarm households which have an average income of $\$ 69,157$. On the other hand, farm households have net worth of $\$ 539,701$ which is higher than the nonfarm households' average wealth of $\$ 394,310$. When formally testing equality of means using Tukey-Kramer tests, the results show that the average income and net worth do not differ significantly between farm and nonfarm households.

Income and wealth differ by type of household. The average income is $\$ 69,271$ for rural residence farms, $\$ 39,007$ for intermediate farms, and $\$ 129,991$ for commercial farms. The average wealth is $\$ 376,360$ for rural residence farms, $\$ 647,711$ for intermediate farms, and $\$ 1,488,831$ for commercial farms. When the three types of farm households are compared against each other using the Tukey-Kramer test, their income and net worth turn out to be significantly different.

Nonfarm households without businesses have an average income of \$54,446 and wealth of $\$ 231,901$ whereas nonfarm households with businesses have an income of $\$ 169,224$ and wealth of $\$ 1,499,031$. The Tukey-Kramer test show that both the mean income and net worth differ significantly based on whether or not the nonfarm households have businesses.

Mean separation tests are also conducted for the three types of farm households and two types of nonfarm households, with these 5 types of households considered together (table 3). The results show that nonfarm households with businesses outperform nonfarm households without businesses, rural residence farm households, and intermediate farm households in terms of income and net worth. No other means are significantly different from each other. These findings indicate that rural residence farms and intermediate farms are comparable to wageearning nonfarm households whereas commercial farms are comparable to nonfarm households with businesses.

Income and net worth exhibit patterns consistent with the life-cycle hypothesis. The mean separation tests for income and wealth based on age group are shown in tables 4,5 , and 6 . The average income for farm households is highest for the 35-44 age group while for nonfarm households it peaks for the 45-54 age group. Income for both farm and nonfarm households is significantly lower in the early (age <34) and late (age>65) stages than in the middle stages of the life cycle. The average incomes for age groups 35-44, 45-54, and 55-64 are not significantly different from each other for both farm and nonfarm households. There are fewer significant differences in mean incomes across the life-cycle stages when separate groups by household type are examined. The life cycle is less pronounced for nonfarm households without businesses where the average income only differs across ages<34 and ages 45-54 and for commercial farms where the average income only differ across ages 45-54 and 55-64.

Net worth for both farm and nonfarm households increases over the life cycle, reaches its highest average for age group 55-64, and then declines during retirement years. These findings are consistent with the life-cycle hypothesis. Wealth for farm households in the <34, 35-44, and 4554 age groups are significantly lower than the average wealth for age groups 55-64, and $>65$ years (tables 5 and 6). Similar results are found for nonfarm households, although with fewer significant differences. The results also show that similar life-cycle trends are followed by the five household types.

Overall, the descriptive statistics and Tukey-Kramer mean separation tests support the life-cycle hypothesis for all farm and nonfarm households and by household type. The major result is that when the five household types are simultaneously compared, the income and wealth of nonfarm households with businesses and commercial farms do not differ significantly from each other and the income and net worth of nonfarm households without businesses do not differ significantly from those of rural residence and intermediate farms.

## Regression Analysis

The life-cycle hypothesis is tested using regression analysis where the different stages of the lifecycle (ages $35-44,45-54,55-64,>65$ ) are represented with dummy variables. The results shown in tables 7 and 8 indicate that in comparison to the age group of less than 34 years, both farm and
nonfarm households generally exhibit higher incomes and net worth later in life, with the exception of farm household's income with heads older than 65 years. The regression results show different trends by household type. For example, commercial farms do not exhibit a strong life-cycle in income, except for the middle aged households of 45-54 years. For all but rural residence farms, income for households between 35-44 years of age is not significantly higher than the income of those households with heads younger than 35 years of age. On the other hand, households with heads between 35-44 years are the only group with significantly higher wealth in comparison to households with heads younger than 35 years. Both education and household size are associated with higher income and wealth for all farm and nonfarm households. When considering household type, the household size only has a positive effect on the income of rural residence farms and wage-earning nonfarm households and the net worth of wage-earning nonfarm households and insignificant effect for other types of households.

In summary, the regression results confirm the findings from the Tukey-Kramer mean separation tests that both farm and non-farm households exhibit strong life cycle in income and wealth. The only exception is that the income of commercial farms does not follow strongly the life-cycle hypothesis. Moreover, education and income are shown to be positively associated with household income and wealth.

## Inequality Distributions

Gini coefficients for all farm and all nonfarm households and for groups of households based on their type and age are shown in tables 9 and 10 . The results show that wealth is slightly more equally distributed than income for farm households, with coefficients of 0.5659 and 0.5993 , respectively. The income inequality tends to increase from rural residence to intermediate to commercial farm households. Wealth inequality is highest for rural residence farms, lower for commercial farms, and lowest for intermediate farms. For nonfarm households, income is more equally distributed than net worth, with Gini coefficients of 0.5604 and 0.8070 , respectively. Nonfarm households without businesses generally have more equally distributed incomes and less equally distributed net worth than do nonfarm households with businesses.

Income and wealth inequalities also vary along the life-cycle stages of the households. The income inequality generally tends to increase over the life cycle. For farm households, the income inequality peaks for ages greater than 65 years while for nonfarm households the income inequality is highest for ages 55 to 64 . The wealth inequality is generally highest in the earliest stages of the life cycle and then tends to diminish for households headed by older individuals. For farm households, the wealth inequality peaks at ages 35 to 44 while for nonfarm households the wealth inequality is highest for the youngest households of less than 34 years of age.

Overall, the results show that the life-cycle stages of income and wealth inequality of farm and nonfarm households exhibit similar patterns. The major difference is that wealth is more equally distributed than income for farm households, whereas the opposite result is true for nonfarm households with income being more equally distributed than wealth.

## Conclusions

This paper compares the economic well-being of farm and nonfarm households using national, representative data from the USDA's Agricultural Resource Management Survey and the 2001 Federal Reserve Board's Survey of Consumer Finances. Economic well-being is measured by the level of households' income and net worth. The study uses three methods to compare households: Tukey-Kramer mean separation tests, regression analysis, and Gini coefficients of inequality distributions.

Income and wealth comparisons between farm and nonfarm households reveal several interesting results. The Tukey-Kramer mean comparison tests show that income and wealth differ among some types of households and are similar across others. Income and wealth differ significantly across rural residence, intermediate, and commercial farms. The well-being also significantly differs across nonfarm households without and with businesses. The well-being of rural residence farms is generally similar to wage-earning nonfarm households, while commercial farms have similar economic well-being to nonfarm households running a business. Both commercial farms and nonfarm households with businesses have significantly higher income and wealth than rural residence and intermediate farms and wage-earning nonfarm households. The Tukey-Kramer tests and regression analysis show that both farm and nonfarm households follow the life-cycle pattern for income and net worth. Income is higher for the 35-44, 45-54, and 55-64 age groups and significantly lower for the <34 and >65 age groups, whereas wealth is significantly higher for the 55-64 age group in comparison to the other groups. Commercial farms tend to have a less pronounced life-cycle in income.

Income and wealth inequality among farm households and among nonfarm households are examined using Gini indices of inequality. Results show that wealth is more equally distributed than income for farm households while income is more equally distributed than wealth for nonfarm households. Income inequality tends to be highest for households headed by middle age individuals, while the wealth inequality is generally highest among households headed by younger individuals.

While farm households on average are comparable to nonfarm households in well-being, the results from this study show that different types of farm and nonfarm households differ significantly from each other. A more comprehensive analysis reveals that the level of income and net worth and their distribution among households and across life-cycle stages may differ significantly across different types of households. The insights from this study may have important implications for farm policy focusing on the economic well-being of farm households.

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Table 1. Descriptive Statistics for Farm Households

|  | All Farm Households | Rural Residence Farm Households | Intermediate Farm Households | Commercial Farm Households |
| :---: | :---: | :---: | :---: | :---: |
| Mean income |  |  |  |  |
| All | 63,983 | 69,271 | 39,007 | 129,991 |
| Age < 34 | 51,085 | 58,073 | 26,994 | 84,978 |
| Age 35-44 | 72,240 | 75,835 | 44,991 | 114,605 |
| Age 45-54 | 71,568 | 71,279 | 37,515 | 161,035 |
| Age 55-64 | 68,981 | 77,294 | 46,346 | 102,143 |
| Age > 65 | 48,846 | 55,679 | 35,147 | 141,738 |
| Mean net worth |  |  |  |  |
| All | 539,701 | 376,360 | 647,711 | 1,488,831 |
| Age < 34 | 224,213 | 143,723 | 284,285 | 796,248 |
| Age 35-44 | 313,455 | 181,468 | 404,316 | 1,026,620 |
| Age 45-54 | 560,036 | 370,658 | 657,933 | 1,718,304 |
| Age 55-64 | 663,742 | 494,738 | 789,487 | 1,534,475 |
| Age > 65 | 653,350 | 525,172 | 701,188 | 2,020,450 |
| Number of sample households |  |  |  |  |
| All | 7,343 | 1,940 | 2,435 | 2,968 |
| Age < 34 | 391 | 109 | 135 | 147 |
| Age 35-44 | 1,429 | 317 | 371 | 741 |
| Age 45-54 | 2,369 | 653 | 629 | 1,087 |
| Age 55-64 | 1,700 | 443 | 586 | 671 |
| Age > 65 | 1,454 | 418 | 714 | 322 |
| Number of represented households |  |  |  |  |
| All | 2,094,322 | 1,287,854 | 659,933 | 146,534 |
| Age < 34 | 141,565 | 93,059 | 39,567 | 8,939 |
| Age 35-44 | 374,525 | 251,239 | 88,001 | 35,286 |
| Age 45-54 | 586,856 | 396,806 | 136,728 | 53,322 |
| Age 55-64 | 461,321 | 278,867 | 149,987 | 32,467 |
| Age > 65 | 530,054 | 267,883 | 245,650 | 16,521 |

Table 2. Descriptive Statistics for Nonfarm Households

|  | All Nonfarm Households | Nonfarm <br> Households without Businesses | Nonfarm Households with Businesses |
| :---: | :---: | :---: | :---: |
| Mean income |  |  |  |
| All | 69,157 | 54,446 | 169,224 |
| Age < 34 | 44,269 | 40,409 | 89,327 |
| Age 35-44 | 76,871 | 61,791 | 163,379 |
| Age 45-54 | 97,506 | 73,044 | 205,172 |
| Age 55-64 | 89,819 | 68,176 | 190,104 |
| Age > 65 | 47,328 | 38,802 | 154,757 |
| Mean net worth |  |  |  |
| All | 394,310 | 231,901 | 1,499,031 |
| Age < 34 | 84,471 | 53,149 | 450,075 |
| Age 35-44 | 259,876 | 134,957 | 976,475 |
| Age 45-54 | 492,734 | 253,223 | 1,546,933 |
| Age 55-64 | 730,121 | 386,470 | 2,322,445 |
| Age > 65 | 566,381 | 414,773 | 2,476,549 |
| Number of sample households |  |  |  |
|  |  |  |  |
| All | 4,391 | 3,088 | 1,303 |
| Age < 34 | 801 | 728 | 73 |
| Age 35-44 | 924 | 657 | 267 |
| Age 45-54 | 1,048 | 625 | 423 |
| Age 55-64 | 722 | 415 | 307 |
| Age > 65 | 896 | 663 | 233 |
| Number of represented households |  |  |  |
|  |  |  |  |
| All | 105,606,015 | 92,070,412 | 13,535,603 |
| Age < 34 | 24,092,658 | 22,191,452 | 1,901,206 |
| Age 35-44 | 23,630,400 | 20,122,584 | 3,507,817 |
| Age 45-54 | 21,705,723 | 17,687,234 | 4,018,489 |
| Age 55-64 | 13,925,286 | 11,453,441 | 2,471,845 |
| Age > 65 | 22,251,948 | 20,615,701 | 1,636,247 |

Table 3. Tukey-Kramer Tests for Farm and Nonfarm Households by Household Type Group

| Household type group (a) | Household Type Group (b) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Nonfarm Nonfarm HouseholdsHouseholds without with Businesses Businesses | Rural Residence Farm Households | Intermediate <br> Farm <br> Households | Commercial <br> Farm <br> Households |
| Income |  |  |  |  |
| Nonfarm households without businesses | X -114,778* | -14,825 | 15,439 | -75,545 |
| Nonfarm households with businesses | X | 99953* | 130217* | 39,233 |
| Rural residence farm households |  | X | 30264 | -60,720 |
| Intermediate farm households |  |  | X | -90,984 |
| Commercial farm households |  |  |  | X |
| Net worth |  |  |  |  |
| Nonfarm households without businesses | X -1267,130* | -144,459 | -415,810 | -1,256,930 |
| Nonfarm households with businesses | X | X 1,122,671* | 851,320* | 10,200 |
| Rural residence farm households |  | X | -271,351 | -1,112,471 |
| Intermediate farm households |  |  | X | -841,120 |
| Commercial farm households |  |  |  | X |

Notes: The numbers in the table are differences in means between group (a) and group (b). The asterisks denote significant differences at the $95 \%$ significance level.

Table 4. Tukey-Kramer Tests for Farm Households by Age Group

| Age group (a) | Age Group (b) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Age <34 Age 35-44 Age 45-54 Age 55-64 Age > ${ }^{\text {a }}$ |  |  |  |  |
| Income for all farm households |  |  |  |  |  |
| Age < 34 |  | X 21155* | 20483* | 17895 | -2239 |
| Age 35-44 |  | X | -672 | -3260 | -23394* |
| Age 45-54 |  |  | X | -2587 | -22722* |
| Age 55-64 |  |  |  | X | -20135* |
| Age > 65 |  |  |  |  | X |

Income for rural residence farm households

| Age $<34$ | X | 17762 | 13206 | 19221 | -2394 |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Age 35-44 |  | X | -4555 | 1459 | $-20156^{*}$ |
| Age 45-54 |  |  | X | 6014 | -15601 |
| Age 55-64 |  |  |  | X | $-21615^{*}$ |
| Age $>65$ |  |  |  |  | X |

Income for intermediate farm households

| Age < 34 | X | 17997* | 10520 | 19352* | 8153 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Age 35-44 |  | X | -7476 | 1355 | -9844* |
| Age 45-54 |  |  | X | 8831 | -2367 |
| Age 55-64 |  |  |  | X | -11199* |
| Age > 65 |  |  |  |  | X |
| Income for commercial farm households |  |  |  |  |  |
| Age < 34 | X | 29627 | 76056 | 17165 | 56760 |
| Age 35-44 |  | X | 46429 | -12462 | 27132 |
| Age 45-54 |  |  | X | -58891* | -19297 |
| Age 55-64 |  |  |  | X | 39594 |

Age >65
X
Notes: The numbers in the table are differences in means between group (a) and group (b). The asterisks denote significant differences at the $95 \%$ significance level.

Table 5. Tukey-Kramer Tests for Farm Households by Age Group

| Age group (a) | Age Group (b) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Age < 34 | Age 35-44 | Age 45-54 | ge 55-64 | Age >65 |
| Net worth for all farm households |  |  |  |  |  |
| Age < 34 | X | X 89242 | 335822* | 439529* | 429137* |
| Age 35-44 |  | X | 246580* | 350287* | 339895* |
| Age 45-54 |  |  | X | 103707* | 93315* |
| Age 55-64 |  |  |  | X | -10392 |
| Age > 65 |  |  |  |  | X |

Net worth for rural residence farm households

| Age $<34$ | X | 37745 | $226935^{*}$ | $351015^{*}$ | $381449^{*}$ |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Age 35-44 |  | X | $189190^{*}$ | $313270^{*}$ | $343704^{*}$ |
| Age 45-54 |  | X | $124080^{*}$ | $154514^{*}$ |  |
| Age 55-64 |  |  |  | X | 30434 |

Age >65
Net worth for intermediate farm households
Age < 34
X 120031 373649* 505202* 416903*
Age 35-44
Age 45-54
X 253618* 385171* 296872*
X 131553* 43254
Age 55-64
X -88299

Age > 65
Net worth for commercial farm households

| Age $<34$ | X | 230372 | $922055^{*}$ | $738227^{*}$ | $1224202^{*}$ |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Age 35-44 |  | X | $691684^{*}$ | $507856^{*}$ | $993830^{*}$ |
| Age 45-54 |  |  | X | -183828 | 302147 |
| Age 55-64 |  |  |  | X | 485975 |

Age >65
X
Notes: The numbers in the table are differences in means between group (a) and group (b). The asterisks denote significant differences at the $95 \%$ significance level.

Table 6. Tukey-Kramer Tests for Nonfarm Households by Age Group

| Age group (a) | Age Group (b) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Age <34 Age 35-44 Age 45-54 Age 55-64 Age >65 |  |  |  |  |
| Income for all nonfarm households |  |  |  |  |  |
| Age <34 | X | 32602* | 53236* | 45550* | 3059 |
| Age 35-44 |  | X | 20635 | 12948 | -29543* |
| Age 45-54 |  |  | X | -7686 | -50177* |
| Age 55-64 |  |  |  | X | -42491* |
| Age > 65 |  |  |  |  | X |
| Income for nonfarm households without businesses |  |  |  |  |  |
| Age <34 | X | 21382 | 32635* | 27767 | -1607 |
| Age 35-44 |  | X | 11253 | 6385 | -22989 |
| Age 45-54 |  |  | X | -4868 | -34242* |
| Age 55-64 |  |  |  | X | -29374 |
| Age > 65 |  |  |  |  | X |

Income for nonfarm households with businesses

| Age $<34$ | X | 74052 | $115845 *$ | 100777 | 65430 |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Age $35-44$ |  | X | 41793 | 26725 | -8623 |
| Age $45-54$ |  |  | X | -15068 | -50416 |
| Age 55-64 |  |  |  | X | -35348 |
| Age $>65$ |  |  |  |  | X |

Net worth for all nonfarm households
Age < 34
Age 35-44
Age 45-54
Age 55-64
$\begin{array}{rrrrr}\mathrm{X} & 175405 & 408263^{*} & 645649^{*} & 481910^{*} \\ \mathrm{X} & 232858 & 470245^{*} & 306505^{*} \\ & \mathrm{X} & 237387 & 73648 \\ & & \mathrm{X} & -163739 \\ & & & \mathrm{X}\end{array}$
Age $>65$

Net worth for nonfarm households without businesses
$\begin{array}{lrrrrr}\text { Age }<34 & \mathrm{X} & 81808 & 200074^{*} & 333322^{*} & 361624^{*} \\ \text { Age 35-44 } & & \mathrm{X} & 118266 & 251514^{*} & 279816^{*} \\ \text { Age 45-54 } & & & \mathrm{X} & 133248 & 161551^{*} \\ \text { Age 55-64 } & & & & \mathrm{X} & 28303\end{array}$
Age > 65
Net worth for nonfarm households with businesses

| Age $<34$ | X | 526400 | 1096858 | $1872370^{*}$ | $2026474^{*}$ |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Age 35-44 |  | $X$ | 570458 | $1345970^{*}$ | $1500074^{*}$ |
| Age 45-54 |  |  | $X$ | 775512 | 929616 |
| Age 55-64 |  |  |  | $X$ | 154104 |

Age $>65$
X
Notes: The numbers in the table are differences in means between group (a) and group (b). The asterisks denote significant differences at the $95 \%$ significance level.

Table 7. Regression Results for Farm Households

|  | All Farms | $\qquad$ | Intermediate Farms | Commercial Farms |
| :---: | :---: | :---: | :---: | :---: |
| Income |  |  |  |  |
| Intercept | $\begin{gathered} -1231 \\ (12907) \end{gathered}$ | $\begin{gathered} -507 \\ (16476) \end{gathered}$ | $\begin{gathered} 2869 \\ (9729) \end{gathered}$ | $\begin{gathered} 61013 \\ (86001) \end{gathered}$ |
| Age class 35-44 | $\begin{gathered} 17043 * * \\ (6007) \end{gathered}$ | $\begin{aligned} & 13965^{*} \\ & (7320) \end{aligned}$ | $\begin{gathered} 16130 \\ (11278) \end{gathered}$ | $\begin{gathered} 13120 \\ (37802) \end{gathered}$ |
| Age class 45-54 | $\begin{aligned} & 18453 * \\ & (9608) \end{aligned}$ | $\begin{gathered} 12161 \\ (12127) \end{gathered}$ | $\begin{aligned} & 7931 * \\ & (4549) \end{aligned}$ | $\begin{aligned} & 80310^{* *} \\ & (24986) \end{aligned}$ |
| Age class 55-64 | $\begin{gathered} 21643 * * \\ (9519) \end{gathered}$ | $\begin{aligned} & 22270^{*} \\ & (12099) \end{aligned}$ | $\begin{gathered} 23181 * * \\ (4958) \end{gathered}$ | $\begin{gathered} 456 \\ (45985) \end{gathered}$ |
| Age class > 65 | $\begin{gathered} 6001 \\ (9594) \end{gathered}$ | $\begin{gathered} 7796 \\ (14314) \end{gathered}$ | $\begin{gathered} 10749 * * \\ (4794) \end{gathered}$ | $\begin{array}{r} 49500 \\ (48769) \end{array}$ |
| Education | $\begin{gathered} 15670^{* *} \\ (3590) \end{gathered}$ | $\begin{gathered} 16781 * * \\ (4326) \end{gathered}$ | $\begin{aligned} & 7910 * * \\ & (2457) \end{aligned}$ | $\begin{gathered} 16462 \\ (20569) \end{gathered}$ |
| Household size | $\begin{aligned} & 4690 * * \\ & (2162) \end{aligned}$ | $\begin{aligned} & 5427 * * \\ & (2572) \end{aligned}$ | $\begin{gathered} 2015 \\ (1812) \end{gathered}$ | $\begin{gathered} 205 \\ (9860) \end{gathered}$ |
| Adj. R-squared | 0.018 | 0.038 | 0.031 | 0.004 |
| Net worth |  |  |  |  |
| Intercept | $\begin{gathered} -331650 * * \\ (121844) \end{gathered}$ | $\begin{gathered} -361955 * * \\ (144564) \end{gathered}$ | $\begin{aligned} & -25224 \\ & (52561) \end{aligned}$ | $\begin{gathered} -621086 \\ (734576) \end{gathered}$ |
| Age class 35-44 | $\begin{aligned} & 49777 \\ & (90307) \end{aligned}$ | $\begin{gathered} 18326 \\ (124618) \end{gathered}$ | $\begin{gathered} 133249 * * \\ (57220) \end{gathered}$ | $\begin{gathered} 196976 \\ (196574) \end{gathered}$ |
| Age class 45-54 | $\begin{gathered} 330081 * * \\ (27823) \end{gathered}$ | $\begin{gathered} 225871 * * \\ (31209) \end{gathered}$ | $\begin{gathered} 387390^{* *} \\ (84830) \end{gathered}$ | $\begin{gathered} 1205221 * * \\ (252738) \end{gathered}$ |
| Age class 55-64 | $\begin{gathered} \text { 475214** } \\ (47696) \end{gathered}$ | $\begin{gathered} 373149 * * \\ (53184) \end{gathered}$ | $\begin{gathered} 540440 * * \\ (53842) \end{gathered}$ | $\begin{gathered} 927276 * * \\ (247475) \end{gathered}$ |
| Age class > 65 | $\begin{gathered} 534839 * * \\ (59681) \end{gathered}$ | $\begin{gathered} 467486 * * \\ (59959) \end{gathered}$ | $\begin{gathered} 471213^{* *} \\ (47139) \end{gathered}$ | $\begin{gathered} 1610608 * * \\ (538330) \end{gathered}$ |
| Education | $\begin{gathered} 153152^{* *} \\ (28457) \end{gathered}$ | $\begin{gathered} 157330 * * \\ (33621) \end{gathered}$ | $\begin{gathered} 93714 * * \\ (25592) \end{gathered}$ | $\begin{gathered} 376722 * * \\ (130340) \end{gathered}$ |
| Household size | $\begin{gathered} 46724 * * \\ (20821) \end{gathered}$ | $\begin{gathered} 30624 \\ (23325) \end{gathered}$ | $\begin{gathered} 18413 \\ (16856) \end{gathered}$ | $\begin{gathered} 100737 \\ (102179) \end{gathered}$ |
| Adj. R-squared | 0.044 | 0.157 | 0.050 | 0.023 |

Table 8. Regression Results for Nonfarm Households

|  | All Nonfarm Households | Nonfarm Households without Businesses | Nonfarm Households with Businesses |
| :---: | :---: | :---: | :---: |
| Income |  |  |  |
| Intercept | $\begin{gathered} -66,314 * * \\ (13190) \end{gathered}$ | $\begin{gathered} -34,732 * * \\ (11542) \end{gathered}$ | $\begin{gathered} -152,338 * * \\ (58391) \end{gathered}$ |
| Age class 35-44 | $\begin{gathered} 20,488 * * \\ (10395) \end{gathered}$ | $\begin{aligned} & 14,191 \\ & (9042) \end{aligned}$ | $\begin{gathered} 57,907 \\ (42743) \end{gathered}$ |
| Age class 45-54 | $\begin{gathered} 45,435^{* *} \\ (10496) \end{gathered}$ | $\begin{gathered} 28,747 * * \\ (9258) \end{gathered}$ | $\begin{gathered} 105,141 * * \\ (41091) \end{gathered}$ |
| Age class 55-64 | $\begin{gathered} 50,832 * * \\ (12009) \end{gathered}$ | $\begin{gathered} 32,825^{*} * \\ (10666) \end{gathered}$ | $\begin{gathered} 107,159 * * \\ (44687) \end{gathered}$ |
| Age class > 65 | $\begin{gathered} 23,148 * * \\ (10742) \end{gathered}$ | $\begin{aligned} & 12,256 \\ & (9207) \end{aligned}$ | $\begin{aligned} & 86,343^{*} \\ & (49721) \end{aligned}$ |
| Education | $\begin{gathered} 31,032 * * \\ (3193) \end{gathered}$ | $\begin{gathered} 21,902^{* *} \\ (2814) \end{gathered}$ | $\begin{gathered} 62,800 * * \\ (12988) \end{gathered}$ |
| Household size | $\begin{gathered} 10,809 * * \\ (2766) \end{gathered}$ | $\begin{gathered} 6,885 * * \\ (2439) \end{gathered}$ | $\begin{aligned} & 15,104 \\ & (10305) \end{aligned}$ |
| Adj. R-squared | 0.03 | 0.03 | 0.02 |
| Net worth |  |  |  |
| Intercept | $\begin{gathered} -840,321 * * \\ (117347) \end{gathered}$ | $\begin{gathered} -446,578 * * \\ (67693) \end{gathered}$ | $\begin{gathered} -1,926,427 * * \\ (631386) \end{gathered}$ |
| Age class 35-44 | $\begin{gathered} 78,749 \\ (92479) \end{gathered}$ | $\begin{aligned} & 36,811 \\ & (53030) \end{aligned}$ | $\begin{aligned} & 432,205 \\ & (462187) \end{aligned}$ |
| Age class 45-54 | $\begin{gathered} 342,201 * * \\ (93376) \end{gathered}$ | $\begin{gathered} 173,287 * * \\ (54296) \end{gathered}$ | $\begin{gathered} 1,027,153 * * \\ (444324) \end{gathered}$ |
| Age class 55-64 | $\begin{gathered} 683,679 * * \\ (106837) \end{gathered}$ | $\begin{gathered} 362,748^{* *} \\ (62557) \end{gathered}$ | $\begin{gathered} 1,923,584 * * \\ (483211) \end{gathered}$ |
| Age class > 65 | $\begin{gathered} 643,851 * * \\ (95571) \end{gathered}$ | $\begin{gathered} 449,735 * * \\ (53998) \end{gathered}$ | $\begin{gathered} 2,203,143 * * \\ (537638) \end{gathered}$ |
| Education | $\begin{gathered} 269,385 * * \\ (28404) \end{gathered}$ | $\begin{gathered} 152,291 * * \\ (16501) \end{gathered}$ | $\begin{gathered} \text { 672,968** } \\ (140438) \end{gathered}$ |
| Household size | $\begin{gathered} 79,823 * * \\ (24612) \end{gathered}$ | $\begin{gathered} 38,821 * * \\ (14305) \end{gathered}$ | $\begin{gathered} 76,630 \\ (111426) \end{gathered}$ |
| Adj. R-squared | 0.03 | 0.05 | 0.03 |

Table 9. Inequality Measures for Farm Households

|  | All <br> Farm Households | Rural Residence <br> Farm Households | Intermediate Farm <br> Households | Commercial Farm <br> Households |
| :--- | :---: | :---: | :---: | :---: |
| Gini coefficients <br> for income |  |  |  |  |
| All | 0.5993 | 0.4796 | 0.6255 | 0.9582 |
| Age <34 | 0.5996 | 0.4680 | 0.8442 | 0.8372 |
| Age 35-44 | 0.5432 | 0.3956 | 0.5622 | 1.0542 |
| Age 45-54 | 0.5790 | 0.4442 | 0.6886 | 0.8231 |
| Age 55-64 | 0.6091 | 0.4944 | 0.6157 | 1.1906 |
| Age >65 | 0.6196 | 0.5605 | 0.5725 | 0.9593 |
| Gini coefficients |  |  |  |  |
| for net worth |  |  |  |  |
| All | 0.5659 | 0.5784 | 0.4593 | 0.5461 |
| Age <34 | 0.5611 | 0.4865 | 0.4756 | 0.5444 |
| Age 35-44 | 0.8291 | 1.2112 | 0.4483 | 0.4858 |
| Age 45-54 | 0.5466 | 0.4606 | 0.4711 | 0.5841 |
| Age 55-64 | 0.4871 | 0.4653 | 0.4277 | 0.4679 |
| Age >65 | 0.4856 | 0.4885 | 0.4275 | 0.5217 |

Table 10. Inequality Measures for Nonfarm Households

|  | All Nonfarm <br> Households | Nonfarm <br> Households without <br> Businesses | Nonfarm <br> Households with <br> Businesses |
| :--- | :---: | :---: | :---: |
| Gini coefficients |  |  |  |
| for income | 0.5604 | 0.4984 |  |
| All | 0.4398 | 0.4169 | 0.6041 |
| Age <34 | 0.5018 | 0.4347 | 0.4776 |
| Age 35-44 | 0.5762 | 0.5044 | 0.5692 |
| Age 45-54 | 0.6154 | 0.5592 | 0.6119 |
| Age 55-64 | 0.5681 | 0.5133 | 0.6295 |
| Age >65 |  |  | 0.5948 |
| Gini coefficients | 0.8070 |  |  |
| for net worth | 0.8656 | 0.7626 | 0.7376 |
| All | 0.7665 | 0.8511 | 0.7685 |
| Age <34 | 0.7718 | 0.6908 | 0.6804 |
| Age 35-44 | 0.7898 | 0.7077 | 0.6848 |
| Age 45-54 | 0.7543 | 0.7288 | 0.7203 |
| Age 55-64 | 0.7069 | 0.7345 |  |
| Age >65 |  |  |  |


[^0]:    * Ani L. Katchova is an assistant professor in the Department of Agricultural and Consumer Economics at the University of Illinois at Urbana-Champaign. The author would like to thank Robert Dubman and Mark Schleusener for their assistance in accessing the ARMS data.

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