FARM HOUSEHOLD WEALTH: MEASUREMENT, STRUCTURE, AND DETERMINANTS

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Introduction

This paper documents in detail the differences between farm household and nonfarm household wealth structure and attempts to shed light on potential explanations for the differences. Particular attention is paid to households at or near retirement.

A better understanding of farm household wealth should be useful in the farm policy debate. Knowledge concerning the level and structure of farm household wealth is relevant to the decision of whether to transfer wealth and income from nonfarm households to farm households. Furthermore, knowledge of the determinants of farm household wealth should help determine policy designed to affect farmers' saving decisions. Whether an average farmer's wealth at retirement is largely determined by income and/or circumstances beyond his control as opposed to the decision of how much to save is an important policy question. If retirement wealth is relatively unaffected by the saving decision, policies designed to promote wealth accumulation through promoting saving (e.g., estate tax repeal) will be ineffective (see Venti and Wise (2000) for more on this point).

Data

Household wealth is not a simple variable to measure. There is a long list of asset types and the valuation of specific assets is problematic (e.g., business interests, real estate, defined benefit pension plans, social security benefits, etc.).[1] Fortunately for researchers interested in wealth issues, two household surveys have made a concentrated effort to gather detailed household wealth information: *The Survey of Consumers Finances* (*SCF*) and the *Health and Retirement Survey* (*HRS*).[2] A brief description of the general characteristics of each data set is provided below along with a description of how each survey identifies farm households.[3]

Survey of Consumer Finances

Table 1 presents a summary of the characteristics of these two data sets. Table 2 provides the major wealth variables collected by each survey. The *SCF* is a cross-sectional data set conducted every three years by the Federal Reserve. The focus is on household wealth with all ages of the household head included. The *SCF* allows researchers to identify farm households through the following questions:

a. Where does respondent live? (possibilities include farm or ranch)

b. Do you operate a farming or ranching business on this property?

c. What is the value of farmland and buildings?

d. Do you work for someone or are you self-employed?

e. What kind of business do you work in?

We use question b above to identify farm households in the *SCF* survey.

A strength of the *SCF* is the detailed questions it contains on financial assets, nonfinancial assets, and liabilities. A weakness, perhaps, is that all ages of household heads are included. Given the sample size and the lack of a focus on a certain age group, it is difficult to come to strong conclusions about the structure of wealth of given groups while controlling for age. Finally, the *SCF* oversamples high net worth families and thus provides meaningful estimates of population parameters.[4]

Health and Retirement Study

The *HRS* is sponsored by the Michigan Center on the Demography of Aging. It is similar to the *SCF* in terms of the detailed wealth information it collects. Similar to the *SCF*, it allows researchers to identify farm families with the following questions:

a. Does respondent live on a farm or ranch?

b. Do you own this farm/ranch; do you own part of it; do you rent it?

c. What kind of business or industry do you work in—that is, what do you do or make at the place where you work?

d. Do you work for someone else, are you self-employed, or what?

We use question b above to identify farm households in the *HRS* data set. For purposes of comparing farm household wealth with other groups, an advantage of the *HRS* is its focus on individuals at or near retirement. The *HRS* only sampled households in which one household member was born between 1931 and 1941. At the time of wave 1 of the survey (1992), the average age of the respondent was 56. Furthermore, the sample is much larger than the *SCF* and the *HRS* is a panel data set. For questions concerning the structure of wealth of comparable groups at or near retirement and how these individuals are or will fare during retirement, the *HRS* survey probably provides more focused information than the *SCF*.

Descriptive Statistics

Before presenting wealth data, Figures 1a and 1b show total household income from the *SCF* and *HRS*, respectively. Mean farm household income from both surveys was approximately $52,000. Mean nonfarm household income was approximately $38,000 in the *SCF* and $50,000 in the *HRS*. The average age of farm and nonfarm households is 52.7 and 48.4 in the *SCF*, respectively, and 56.6 and 56.1 in the *HRS*, respectively. Comparing the results from the *HRS* to the *SCF*, were on average the respondents are younger, shows an interesting result: Nonfarm household income is higher in the *HRS* while farm household income is lower in the *HRS* relative to the *SCF*.

For comparison, the *Structural and Financial Characteristics of U.S. Farms: 2001 Family Farm Report* (hereafter *Family Farm Report*) (Hoppe 2001) estimates mean income of $59,700 in 1998 for farm households and $51,900 for all U.S. households. (Data from the *SCF* and *HRS* are for 1992.) Hence, the mean income estimates from the *SCF* and *HRS* appear consistent with other sources.

Farm household income and age are higher than comparable variables for nonfarm households but it is our hypothesis that these differences do not explain the wealth dispersion between farm and nonfarm households. Before this hypothesis is formally tested, Figures 2a through 5b present detailed information on the structure of farm and nonfarm household wealth.

The *SCF* and *HRS*, respectively, yield net worth estimates of farm households of approximately $650,000 and $435,000. The *SCF* and *HRS* result in mean net worth estimates for nonfarm households of approximately $180,000 and $260,000, respectively, in 1992. (The *Family Farm Report* estimates net worth of family farm households at approximately $500,000 and reports that the mean net worth of all U.S. households was $282,500 in 1998.) Again, the results appear consistent with other sources. The remarkable result is the large wealth difference between farm and nonfarm households.

Figures 3a and 3b report financial asset wealth for the two different types of households (see Table 2 for the definitions of financial wealth in the two data sets). These two tables show that the difference in farm and nonfarm financial wealth are not as great as the differences in total net worth. Indeed, the *HRS* implies that nonfarm families have slightly more financial wealth than nonfarm families.

Figures 4a and 4b report estimates of retirement account balances. Both data sets imply that nonfarm households have larger retirement account balances. Finally, Figures 5a and 5b illustrate the wealth distribution.

Determinants of Wealth Dispersion

Farm households have significantly higher levels of wealth than nonfarm households. Differences in income levels, investment choice, and age do not appear on the surface to explain the dispersion between farm household and nonfarm household wealth. It is our hypothesis that the explanation for higher farm household net worth is farm household saving behavior.

To test the hypothesis that farm households choose to save more than nonfarm households we follow Venti and Wise and "attribute to saving choice the dispersion that remains after accounting for . . . circumstances that limit or enhance resources." The following specification is used to control for factors, other than saving choice, that determine wealth:[5]

(1) $\text{Net worth} = ? + ?_1 \cdot \text{Age} + ?_2 \cdot \text{Amount of inheritances} + ?_3 \cdot \text{Income} + ? .$

As a preliminary procedure, equation (1) is estimated using (a) the entire sample, (b) farm households, and (c) nonfarm households and then the Chow test is applied.[6] Table 3 reports the results of the three estimates. The F-statistic (i.e., Chow test statistic) is 14.34. Therefore, we reject the hypothesis that the coefficients of equation (1) are equivalent across the two subsamples. The conclusion that farm household wealth is not affected by income, age, and inheritances equivalently to how nonfarm household wealth is affected by these variables implies that saving behavior, the variable left out of equation (1), also is fundamentally different across the two subsamples.

For additional insight into possible differences in saving behavior, the coefficients from equation (1), estimated using the total sample, were used to calculate predicted farm household wealth. Based on these estimated population parameters and farm household characteristics, farm household net worth is predicted at $255,300.[7] The fact that observed farm household net worth is $433,699 implies that income, inheritances, and age do not explain the dispersion in wealth between farm households and nonfarm households. Our preliminary conclusion is that it is saving behavior that explains this dispersion.

Conclusions

Farm households have higher net worth than nonfarm households. Differences in income, inheritances, and age do not appear to explain the difference. Based on our preliminary analysis, we attribute higher farm household wealth to the saving behavior of farm households.

References

Greene, W.H. *Econometric Analysis* (3rd ed.). Upper Saddle River, NJ: Prentice-Hall, 1997.

Hoppe, R.A. (editor). "Structural and Financial Characteristics of U.S. Farms: 2001 Family Farm Report." Economic Research Service, U.S. Department of Agriculture, Agriculture Information Bulletin No. 768, Washington, D.C., May 2001.

Juster, F.T., J.P. Smith, and F. Stafford. "The Measurement and Structure of Household Wealth." *Labour Economics* 6 (1999):253-275.

Smith, J.P. "Racial and Ethnic Differences in Wealth." *Journal of Human Resources* 30(1995): S158-S183.

Venti, S.F., and D.A. Wise. "Choice, Chance, and Wealth Dispersion." National Bureau of Economic Research, Working Paper 7521, February 2000.

Table 1. A Summary of the Characteristics of Major Data Sets that Contain Information on the Structure of Wealth of U.S. Households

Characteristic	*SCF*	*HRS*
1. Sponsor	Federal Reserve	Michigan Center on the Demographics of Aging
2. Unit of observation	Household	Household
3. Cohorts covered	All	Individuals at or close to retirement
4. Oversample	Wealthy	African Americans, Hispanics, residents of Florida
5. Sample size	4,500 households	7,600 households
6. Type of data set	Cross-section	Panel
7. Identify age?	Yes	Yes
8. Identify farm operators?	Yes	Yes
9. Identify self-employed?	Yes	Yes
10. Nature and value of financial assets	Detailed	Detailed
11. Nature and value of nonfinancial assets	Detailed	Detailed
12. Questions on IRA/KEOGH account balances?	Yes	Yes
13. Questions on defined benefit pensions?	Yes	Yes
14. Questions on Social Security benefits?	Yes	Yes

Table 2. Asset Categories of the *HRS* and *SCF* Data Sets

HRS[1]	*SCF*[1]
1. Housing equity	1. Liquid assets
2. Vehicles	2. CDs
3. CDs and government bonds	3. Total mutual funds
4. Checking, savings, & money market accounts	4. Stocks
5. Stocks, mutual funds, & investment trusts	5. Bonds
6. Bonds & bond funds	6. Retirement assets
7. Business equity	7. Savings bonds
8. IRAs and KEOGHs	8. Cash value of life insurance
9. Other assets	9. Other managed assets
	10. Other financial assets
	11. Vehicles
	12. Houses
	13. Other residential real estate
	14. Net equity in nonresidential real estate
	15. Business interests
	16. Other nonfinancial assets
Financial assets: 3 + 4 + 5 + 6 + 8	Financial assets: Sum of 1-10
Retirement accounts: 8	Retirement accounts: 6

[1]In general, the *HRS* asks for asset values net of associated debt. The *SCF* asks for gross values and contains another section that gathers detailed debt information.

Table 3. Test for Structural Differences in Wealth Equation: Farm Households versus Nonfarm Households

Coefficient*	Total Sample	Farm Households	Nonfarm Households
Constant	-507,872(-8.46)*	-22,670(-0.06)	-523,860(-8.68)
Age	8,766(8.28)	4,144(0.62)	8,906(8.36)
Inheritances	1.318(15.62)	1.062(1.23)	1.314(15.76)
Income	4.763(48.46)	3.968(4.34)	4.781(49.10)

*t-statistics are in parentheses.

Figure 1a. Household income in 1992: Farm and nonfarm households (SCF data set)

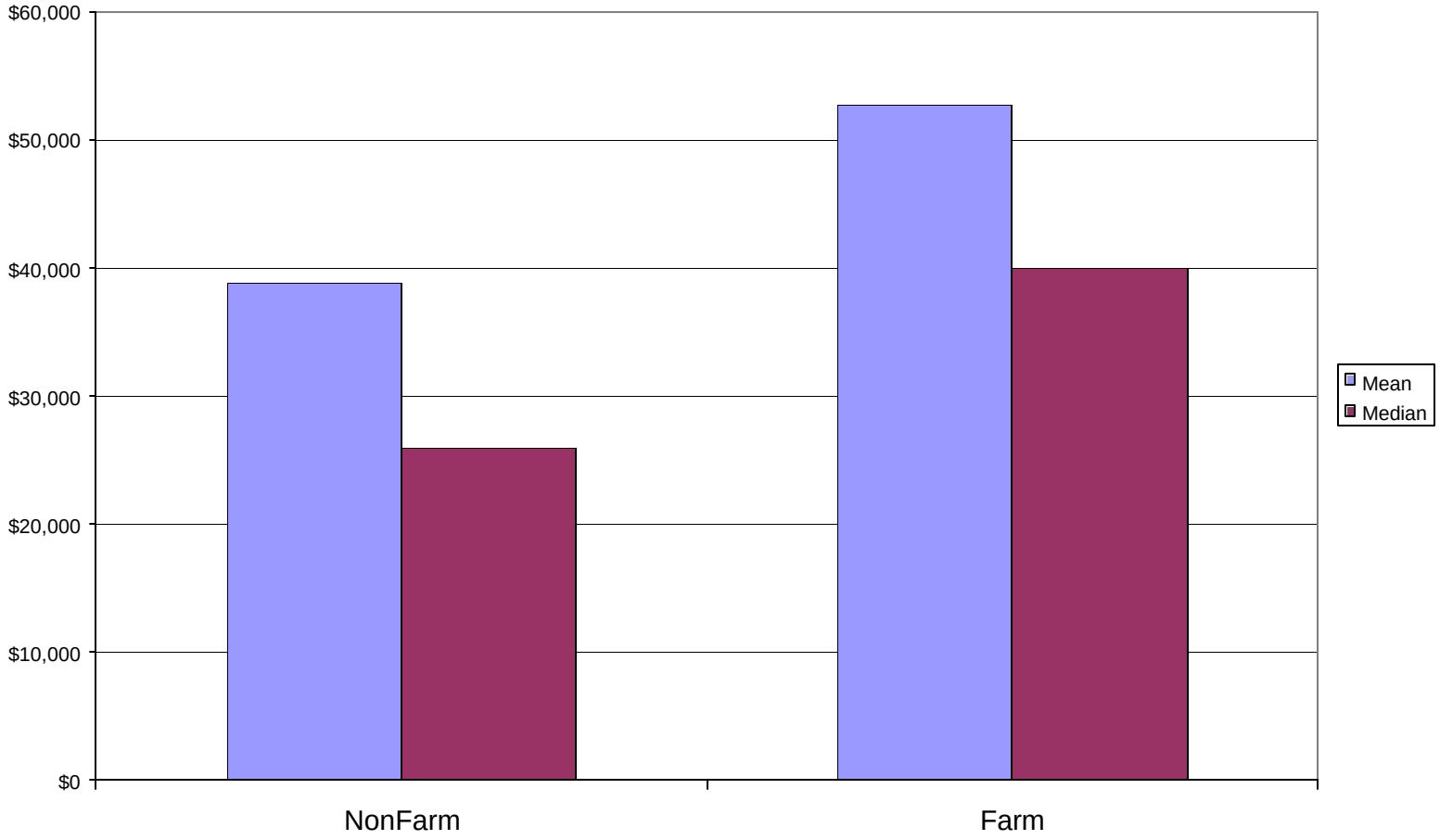


Figure 1b. Household income in 1992: Farm and nonfarm households (HRS data set)

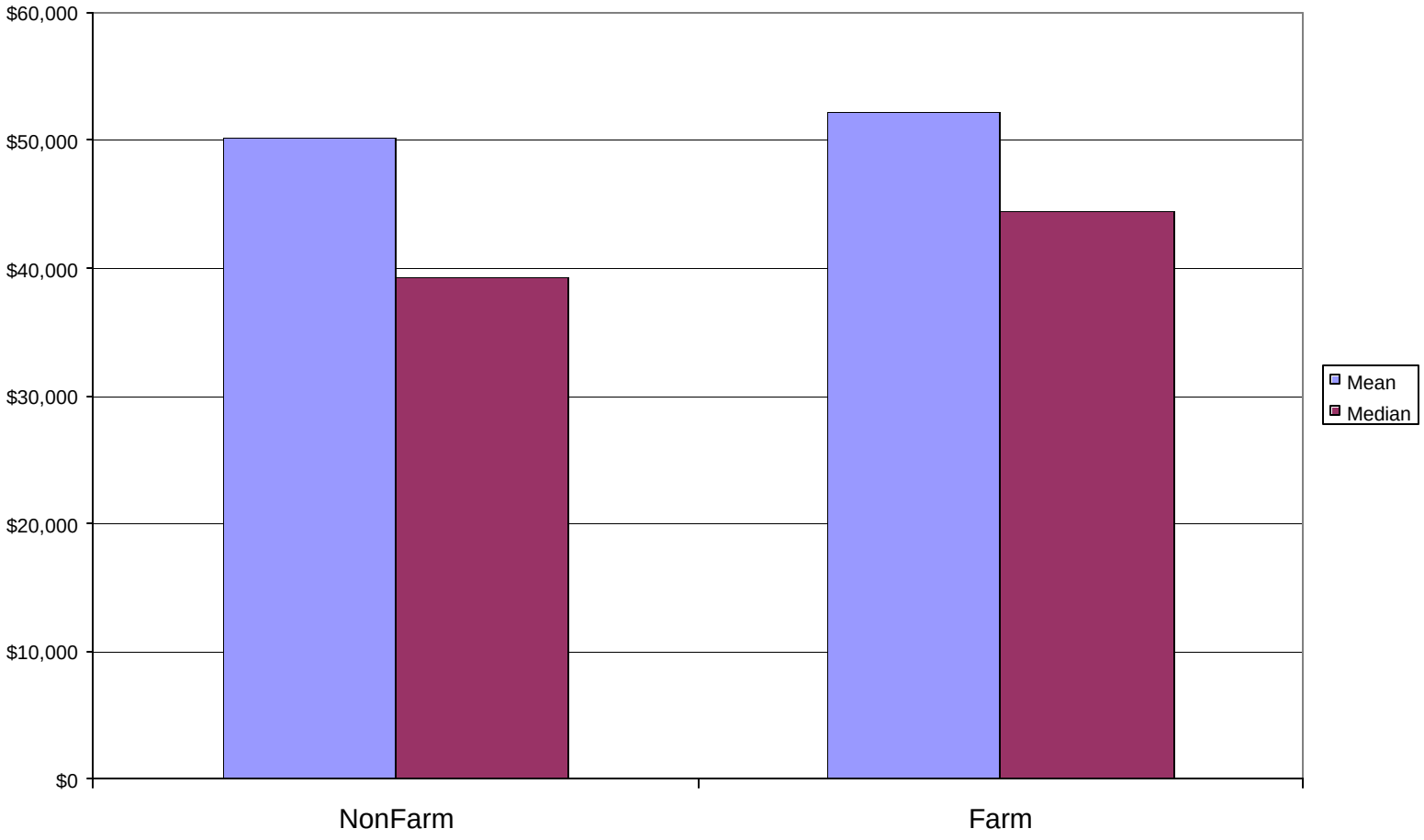


Figure 2a. Net worth: Farm and nonfarm households (SCF data set).

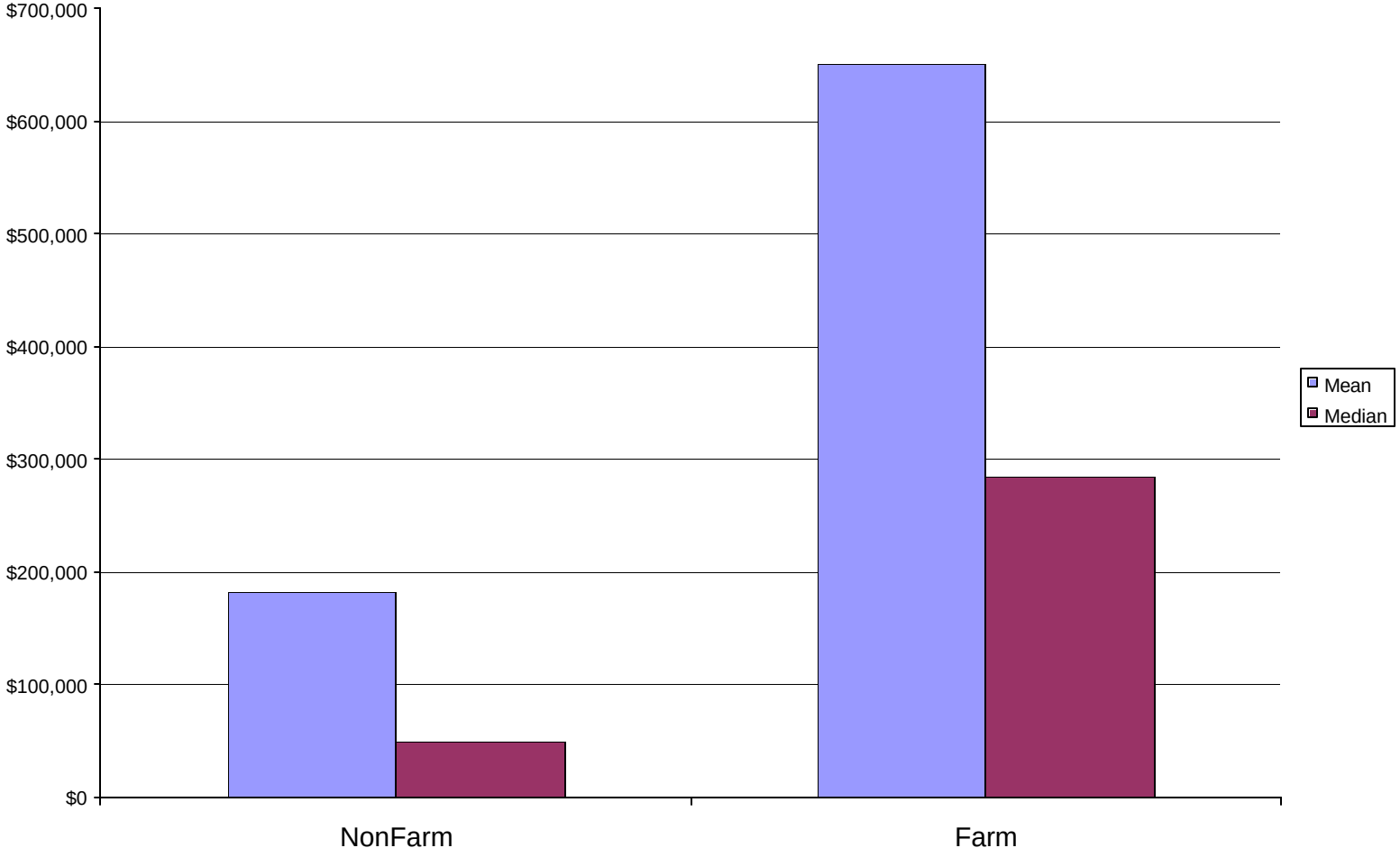


Figure 2b. Net worth: Farm and nonfarm households (HRS data set).

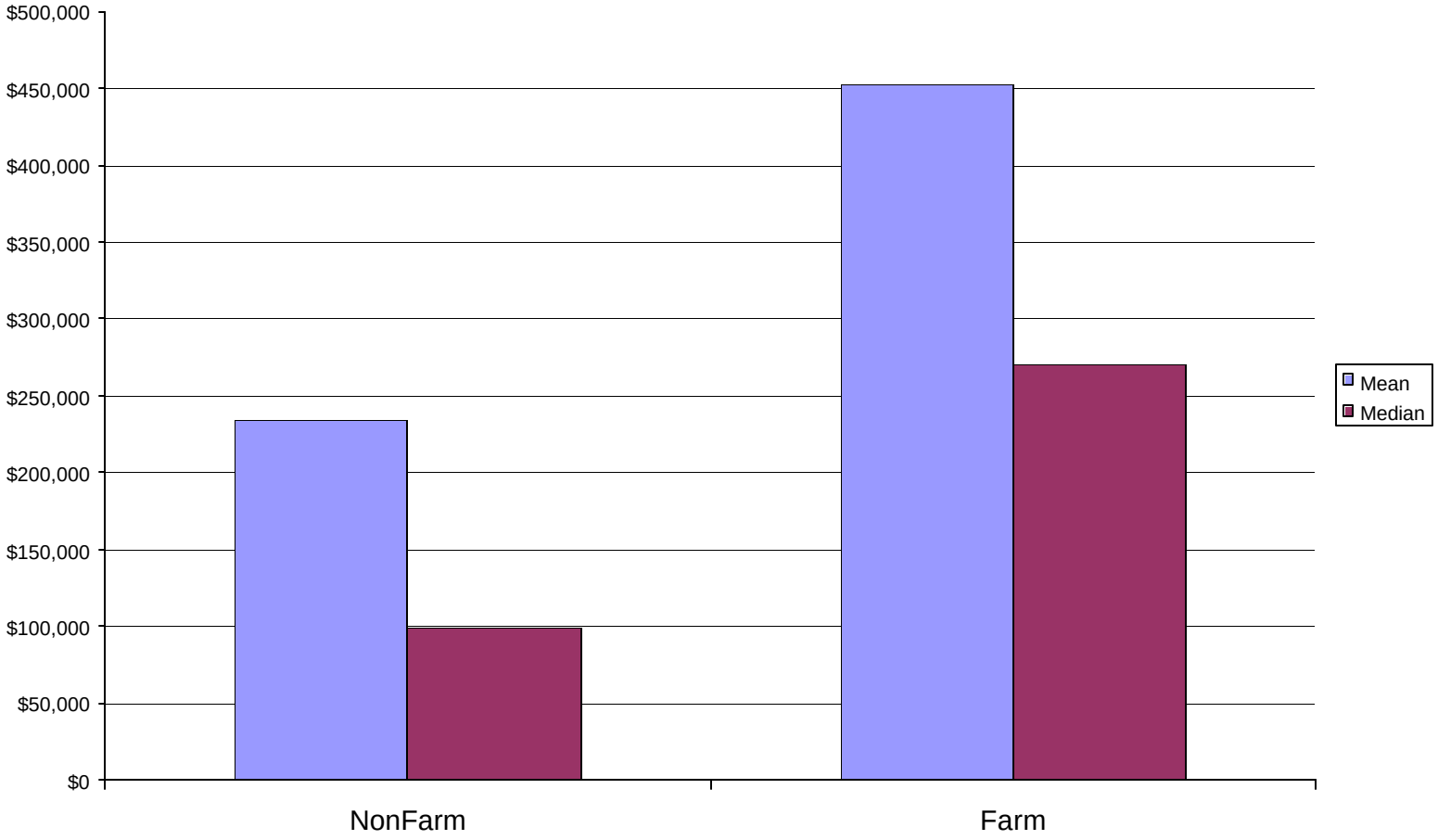


Figure 3a. Value of financial assets: Farm and nonfarm households (SCF data set).

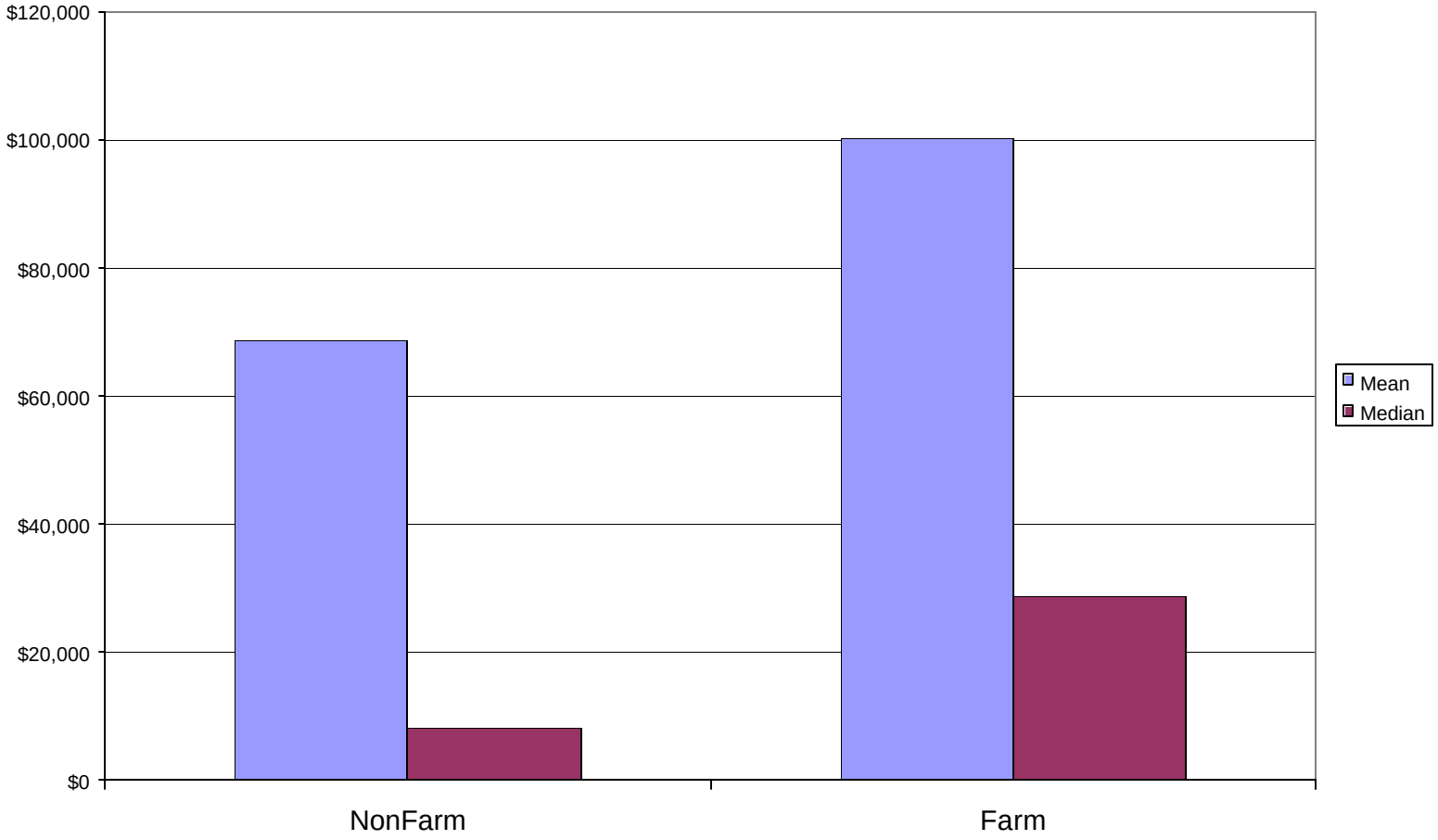


Figure 3b. Value of financial assets: Farm and nonfarm households (HRS data set).

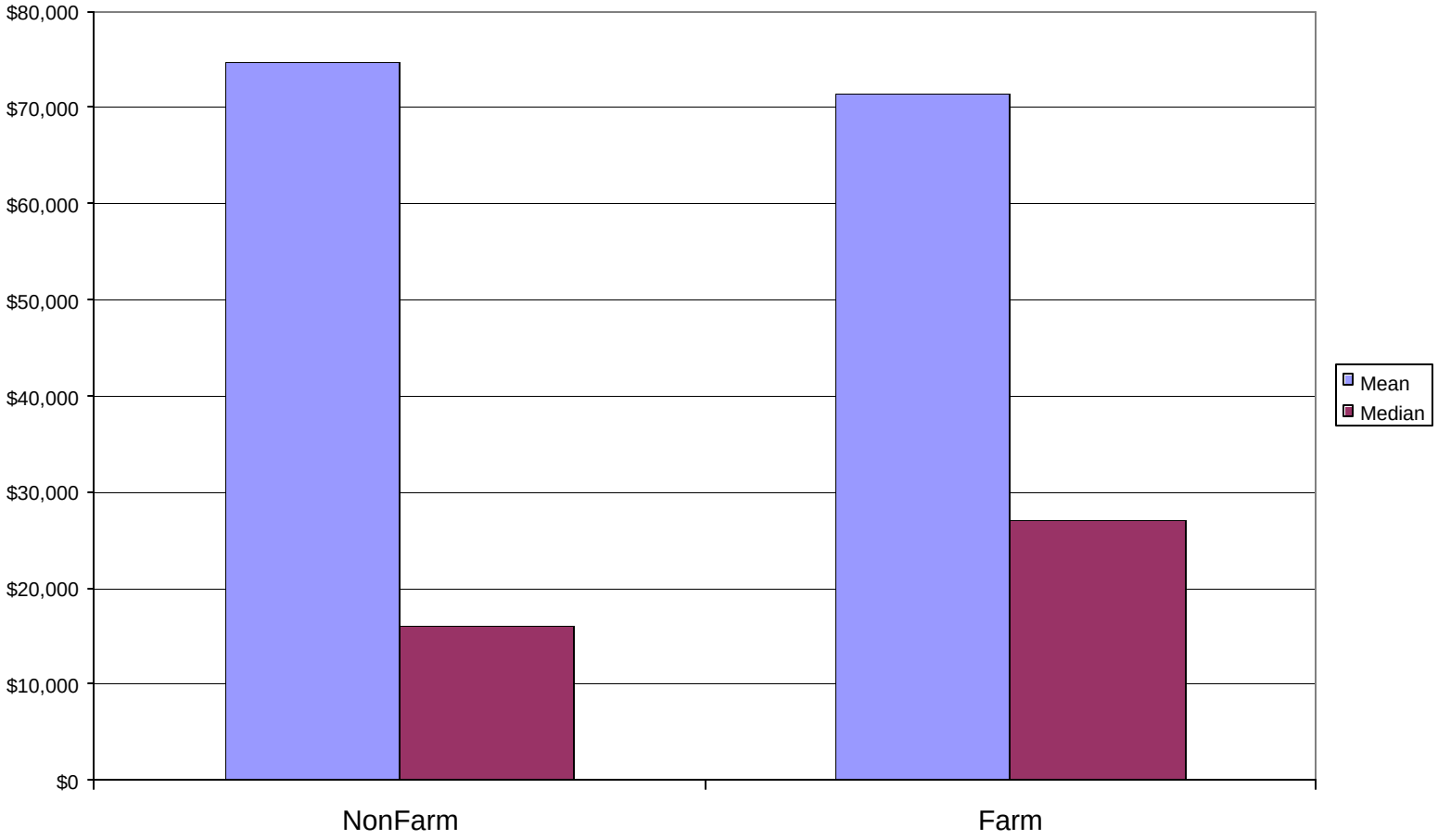


Figure 4a. Value of retirement accounts: Farm and nonfarm households (SCF data set).

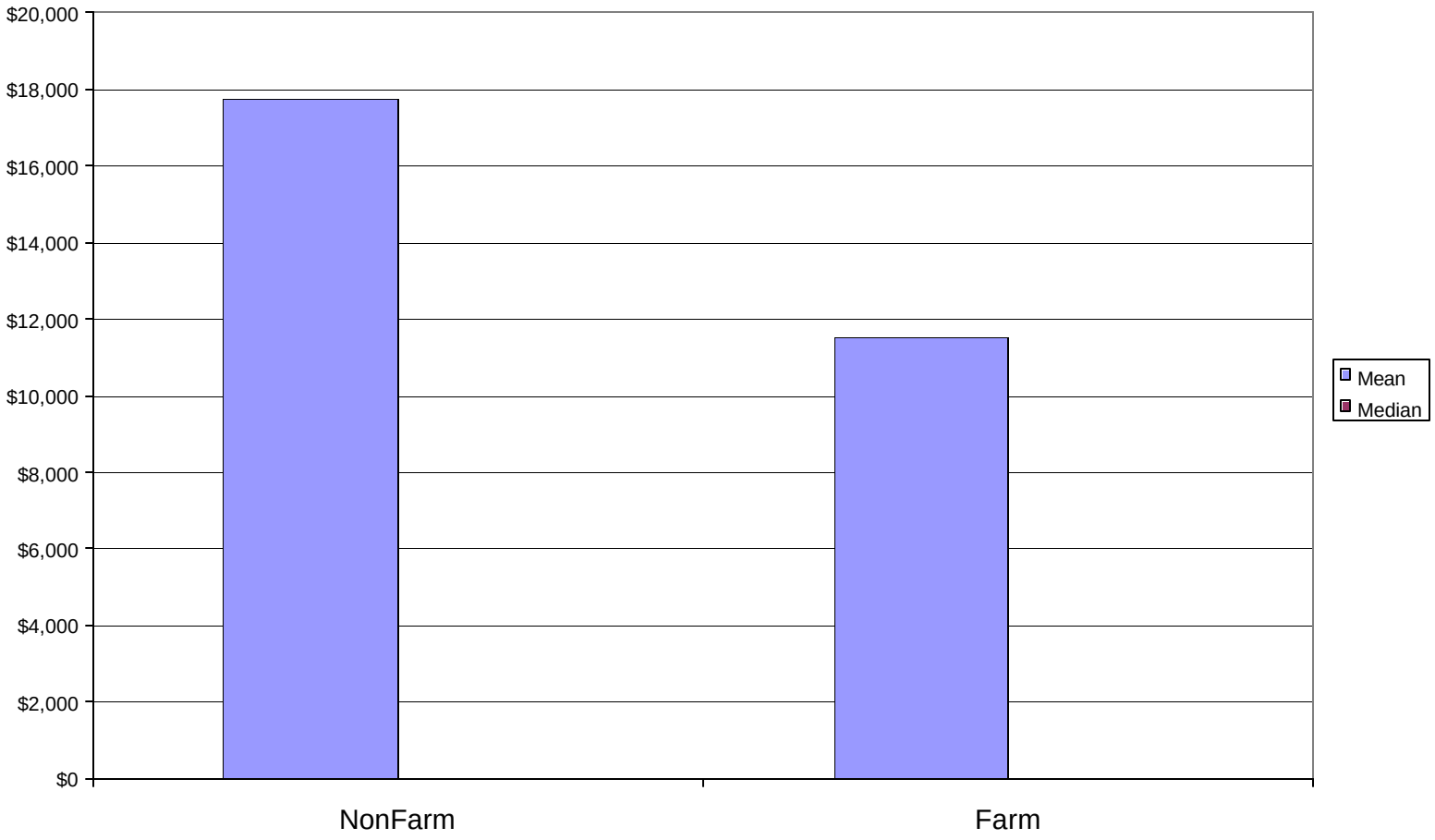


Figure 4b. Value of retirement accounts: Farm and nonfarm households (HRS data set)

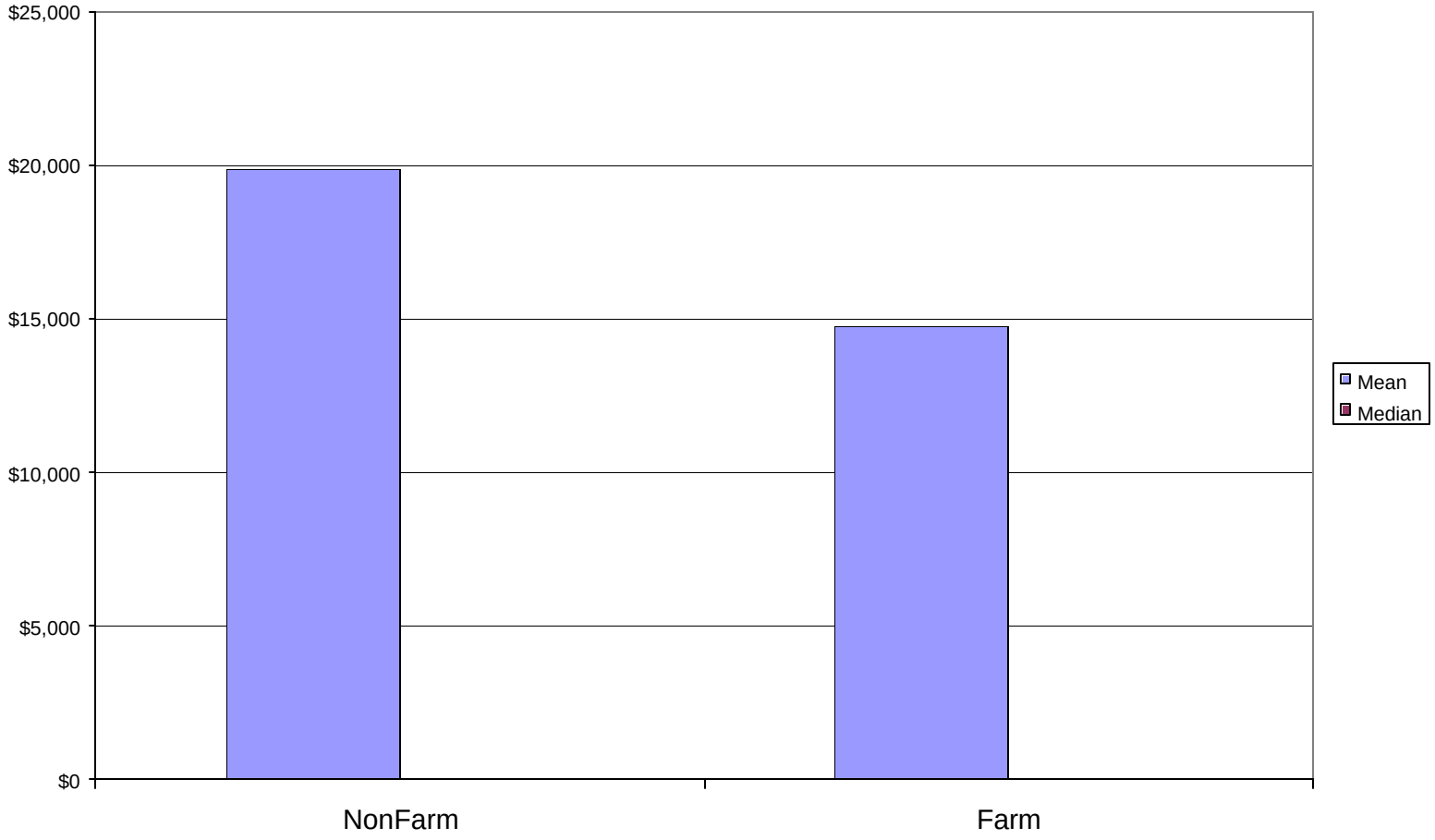


Figure 5a. Distribution of Household Mean Wealth SCF Data Sets

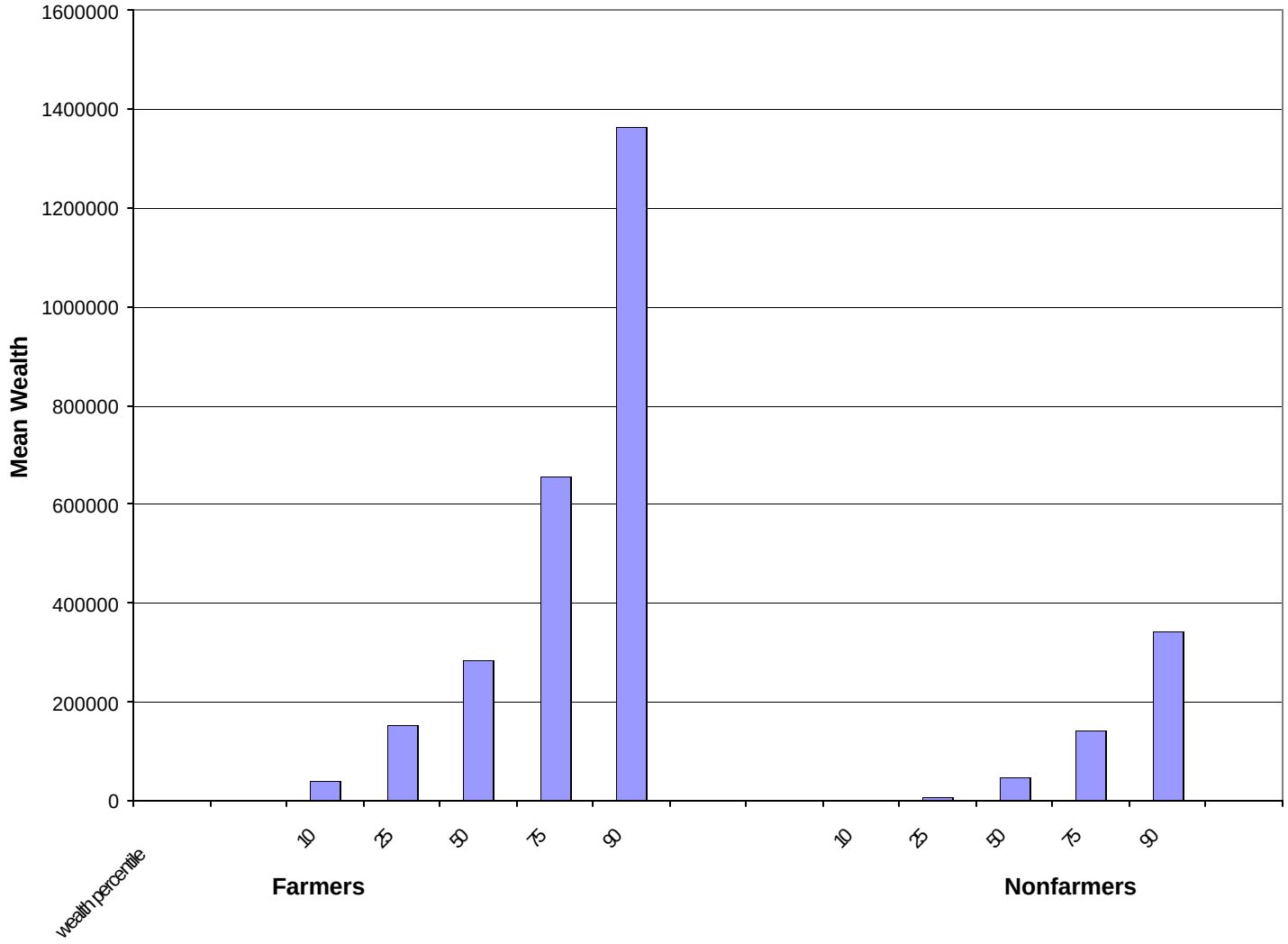
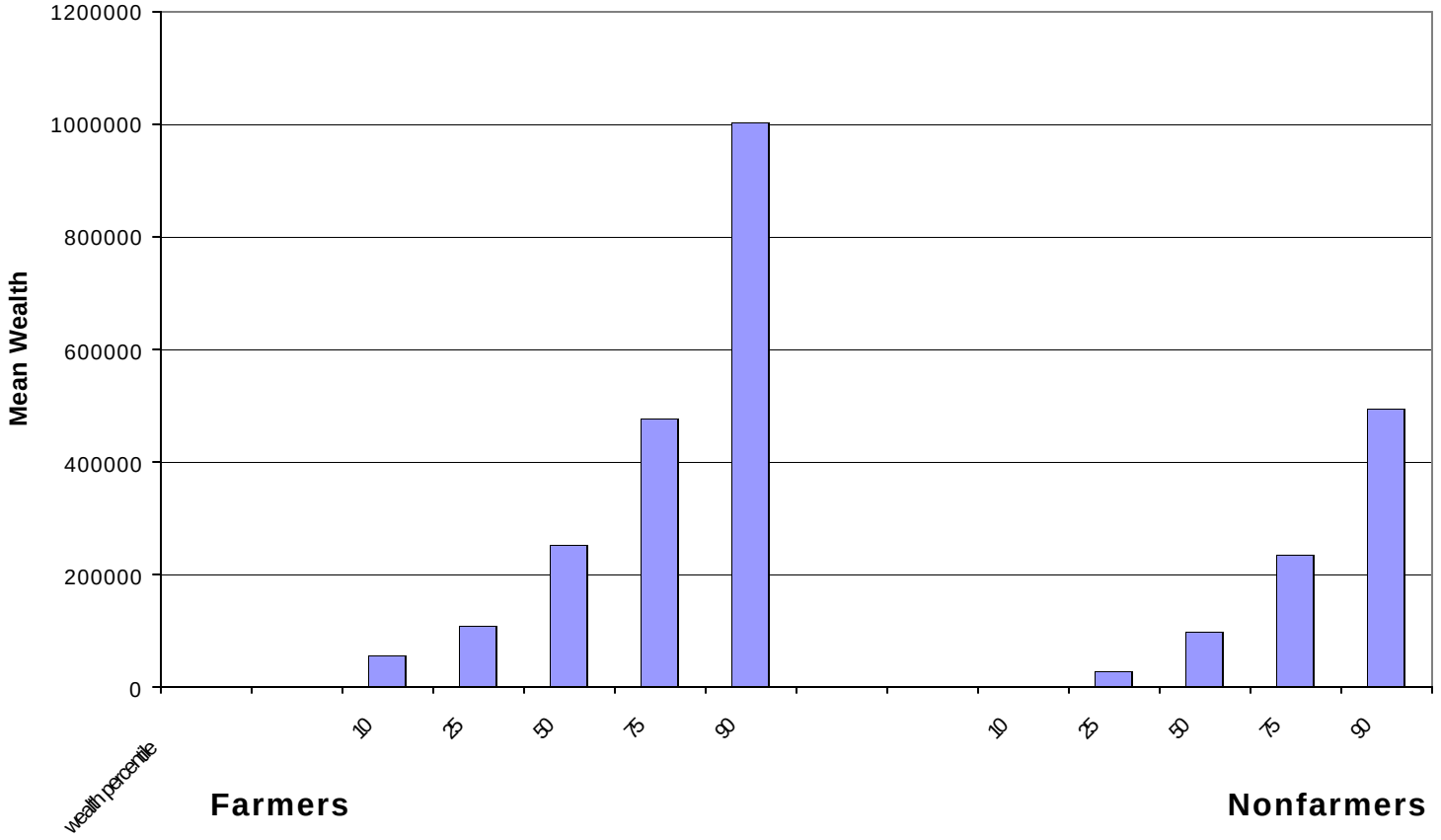


Figure 5b. Distribution of Household Mean Wealth HRS Data Sets



Endnotes

[1]See Juster, Smith, and Stafford (1999) for a discussion of the methodological issues that arise in measuring household wealth.

[2]Two other national surveys contain wealth modules but with less detail than the *SCF* and *HRS*: *The Panel Study of Income Dynamics* (*PSID*) and the *Survey of Income and Program Participation* (*SIPP*). Furthermore, both the *PSID* and *SIPP* contain very few observations from the top of the wealth distribution and hence fail to produce reliable estimates of the wealth distribution (Juster, Smith, and Stafford 1999).

[3]Smith (1995) provides a more detailed discussion of the *HRS* data set; Juster, Smith, and Stafford (1999) discuss the *SCF*.

[4]Given that the U.S. wealth distribution is extremely positively skewed and the paucity of observations of high-wealth households, oversampling of high-wealth households is necessary. Without such oversampling, the sample "may routinely miss virtually everyone of the top end of the wealth distribution" (Juster, Smith, and Stafford).

[5]Venti and Wise (2000) use a similar specification to test for saving behavior.

[6]See Greene (1997), pp. 349-353, for a discussion of the Chow test.

[7]The mean net worth for the entire sample was $241,919.