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**MEASUREMENT AND COMPOSITION OF FARM HOUSEHOLD WEALTH  
(Part 1)**

Invited paper submitted by the Task Force  
on Statistics for Rural Development and Agriculture Household Income\*

**I. INTRODUCTION**

1. Wealth and the means by which farmers accumulate it have been of interest to policy officials, farmers, lenders, academics, and those with an interest in farming and rural affairs for many decades. In a 1923 American Economic Review paper, Lewis C. Gray reported

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an estimate of the net worth of farmers (Gray). This paper was an important benchmark in two ways. First, it employed the traditional balance sheet accounting formulation: assets equal liabilities plus owner equity. Gray carefully prepared an assessment of farm assets and liabilities to estimate net worth as the difference between assets and debt. Included in the measurement of assets were farm real estate, livestock, implements, crops on hand on January 1, the value of growing crops, and other items of farm capital such as supplies on hand and cash needed to run the farm. Farmer liabilities included the farm mortgage and debts other than those secured by real estate. Second, making this paper relevant to current considerations of household wealth measurement, Gray recognized that a complete accounting of wealth required an estimate of non-farm assets, and personal loans for such items as food and clothing. To estimate the net worth of farmers, Gray moved beyond the farm business to recognize personal and household assets and liabilities.

2. The U.S. Department of Agriculture (USDA) established balance sheet accounts for the farm sector in 1945 (USDA, 1945). Like Gray, the USDA balance sheet highlighted the need to include information for both farms and farm households. Thus, a consolidated balance sheet that included both farm and household items was developed. In 1980, USDA created a new balance sheet account that separated the farm business and operator households. The balance sheet created in the 1940's treated the household and the farm business as a single entity. By 1980, USDA recognized that many farmers were less dependent on farm income than previously. Likewise, household assets and income were more influenced by factors outside the farm sector.

3. In this chapter, we first discuss uses made of wealth measures for farms and farm households. We then highlight why estimates of net worth for farms are not synonymous with estimates of net worth for households that control farms. This is followed by a discussion of what is included in wealth measures developed for farm households. The chapter concludes with a discussion of some added insights gained from wealth measurement as a companion indicator to household and business income statistics.

## **II. SELECTED USES OF FARM AND HOUSEHOLD WEALTH MEASURES**

4. With wealth estimates for farmers dating to the early 1900's, a key question becomes "why the long-standing interest in the development of measures of wealth for both the farm business and the farm household?" A succinct summary of uses made of wealth measures for farms and farm households helps respond to this question.

5. There are at least three main uses of farm-level net worth information. The first addresses questions about asset ownership and management. Who owns physical assets, particularly land, and who is farming the land? This reflects the issue of who owns or controls agricultural resources and is important to assessment of changes in farm structure. A variety of public policy issues may arise from trends in asset ownership, including potential barriers to entry for farmers. Many of the benefits and costs of government policies are tied to asset ownership or control. Links between public programs and asset ownership raise issues about the distributive effects of government policies. A second use centers on the financial position, or solvency, of businesses and, when combined with income, establishing measures of business profitability and liquidity. When farms confront eroded asset values relative to debts

or when they have insufficient funds to meet debt service commitments, farm failures may arise and erode the quality of lender portfolios. Spillover of farm problems into the lending sector can affect rural communities more broadly, especially if banks begin to close or if they are unable to honor commitments to non-farm customers. A third use of farm wealth data focuses on access to credit. Of interest in the U.S. is the availability of credit and financial services to small and beginning farm businesses. Information about the farm balance sheet, particularly lender market shares among sizes of farming operations, and net worth helps inform this issue.

6. Measures of farm household net worth have several uses in estimation and analyses of household economic status and wealth management issues. These include: (1) providing information about assets which are an income source and debt which requires an expenditure from the household; (2) giving a measure of economic resiliency or the ability to withstand unanticipated financial shocks, including a potential source of funds to support consumption; (3) providing insight, based on the composition and accumulation of holdings, into how farmers build wealth; (4) establishing a capital stock to underpin decisions about retirement, financial security in later life, and the transfer of assets to a new generation of farmers; and (5) giving a basis for deriving more comprehensive measures of household economic well-being than can be attained through use of an income indicator alone.

7. As a source of income and expenditure of the household, assets and debts affect both the credit and debit sides of the household income statement. Assets are a source of property income in the form of interest, dividends, and rents. Assets may also be a source of service-related earnings of the farm holding that are in addition to income from production of agricultural commodities. Interest paid on debt is an expense, which may belong to the farm or to the household depending upon where debt is held. Taking into account the debt position and income level of the household may dramatically alter perspectives about the debt service capability of a farm business. Off-farm incomes of households, including property income, may make debt service commitments look less problematic than they would if made on the basis of farm earnings alone (McElroy et al). But, household debt for nonfarm purposes may also expose farm businesses to potential financial difficulty. Moreover, if a large share of household income is devoted to debt service, households have fewer resources for purchasing goods and services (Dynan et al). Knowledge of the full set of assets and debts at both the farm and household levels, and total income from all sources is necessary to accurately evaluate business and household solvency and to assess the ability of each to meet its financial commitments.

8. In addition to providing a potential source of property income and influencing debt status, measures of net worth provide a portrait of the economic resources available to households at a given point in time (U.S. Bureau of the Census 2003, Dept. of Comm. 1994).

9. Wealth is the level of financial or economic resources that a household and its members have available at a given point in time.

10. Wealth provides a capacity to draw down assets to generate an infusion of funds to supplement available cash to sustain consumption or to respond to an unanticipated economic or financial shock or business opportunity. Given that farm households, on average, spend a large portion of available work time and other resources participating in off-farm activities,

shocks can emanate from either the non-farm or farm sectors of the economy, as well as from a wide variety of household events. The ability of a household to adjust to a financial or economic shock may be enhanced by the ability to sell, lease, or re-deploy intermediate and longer term assets such as land or other capital.

11. Composition of a household's portfolio may affect how it responds to changes in government policy or some other event. For example, a household that owns only machinery and equipment and leases land would not benefit from rising land values. In fact, if rents rise because of higher land values, the household may face higher costs and lower incomes. Meanwhile, households that own land may see their net worth rise. Of course, it is also possible, as the widespread U.S. farm financial crisis of the 1980's illustrated, for land values to erode leaving farms and their controlling or ownership households in a difficult financial position, if not bankrupt. Knowledge of the composition of household net worth provides a basis for evaluating how effects of public policy or changes in the farm economy may be transmitted throughout the farm sector and rural areas.

12. Households accumulate wealth to support retirement and financial security in later life. Information about net worth and its composition may help identify segments of the farm community that may encounter difficulty in sustaining consumption and meeting basic needs without significant on-going sources of income from earnings or from transfers from government or other sources.

13. Wealth measures are also important to understanding household economic well-being. Aside from using assets or wealth in current production or to generate income in the form of interest, dividends or rents, a household can also generate realized gains or losses from the sale of assets. Even if not sold, household wealth could be converted to an annuity and combined with income to provide a more robust estimate of consumption that household resources could support if assets were converted to cash. Hathaway makes this point by noting that, "changes in real wealth due to changes in asset values have much the same characteristics as current income in that they can be saved (i.e., used to increase net worth) or they can be consumed (via sale or borrowing) without decreasing net worth (Hathaway). Whether taking stock of performance or debt service capability, examining the ability to sustain consumption and provide for basic living needs, or deriving indicators of economic well-being, household wealth measures improve the perspective gained from use of income measures by themselves or from use of farm business measures alone to examine the economic status of farm households and their members.

### **III. DIFFERENCES IN WEALTH MEASUREMENT FOR FARMS AND FARM OPERATOR HOUSEHOLDS**

14. Farm households can be defined in a wide variety of ways. In the U.S., a farm household is defined as the domicile of the primary operator of the surveyed farm establishment. This includes individuals living in the operator's residence who share financial resources of the farm operator. A shortcoming of U.S. farm household wealth collection through the Agricultural Resource Management Survey (ARMS) is that data are collected only for the primary operators of U.S. farms. Because other households may also provide assets (such as partners and shareholders in family corporations) balance sheets and estimates

of net worth are incomplete. Ideally, data used to construct household wealth estimates would provide coverage for all households contributing assets and sharing in production risks. For these non-operator households we know, in aggregate, the share of farm assets they own. This information is derived from data collected to estimate the share of farm assets owned by the primary operators of farms. We do not know the value of non-farm assets for these households. To provide the flexibility needed to classify households, data regarding the characteristics of households, household members, and the farms they operate are also collected. This enables households to be categorized into groups needed to address specific questions.

#### **IV. CONNECTION BETWEEN FARMS AND HOUSEHOLDS IN WEALTH MEASUREMENT**

15. Farm households accumulate wealth through a variety of avenues. One way is to consume less than is earned during a period of time. Others include an increase in asset values, either due to changes in the conditions governing supply and demand for the asset or the goods and services associated directly or indirectly with the asset. Gifts, transfers or inheritances may change the value of asset holdings. The concept underlying the collection of data to measure wealth and wealth accumulation of farm households assumes that the farm can be separated from households associated with farming. The farm business is viewed as an establishment, or an economic unit, that produces agricultural output or other goods and services. Farms use assets acquired from households and other legal entities to generate output and contribute to value added within the economy (Figure 1). As business establishments, farms utilize assets provided by multiple legal entities, including households and other businesses. Likewise, farm households may decide to allocate their assets in a variety of outlets. The farm business may be only one component of the household portfolio.

16. Business linkages are not only important in establishing the flow of resources to the farm, but are also valuable in helping understand the distribution of farm income and wealth. Of the 2.1 million U. S. farms in 2002, 209,000 rented land under a share-rent arrangement (Figure 2). Under typical share rent arrangements, this means that landlords also provided a share of operating inputs in addition to land. Yet, other farms are organized as partnerships or family corporations and over 50,000 grew commodities under contract with another legal entity. The variety of business organizations and arrangements being used by farmers suggests that neither estimates of net worth prepared for the farm sector or for farm businesses can be assumed to belong entirely to farm households, especially households of individuals identified as the primary operator. Data collection must discern whether all farm establishment assets and liabilities accrue to the primary operator's household (Figure 3). Meanwhile, households allocate their own resources to multiple uses. This means that measures of farm household wealth need to reflect complex portfolio decisions (Figure 4).

#### **V. DATA TO SUPPORT ESTIMATES OF HOUSEHOLD NET WORTH**

17. Farm households use a wide variety of livelihood strategies, saving, and investment choices. This means that both farm and non-farm sources of wealth should be considered in constructing estimates of household net worth. Work with data for all U.S. households has

demonstrated that wealth is not simple to measure (Bowles and Bosworth, Fries, et al). Households typically have a long list of assets and multiple sources of both business and personal debt (Table 1). Each segment of the household balance sheet has its own problems and can be inherently difficult to measure.

18. Households may have multiple sources of farm and non-farm assets and/or liabilities. Net worth measures for farm households must take into account both farm and non-farm sources of wealth while recognizing that farm wealth may not be entirely owned by farm households.

19. Estimates of net worth for U.S. farm households can be developed from two major surveys: The Survey of Consumer Finances (SCF) and the Agricultural Resource Management Survey. The SCF is a cross-section survey conducted every three years by the Federal Reserve (Kennickell). Since the focus of the SCF is on household wealth, it contains detailed questions on financial assets, non-financial assets, and debts. The SCF contains limited information about linkages between farm businesses and their households. Sample size also limits its use in examining wealth for farm households. In 2001, the latest year available, fewer than 300 farm households were included.

20. The ARMS is an annual cross-section survey that contains information about the farm, the farm operator and his or her household. Income, consumption, and wealth are collected concurrently from the same sample unit. In 2001, ARMS sampled 13,313 farm establishments, with a total of 7,761 usable records. This means that 58 percent of the initial sample provided complete usable records for use in establishing estimates of income and wealth. Response rates vary by size of farm business, but over half of households that operate farms with sales over \$500,000 provide responses to farm and household income and wealth questions. Thus, there is not a substantial difference in the rates of response among households that operate large or small farm businesses. Estimates of farm household wealth produced by USDA rely on the ARMS since all types and sizes of business operations are included along with the households of the primary or senior farm operator. SCF results provide a cross check on the level and composition of wealth between farm households estimated from ARMS with estimates for all U.S. households.

21. To construct estimates of household net worth, data collection starts with the farm business. The goal is to measure the value of business assets by component, to identify liabilities by lender, and to establish ownership and control of assets used in production. The largest and most important component of farm business assets, land, is valued by asking for component parts. This is done for two reasons. One, dwelling values, especially the operator dwelling, are used as the basis for imputing an annual rental value that becomes a part of estimates of income. Second, the value of land and buildings rented to and rented from others helps determine the amount of assets controlled in the business operation. The farm business balance sheet is completed by asking about other assets used in the business. Beginning and end of year values are determined for crops, livestock, production inputs, costs sunk into growing crops, and accounts owed the business. End of year values go into the business balance sheet. Change in value from beginning to end of year contributes to value added and to the development of an accrual-based measure of net business income.

22. Farm debt is collected next, following the organization of a standard balance sheet. First, we ask about loans taken and repaid during a calendar year. Not all farms have loan balances. A large share of farmers use loan funds during the year, but repay them by year-end. Collecting information about intra-year production loans helps put interest expense reported for the farm into perspective. For the five largest loans sufficient data are collected to estimate the amount of debt service on the loan. We also ask about the purpose of the loan, including the percent for farm purposes. These questions help align the estimate of farm debt with asset values and with business establishment net income.

23. Once farm asset values and debt have been established, net worth follows by subtracting debt owed by the farm from total farm assets. When there are multiple farm households associated with a business, farm net worth is allocated to the operator's household by multiplying by the fraction of net income earned. Past surveys have asked for the share of assets and debt provided by entities other than the operator's household. Rather than assume a relationship between income share earned by the operator's household and asset values, ERS is planning to return to asking farmers directly about who owns assets used in their business activities.

24. To complete an estimate of net worth for the household the value of non-farm assets and debts are collected. These data are collected only for the operator's household. This is done because the ARMS interview is completed by the senior operator for a business establishment. We do not attempt to ask this individual in depth questions about any other household. As with the farm business, the ARMS is designed to first ask about household non-farm assets. Non-farm assets are grouped into four categories: financial assets, business holdings, real estate, and other assets not reported elsewhere.

25. Asset values are followed by household debt owed outside the business. Like assets, debt is collected in four parts. ARMS obtains information about mortgages on the operator's dwelling. Dwelling values are included in the farm balance sheet if the dwelling is owned by the farm. If not a part of the farm, the dwelling is included in household assets and debt is reported as a part of household debt. The remaining debt questions ask about other real estate loans, debt associated with other businesses that are not part of the farm, and personal loans such as credit cards, automobile loans, or any other household debts. Non-farm asset values combined with non-farm debt give an estimate of farm household net worth from non-farm sources. Household net worth is the summation of farm and non-farm components.

26. Household net worth is the summation of farm net worth (assets minus debts) and non-farm net worth (assets minus debts).

27. To facilitate collection of non-farm assets and debt, the respondent is not asked to report specific dollar amounts. Instead, respondents are asked to select from among 31 codes that reflect dollar amounts. Codes have been used to report off-farm income, assets and debt, and consumption expenditures in ARMS since 1986. Experience suggests that reporting codes has made questions viewed as highly personal less sensitive to respondents and enumerators. As a result, there is little non-response on these items. Refusal codes also help distinguish between a valid zero and a known positive (but missing) value thereby improving estimates of household wealth. Codes have also been used in other data collections to help facilitate reporting of household wealth data (Jappelli and Pistaferri).

## **VI. EXTENDING ANALYSES OF HOUSEHOLD ECONOMIC STATUS AND WELL-BEING**

28. Wealth measures complement use of money or other measures of income in evaluating business or household economic or financial performance. This section provides a discussion of how household wealth estimates can help extend analyses of household economic status and well-being feasible with income measures only.

29. Capital Gains as Income. Just as there is more to returns from farming than net cash income, a household's total income may include more than money income. At the farm level, farmers supplement money income with goods produced and consumed on the farm and from imputed rents on dwellings that are part of their business property. At the household level, households earn returns that transcend income from wages, salaries or self-employment. As at the farm level, these returns can include in-kind rents if the household owns the dwelling instead of the business.

30. Household incomes may also include income from property and transfers. Property income has typically been included in measures of household income as interest and dividends. Household assets, whether associated with their farm or in other forms, may be subject to gains or losses in value from a variety of macro- and micro- economic events, policies, or programs. Whether or how capital gains should be considered in measurement of farm or household income is open to discussion (Hottel and Gardner, Brinkman, Hill, Canberra Group). In measuring farm income and returns, Hottel and Gardner argue that when inflation is anticipated, interest rates include a premium that reflects the anticipated inflation rates (Hottel and Gardner). They note that interest expenses paid by farmers includes this premium and that, therefore, charging the full amount of interest payment against current revenue would be inappropriate. Two alternatives are recommended as a solution to this problem. One would be to include interest costs based on a measure of the real interest rate. The second would be to include a measure of capital gains or loss as a source of return (Hottel and Gardner). Brinkman argues that if farmers use appreciated asset values in calculating rates of returns to capital, then capital appreciation should be included as a return since costs are developed using current market values (Brinkman).

31. In practice, measurement of income either at the sector level or at the farm level has not explicitly included capital gains as a component of returns. In developing sector wide measures of financial performance such as return on assets using the income and balance sheet accounts, ERS produces a satellite account that combines rate of return from current income and rate of return from real capital gains to develop an estimate of total return from all sources. Measured gains or losses are considered to be changes in value not accounted for by new investment. An estimate of total return from current income and gain or loss in asset values is not currently produced at either the farm or household level.

32. At the household level, if net worth increases during an accounting period, the increase results from household savings, receipt of transfers, or changes in the marketable value of holdings. Households with increases in net worth are likely to be in a better longer-term financial position than are households with static or declining net worth. In examining well-being or longer-term variability of households, it may also be helpful to know whether a

drawdown in wealth levels was planned (making use of resources accumulated in an earlier period) or involuntary (the result of some shock).

33. While “The Expert Group on Household Income Statistics”(The Canberra Group) did not include the value of asset gains in either the ideal or practical measure of disposable income advanced in its final report and recommendations, it did recognize that such gains could have a significant impact on household economic well-being (The Canberra Group). The Canberra Group noted that unrealized gains are typically ignored in household income measures, but including an imputed income stream from these gains would provide a perspective of the household’s command over resources. The group also noted, however, that if the interest is in whether a household can meet its everyday needs, the relevant approach is to include only realized gains and losses on holdings. The Group recognized that collecting data needed to estimate capital gains through surveys would be difficult and increase respondent burden. Reporting of income estimates that included measures of capital gain was recommended for a satellite account.

34. The U.S. Census Bureau recently released a satellite account that extends money estimates of income for all U.S. households to include realized gains and losses (Denavas et al). The Census Bureau has also begun recognizing the effect of including unrealized capital gains in measures of income, at least to the extent that including an annuity based on equity held in home ownership is reflective of property holdings.

35. For U.S. farm households, the Economic Research Service is preparing to produce estimates of income for farm households that include realized gains comparable to the estimate produced by the Bureau of the Census for all U.S. households. In the future, ARMS questionnaires will be made more specific about the treatment of sales of land and physical assets held as a part of the farm business, keeping these separate from sales of financial and other assets held within the household. The intent is to produce a satellite account for farm households that includes an estimate of realized capital gains or losses. To measure the differential effects of tax policy on households, an estimate of disposable income that is sensitive to taxes paid on income and wealth and for social insurance is also planned. The comprehensive measurement of wealth enables the development of a suite of income measures that, taken together, should improve analysis of household consumption, saving, and investment.

36. Household Savings. Saving is a means of wealth accumulation that draws together information about household income, consumption expenditures and repayment of debt. Farming, as a predominately self-employment industry, faces a variety of business and financial risks. Business risk arises from changes in production or prices, while financial risk emerges from the fixed financial commitments of the farm. Savings help add to household wealth and provide a buffer or cushion to manage either planned expenditures, such as educating children, or unplanned events, such as crop failure or a medical problem confronting a household member. For both planned and unplanned events, buffer savings provide a source of household liquidity.

37. Accumulated savings also provide a source of financial security in later life when earned income typically is lower. Savings are a flow measure over a defined period. Wealth is a stock measure defined at a point in time. Savings can be measured in several ways (Juster

et al, Mishra and Morehart). One way is to take the difference between household income and expenditures, establishing a direct link between household earnings and wealth accumulation. A second method is to sum new funds put into household assets with the amount of debt that has been repaid. Or, alternatively, savings can be measured as the difference in net worth during a period of time, revised to reflect gains or losses in asset values and transfers received by the household. Juster et al. note considerable difficulties with both the second and third measurement methods in survey use (Juster et al).

38. ERS work related to farm household savings has employed a measure of savings as the difference between income and expenditure of the farm household (Mishra and Morehart). Money income estimates have been adjusted by an estimate of household tax obligations to calculate a measure of disposable income. Survey forms are being revised to assist with more accurate measurement of household taxes owed which will improve estimates of disposable income, savings, and wealth accumulation.

39. Measure of Household Well-Being. An individual's economic status has been defined as command over the potential to consume goods and services (Hill). Measures of economic well-being that include all potential sources of income from the use of labor and owned assets have been calculated for households (Chase and Lerohl; Carlin and Reinsel; Wolff, Zacharias, and Caner, May 2004; Wolff, Zacharias and Caner February 2004; Salant et al). In this case, the ability to acquire goods and services is viewed as being reflected not only in the money income available to the household but also by the money that could be raised by converting the household's stock of assets to income. This could be accomplished in a variety of ways. For example, by drawing down savings, selling assets, or taking a lien against property. In this manner, the ability to acquire goods and services is limited not only to money income available to the household, but also includes funds raised by converting the stock of household assets to income.

40. The ARMS has been used to jointly consider income and wealth in assessing the economic well-being of farm households. These assessments were conducted by categorizing income and wealth based on median non-farm household levels of income and wealth (McElroy et al, Mishra et al). Farm households were grouped depending on whether they had higher or lower amounts of income and wealth when compared with the non-farm household medians. To extend assessments of well-being, estimates of wealth have been converted to an annuity and summed with estimates of money income. In this case, wealth is viewed as generating potential spending power that arises from the household's total resources. By taking into account all resources available to a household, analyses that compare households that are at different stages of the life cycle or households that have made different asset allocation decisions can be enhanced.

41. ERS is using concurrent information about household money income and wealth to produce an index based on a two-dimensional measure of economic well-being. This will be achieved through use of a formula such as the following:

$$\text{Economic Well-Being Indicator} = \text{Household Income} + \text{Annuity Value of Net Worth}$$

42. Challenges in determining an annuity value of wealth include decisions with regard to life expectancy, rate of interest, and the measure of net worth to use. One problem in

determining life expectancy for households is that when assets are owned by operators and another person or persons, it is difficult to decide whose life expectancy to use. Formulas used to generate an annuity typically require the choice of a finite time horizon. One option is to assume that no household would consume assets at a rate that leaves household members in an impoverished state. The measure of net worth to use is also an important consideration. Farm households, like other self-employed households, own assets that provide the basis for generating current money income. Interdependence between income and assets needs to be accounted for in deciding what amount of net worth to include in the annuity formula. ERS has attempted to address this issue by excluding farm production assets and household durable goods from measures of net worth used in constructing composite well being indicators. Sensitivity analysis can help gauge how the perspective about well being may change across the life cycle, types of production specificity, or other household or farm attributes.

43. **Inter-generational Transfer of Assets.** Transfer of farm assets to a new generation of producer households is of broad interest from at least two perspectives (Gale, Monke). One centers on how transfer of assets may affect the performance and structure of farms. The second focuses on issues related to wealth accumulation (Hendricks).

44. **Acquiring land, machinery and other assets for use in production** may be an obstacle to beginning farmers. The amount of capital investment needed to acquire a farm of even modest size can be very large. For example, the average value of farm assets across all farms in the U.S. was over \$500,000 in 2002, while operations capable of generating sufficient income to sustain household consumption are much larger. Acquiring a business through transfer or inheritance with little or no debt would result in a much stronger financial situation than if the business were purchased using borrowed capital. At the other extreme of the family – farm lifecycle, deciding the time path of retirement and disengagement from daily operation of the farm is a major financial decision for operator households. Decisions made by retiring households affect the amount and conditions under which land becomes available to a new generation. Results from the 2001 ARMS indicated that 23 percent of operators planned to retire within five years. Of these, about 26 percent intended to turn over management to a successor. The remainder expressed intent to sell, lease, or do something else with their business.

45. **Succession** is the transfer of the management responsibility to another operator. This may or may not include transfer of ownership of the business. Transfer of ownership raises the issue of how the retiring generation of operators will generate income and sustain financial security in later life. Some may draw down savings. Others will need income from their business. The retiring operator may choose to retain ownership and receive rent or other payment from the succeeding operator. Ultimately, turnover of both farm and non-farm assets evolves into considerations of inheritance and disposition of wealth. Tax law and other regulations may effect the terms under which property can pass to the next generation, including whether taxes may be owed. Information about household wealth, its composition, and the household's intended use of holdings in later life help inform issues related to structural change, access to land by new and beginning farmers, financial security in later life, and the effects of tax law, particularly laws related to the taxation of estates.

46. **Farm Household Liquidity.** Liquidity is concerned with the ability of households to generate enough funds to meet financial obligations as they come due. It is measured by

examining the structural composition of the farm and household balance sheets to determine whether current assets, if sold, would be sufficient to pay current liabilities. Financial analysts usually use the term “current” to mean some relatively short period of time of up to a year. The relationship between current assets and liabilities provides an indication of the amount of internal capital farm households have available for business operation. With households allocating financial resources to farm and non-farm uses, an accurate perspective of the amount of funds available to the business to acquire a needed input, to handle an emergency, or to repay a short-term debt may increasingly require information about both farm and household sources of assets and liabilities.

47. Household Portfolio Composition. Though farm households maintain a varied portfolio of assets, farm assets, particularly farmland, still dominate their balance sheets. With diversified household portfolios the degree of solvency of farm businesses that can draw on household assets or liquidity may be under estimated by looking solely at farm business balance sheets. Non-farm net worth may be used to relieve farm liquidity constraints. The opposite situation can arise when farm equity is used as collateral for consumption or to fund non-farm enterprises. Moving from a business to a household perspective, composition of the portfolio indicates household’s use of funds and funding priorities, particularly as they move through stages of the farm-family lifecycle.

## **VII. CONCLUSIONS**

48. Data systems and concepts used to measure farm wealth have undergone considerable change since the early part of the twentieth century. The ARMS provides an annual measure of both farm and farm household balance sheets. A key aspect of the ARMS design is that it allows for separation of farm and non-farm components of assets and liabilities. The survey also identifies the ownership structure of farm businesses, ensuring accurate measurement for the responding farm operators’ business and household.

49. While the data system has improved, there are several areas for future enhancement. For example, ARMS questionnaires will be more specific about the treatment of sales of land and physical assets, keeping these separate from sales of financial and other household assets. The intent is to produce a farm household satellite account that includes realized capital gains or losses. These improvements to farm household wealth measurement should facilitate comparisons with non-farm households, particularly with respect to disposable income, and enhance analysis of household consumption, saving, and investment.

**Table 1. Average income to farm operator households by farm typology group, 1999**

Item	Limited- resources	Retirement	Residential /lifestyle	Farming occupation /lower-sales	Farming occupation /higher-sales	Large	Very large	All
Number of farms	127,738	297,566	931,259	479,925	175,370	77,314	58,403	2,147,576
Percent of farms	5.9	13.9	43.4	22.3	8.2	3.6	2.7	100.0
Farm total assets	84,147	347,772	299,934	512,282	810,706	1,230,336	2,212,028	468,385
Farm total debt	6,590	7,002	28,398	32,561	109,313	205,558	442,800	49,322
Farm net worth	77,557	340,770	271,536	479,720	701,392	1,024,778	1,769,229	419,063
Operator household share of farm assets	83,600	336,644	290,023	485,049	747,020	1,103,458	1,799,418	435,438
Operator household share of farm debt	6,534	6,913	27,938	31,683	104,470	190,427	368,129	45,939
Operator household share of farm net worth	77,066	329,731	262,085	453,366	642,551	913,031	1,431,288	389,498
Operator household off-farm assets	66,752	218,860	236,907	161,769	132,167	199,793	259,502	198,219
Cash, money market accounts, etc	17,542	61,028	36,898	46,193	32,556	38,343	49,228	41,200
IRAs, Keough, 401K, etc	11,969	50,939	67,447	38,539	27,555	39,439	50,138	50,663
Corporate stock, mutual funds, etc	12,590	50,838	48,774	36,126	35,830	61,065	70,145	44,048
Other nonfarm assets	*24,650	56,055	83,788	40,912	36,225	60,945	89,993	62,309
Operator household off-farm debt	5,872	12,151	37,248	17,558	13,004	27,644	32,919	25,061
Operator household off-farm net worth	60,880	206,709	199,659	144,212	119,162	172,149	226,584	173,159
Operator household net worth	137,945	536,440	461,744	597,577	761,713	1,085,180	1,657,872	562,657

Source: 1999 USDA Agricultural Resource Management Survey.

\* indicates that the standard error of the estimate is greater than 25 percent and less than or equal to 50 percent. 1

Figure 1. Modern Farms Use Inputs From a Variety of Sources  
Who in Return Share in Output and Income

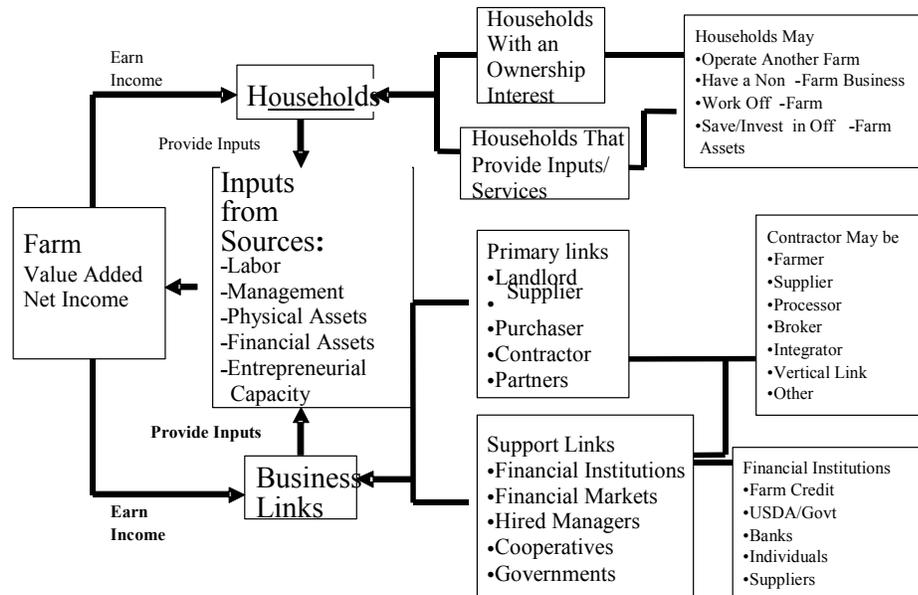


Figure 2

Stakeholder Involvement In Production Activities of U.S. Household-Farms is Extensive

Of 2.1 million farms:

- 209,000 farmers rent land for a share of production; another 633,000 farmers rent land for cash.
- 910,000 farmers owe debt at year-end; almost all use debt during the calendar year.
- 50,000 farmers grow agricultural commodities for other firms under a contract arrangement.
- 93,000 households organized their farm as a partnership.
- 65,000 households organized their farm as a family corporation.
- 145,000 farms are organized with multiple households providing production assets.

Figure 3  
Households Share Farm Net Worth  
With Others Providing Inputs

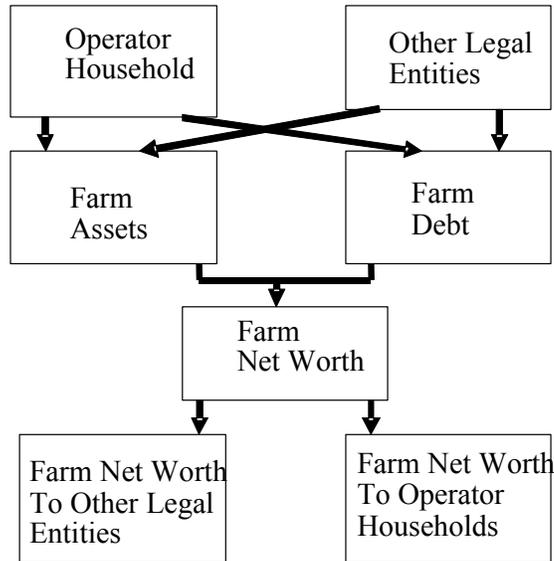
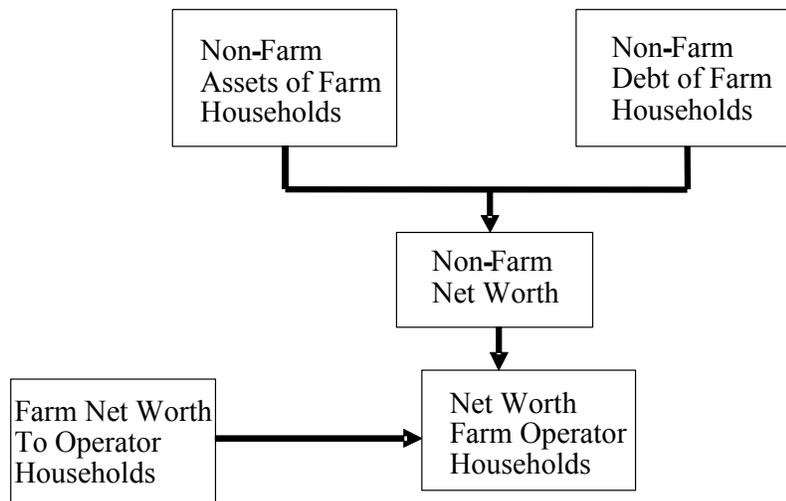


Figure 4  
Operator Household Net Worth  
Originates from Farm and Non-Farm Assets and Liabilities



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