

## **Appendix A— Agricultural Resource Management Survey (ARMS)**

The Agricultural Resource Management Survey (ARMS) is USDA's primary vehicle for data collection of information on a broad range of issues about agricultural resource use and costs, and farm financial conditions. The ARMS is a flexible data collection tool with several versions and uses.

Specifically, the ARMS is conducted to:

- (1) Gather information about the relationships among agricultural production, resources, and the environment.
- (2) Determine what it costs to produce various crop and livestock commodities, and the relative importance of various production expense items.

- (3) Help determine farmers'/ranchers' net farm income and provide data on the financial situation of farm/ranch businesses, including the amount of debt they have.

- (4) Help determine the characteristics and financial situations of farm/ranch operators and their households, including collecting information on management strategies and their off-farm income.

ARMS data provide the only national perspective on the annual changes in the financial conditions of production agriculture. Farm organizations, commodity groups, agribusiness, Congress, and the USDA use the information in evaluating the financial performance of farm/ranch businesses and in making policy decisions affecting agriculture.

## Appendix B— Decomposing Sources of Variation in Household Income and Wealth

Total income of the farm household is defined as income from farming operations (this includes all cash income, net of cash expenses, depreciation, and in-kind benefits to hired labor), off-farm business income, income from off-farm employment (off-farm wages/salaries), interest and dividend earnings, and other off-farm income (such as military retirement, unemployment, private assistance programs, rental income from nonfarm properties). Farm capital gains (or losses) are not included in farm income, although they contribute significantly to the well-being of operator households.

To minimize income variability for farm operator households in each of the subgroups, the factors are identified that contribute the most to the variance of total income. To determine this, let total income of the  $i$ th farm operator household ( $THI_i$ ) be described as in the following:

$$THI_i = \sum_{g=1}^k X_{g,i}, \quad (i = 1, \dots, n), \quad (1)$$

where  $X_1, \dots, X_5$  are net farm income, off-farm business income, off-farm wage/salaries, income from interest and dividends, and income from other off-farm sources (e.g., Social Security and public assistance, unemployment and veteran's benefits, etc.), respectively. The variability in  $THI$  is measured as:

$$\begin{aligned} & \sigma_{11} + \sigma_{12} + \sigma_{13} \cdots \cdots + \sigma_{1k} + \\ & \sigma_{21} + \sigma_{22} + \sigma_{23} \cdots \cdots + \sigma_{2k} + \\ \sigma_{THI} = & \sigma_{31} + \sigma_{32} + \sigma_{33} \cdots \cdots + \sigma_{3k} + \\ & \sigma_{k1} + \sigma_{k2} + \sigma_{k3} \cdots \cdots + \sigma_{kk}, \end{aligned} \quad (2)$$

where  $\sigma_{THI}$  is the weighted variance of  $THI$ , and  $\sigma_{gg}$  and  $\sigma_{gh}$  ( $g \neq h$ ) are the weighted variance of component  $X_g$  ( $g = 1, \dots, k$ ) and the weighted covariance of components  $X_g$  and  $X_h$ , respectively. The variability of  $THI$  as described in equation 2 is approximated by the sum of variance-covariance effects attributed to the components of  $THI$ .

The relative importance of the additive components of  $THI$  to the variability in  $THI$  is measured by:

$$\begin{aligned} C_1 &= (\sigma_{11} + \sigma_{12} \cdots + \sigma_{1k}) / \sigma_{THI} \\ C_2 &= (\sigma_{21} + \sigma_{22} \cdots + \sigma_{2k}) / \sigma_{THI} \\ &= \cdots \quad \cdots \quad \cdots \quad \cdots \\ &= \cdots \quad \cdots \quad \cdots \quad \cdots \\ C_k &= (\sigma_{k1} + \sigma_{k2} + \cdots + \sigma_{kk}) / \sigma_{THI}. \end{aligned} \quad (3)$$

where  $C_1, \dots, C_k$  are relative measures of the contribution of income components to the normalized variance of  $THI$  (PHI sub  $THI$ ), respectively. The summation of these relative measures yields unity as in<sup>6</sup>:

$$\Phi_{THI} = \sum_{g=1}^k C_g = 1. \quad (4)$$

A similar analysis can be performed to decompose sources of variation in farm household wealth (see Mishra and El-Osta, 2001).

### References

- Burt, O.R., and R.M. Finley. "Statistical Analysis of Identities in Random Variables," *American Journal of Agricultural Economics*, Vol. 50, (Nov. 1986), pp. 734-744.
- Ezekiel, M., and K.A. Fox. *Methods of Correlation and Regression Analysis*, 3rd edition, New York: John Wiley, 1959.
- Mishra, A.K., and H.S. El-Osta. "Decomposition of Variability in Assets and Debt of Farm Household in the United States." Selected paper presented at the 2001 AAEEA meetings in Chicago, IL, Aug. 5-8, 2001.

<sup>6</sup>The method described here is an adaptation of the method of coefficient of separate determination (see Ezekiel and Fox; Burt and Finley).

## **Appendix C— Survey of Consumer Finances**

The Survey of Consumer Finances (SCF) is conducted every 3 years to provide detailed information on the finances of U.S. families. No other U.S. study collects comparable information. Data from the SCF are widely used, from analysis at the Federal Reserve and other branches of government to scholarly work at the major economic research centers.

The study is sponsored by the Federal Reserve Board in cooperation with the Department of the Treasury. Since 1992, data have been collected by the National Opinion Research Center at the University of Chicago

(NORC). To ensure the representativeness of the study, respondents are selected randomly using procedures described in the technical working papers. A strong attempt is made to select families from all economic strata.

Participation in the study is strictly voluntary. However, because only about 4,500 families are interviewed in the main study, every family selected is very important to the results. To retain the scientific validity of the study, interviewers are not allowed to substitute respondents for families that do not participate. Thus, if a family declines to participate, it means that families like theirs may not be represented clearly in national discussions.

## Appendix D— Adjusted Gini Coefficient

The adjusted Gini index ( $G^*$ ), which was originally proposed by Chen, Tsaur, and Rhai (1982) and was further developed by Berrebi and Silber (1985), is a statistical index that allows for the measurement of inequality in the presence of negative observations. This measure has a lower bound of 0 and an upper bound of 1. When applied to farm household income, a Gini value of 0 indicates perfect equality (that is, all households are receiving equal shares of income). A Gini value of 1 indicates perfect inequality (that is, one household is receiving all the income and all other households are receiving none). The benefit of using the adjusted Gini coefficient, instead of what is commonly known as the standard Gini coefficient ( $G$ ), is its ability to mitigate the possibility of overstating inequality when the data contain a large number of observations with negative values. Since the 1997 Agricultural Resource Management Survey shows 6.5 percent of farm households reporting negative income,  $G^*$  is the preferred choice. The  $G^*$ , which normalizes the distribution of income when a large number of observations are negative so that the value of Gini has an upper bound of unity, is computed as follows:

$$G^* = \frac{(2/n) \sum_{j=1}^n j y_j - \frac{n+1}{n}}{\left[ 1 + (2/n) \sum_{j=1}^m j y_j \right] + (1/n) \sum_{j=1}^m y_j \left[ \frac{\sum_{j=1}^m y_j}{y_{m+1}} - (1+2m) \right]}$$

where

$$y_j = Y_j / n\bar{Y} \quad \text{and} \quad \bar{Y} = \sum_{j=1}^n Y_j / n > 0.$$

In these equations,  $n$  is the total number of households,  $y_j$  is the income share of the  $j^{\text{th}}$  household,  $Y_j$  is the household's total income where  $Y_1 \leq \dots \leq Y_n$  with some  $Y_j < 0$ , and  $m$  is the size of the subset of the households whose combined income is zero with  $Y_1 \leq \dots \leq Y_m$ . For computational purposes,  $m$  is determined where the sum of incomes over the first  $m$  households is negative and the first  $m + 1$  households is positive.

### References

- Berrebi, Z.M., and Jacques Silber. "The Gini Coefficient and Negative Income: A Comment," *Oxford Economic Papers*, Vol. 37, pp. 525-26, 1985.
- Chen, C., T. Tsaur, and T. Rhai. "The Gini Coefficient and Negative Income," *Oxford Economic Papers*, Vol. 34, pp. 473-78, 1982.

**Appendix table 1—Household characteristics, by farm typology group, 2000**

Item	Farm typology group						
	Limited- resource	Retirement	Residential/ lifestyle	Lower sales	Higher sales	Large farms	All
	<i>Number</i>						
<b>Total households</b>	129,810	319,297	911,925	454,728	172,720	133,097	2,121,576
Number of households sharing income	133,854.1	338,111.2	1,008,147.8	489,951.5	200,490.1	182,059.1	2,352,613.8
	<i>Percent</i>						
Distribution of households	6.12	15.05	42.98	21.43	8.14	6.27	100.00
Percent farm income to operator household	95.31	95.77	97.62	100.86	90.25	85.03	68.62
<b>Operators in age class:</b>							
Less than 35 years	na	na	7.39	5.06	12.78	6.03	6.34
35 to 44	*13.68	L	22.93	8.75	24.11	27.00	16.31
45 to 54	na	na	38.88	21.07	30.42	35.83	27.58
55 to 64	15.58	17.74	24.75	27.81	20.27	20.97	23.19
65 years or older	50.22	74.85	6.05	37.31	12.42	10.16	26.58
<b>Operators in education class:</b>							
Some high school or less	42.12	27.65	7.91	18.40	7.21	6.89	15.10
Completed high school	30.59	37.77	39.72	44.84	48.37	37.96	40.56
Some college	20.50	18.99	28.91	20.44	27.68	32.51	25.21
Completed college (BA, BS)	na	8.85	14.87	10.73	14.36	19.99	12.67
Graduate school	na	*6.74	8.58	*5.59	2.37	2.66	6.45
<b>Operators in gender class:</b>							
Male	73.70	87.93	91.65	90.11	95.85	97.45	90.37
Female	na	12.07	8.35	9.89	na	2.55	9.63
<b>Persons in household:</b>							
Refused to answer	L	na	na	na	na	na	*0.99
Two or fewer	69.94	83.20	44.97	69.52	45.77	40.81	57.32
Three to five	27.67	15.21	49.55	26.05	46.05	49.54	37.72
Five or more	na	na	4.37	3.88	6.99	8.56	3.97
<b>Farming experience:</b>							
Refused to answer	na	na	*3.09	na	na	1.08	2.24
Less than 10 years	29.46	10.19	28.69	13.59	15.34	10.55	20.49
11-20 years	*16.89	15.07	26.23	15.62	23.38	21.18	21.16
21-30 years	na	17.95	23.23	20.50	28.38	37.26	22.50
Over 30 years	41.05	53.96	18.75	48.84	31.59	29.94	33.61
<b>Spouse a decision maker:</b>							
Refused to answer	na	na	na	na	na	na	*0.68
Spouse a decision maker	25.67	34.78	43.40	43.85	41.74	46.42	41.17
No spouse	40.67	18.23	11.80	13.84	13.91	7.62	14.88
Spouse not a decision maker	33.66	46.14	44.04	41.79	43.50	45.27	43.27

Based on 7,712 observations.(7,712 households). Expansion factor=ver1wt0. Version=1 only.

Coefficient of variation = (Standard error/estimate)\*100. \* indicates that CV is greater than 25 and less than or equal to 50.

na indicates value is not available due to no observations, an undefined statistic, or reliability issues.

Rounded percents may not add to 100.

L = Legal disclosure edit required. Two estimates had less than three observations or had dominance concerns.

POSSIBLE ERROR: one minus ones that could be refusal codes were found.

Source: 2000 USDA Agricultural Resource Management Study.

**Appendix table 2—Allocation of operator and spouse labor hours to farm and off-farm work by farm typology group, 2000<sup>1</sup>**

Item	Limited-resource	Retirement	Residential/lifestyle	Farming occupation/ lower sales
<b>Number of household farms</b>	127,390	319,297	913,088	455,984
Percent of farms	6.0	15.1	43.0	21.5
<b>Operator hours worked:</b>				
Farm	958	854	935	1,947
Off-farm	463	*101	1,977	381
Total	1,421	954	2,912	2,328
Share reporting off-farm hours	28.9	11.1	94.2	31.8
Of off-farm working operators, share reporting > 35 hours	67.3	46.4	88.7	51.1
<b>Spouse hours worked:</b>				
Farm	212	189	250	405
Off-farm	*231	288	1,049	666
Total	444	477	1,299	1,070
Share reporting off-farm hours	*13.5	18.9	59.9	38.5
Of off-farm working spouses, share reporting > 35 hours	66.6	64.9	73.3	69.5
	Farming occupation/ higher sales	Large	Very large	All
<b>Number of household farms</b>	172,720	78,256	54,841	2,121,57
Percent of farms	8.1	3.7	2.6	100.0
<b>Operator hours worked:</b>				
Farm	2,945	2,970	2,958	1,433
Off-farm	262	229	195	1,011
Total	3,208	3,199	3,153	2,443
Share reporting off-farm hours	26.2	22.9	17.1	54.2
Of off-farm working operators, share reporting > 35 hours	55.4	57.5	46.3	79.9
<b>Spouse hours worked:</b>				
Farm	673	720	795	337
Off-farm	724	686	582	751
Total	1,398	1,406	1,377	1,089
Share reporting off-farm hours	47.8	47.2	39.4	44.3
Of off-farm working spouses, share reporting > 35 hours	60.7	59.6	64.9	70.1

<sup>1</sup>Analysis excludes farms operated by hired manager.

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

Rounded percents may not add to 100.

Source: 2000 USDA Agricultural Resource Management Study, version 1 only.

**Appendix table 3—Off-farm work by operator and spouse by farm typology group, 2000<sup>1</sup>**

	Limited-resource	Retirement	Residential/lifestyle	Farming occupation/ lower sales
<b>Number of farms</b>	128,674	320,055	913,876	453,791
Percent of farms	6.1	15.1	43.1	21.4
<b>Number of farms with off-farm work:</b>				
Operators only	26,861	*22,947	328,907	71,098
Spouses only	d	47,631	d	104,235
Both	d	d	531,423	70,902
Neither	84,201	236,757	37,897	207,556
<i>Percent</i>				
<b>Distribution of farms by typology:</b>				
Operators only	5.6	4.8	68.7	14.8
Spouses only	d	17.5	d	38.3
Both	d	d	79.5	10.6
Neither	12.0	33.7	5.4	29.6
<b>Distribution of farms within typology:</b>				
Operators only	20.9	*7.2	36.0	15.7
Spouses only	d	14.9	d	23.0
Both	d	d	58.2	15.6
Neither	65.4	74.0	4.1	45.7
<b>Share of farms:</b>				
Operators only	1.3	1.1	15.5	3.4
Spouses only	d	2.2	d	4.9
Both	d	d	25.0	3.3
Neither	4.0	11.2	1.8	9.8

  

	Farming occupation/ higher sales	Large	Very large	All
<b>Number of farms</b>	171,824	78,382	54,886	2,121,489
Percent of farms	8.1	3.7	2.6	100.0
<b>Number of farms with off-farm work:</b>				
Operators only	17,053	7,765	4,212	478,843
Spouses only	54,210	26,779	16,501	272,194
Both	28,842	9,354	5,028	668,691
Neither	71,719	34,485	29,145	701,760
<i>Percent</i>				
<b>Distribution of farms by typology:</b>				
Operators only	3.6	1.6	0.9	100.0
Spouses only	19.9	9.8	6.1	100.0
Both	4.3	1.4	0.8	100.0
Neither	10.2	4.9	4.2	100.0
<b>Distribution of farms within typology:</b>				
Operators only	9.9	9.9	7.7	22.6
Spouses only	31.5	34.2	30.1	12.8
Both	16.8	11.9	9.2	31.5
Neither	41.7	44.0	53.1	33.1
<b>Share of farms:</b>				
Operators only	0.8	0.4	0.2	22.6
Spouses only	2.6	1.3	0.8	12.8
Both	1.4	0.4	0.2	31.5
Neither	3.4	1.6	1.4	33.1

<sup>1</sup>Analysis excludes farms operated by a hired manager.

d indicates value is not available due to no observations, an undefined statistic, or reliability issues.

Rounded percents may not add to 100.

Source: 2000 USDA Agricultural Resource Management Study.

**Appendix table 4—Distribution of farm operator household income among farms, 1999**

	Number of households	Distribution of households	Total household income	Income relative to U.S. average
<b>All operator households</b>	2,147,576	100.0	64,347	117.3
<b>Farm typology:</b>				
Limited-resource	126,920	5.9	9,534	17.4
Retirement	297,566	13.9	40,643	74.1
Residential/lifestyle	931,561	43.4	83,788	152.8
Farming occupation/lower sales	480,441	22.4	39,764	72.5
Farming occupation/higher sales	175,370	8.2	53,322	97.2
Large	77,314	3.6	85,685	156.2
Very large	58,403	2.7	201,206	366.9
<b>Major source of income:</b>				
Farm income less than off-farm income	1,243,803	57.9	53,172	97.0
Farm income equal to or greater than off-farm income	903,773	42.1	79,726	145.4
<b>Sales class of farm:</b>				
Less than \$50,000	1,656,492	77.1	60,139	109.7
\$50,000 - \$249,999	355,366	16.5	56,824	103.6
\$250,000 - \$499,999	77,314	3.6	85,685	156.2
\$500,000 - \$999,999	35,754	1.7	124,683	227.3
\$1,000,000 or more	22,648	1.1	322,011	587.2
<b>Farm type:</b>				
Cash grain, cotton, and oilseed	334,098	15.6	60,098	109.6
Other crop	572,078	26.6	67,820	123.7
Beef	802,416	37.4	57,286	104.5
Hog	29,906	1.4	59,916	109.3
Dairy	91,272	4.3	65,781	119.9
Other livestock	317,805	14.8	80,394	146.6
<b>ERS resource regions:</b>				
Heartland	447,286	20.8	62,743	114.4
Northern Crescent	302,631	14.1	55,962	102.0
Northern Great Plains	85,806	4.0	58,707	107.0
Prairie Gateway	308,890	14.4	67,148	122.4
Eastern Uplands	353,101	16.4	59,174	107.9
Southern Seaboard	233,622	10.9	59,446	108.4
Fruitful Rim	249,491	11.6	90,936	165.8
Basin and Range	81,964	3.8	59,345	108.2
Mississippi Portal	84,784	3.9	59,874	109.2
<b>County type:</b>				
Farming-dependent counties	277,103	12.9	59,711	108.9
Other counties	1,870,473	87.1	65,033	118.6
<b>Operator's age:</b>				
Younger than 35 years	118,565	5.5	74,831	136.4
35 to 44 years	416,610	19.4	64,826	118.2
45 to 54 years	563,188	26.2	86,194	157.2
55 to 64 years	504,631	23.5	63,784	116.3
65 years or older	544,582	25.4	39,625	72.3
<b>Operator's major occupation:</b>				
Farming	819,887	38.2	55,294	100.8
Nonfarm work	976,595	45.5	81,897	149.3
Retired, still farming	351,093	16.3	36,670	66.9
<b>Hours operator worked on farm:</b>				
Less than 500 hours	454,724	21.2	76,532	139.5
500 to 999 hours	486,813	22.7	62,557	114.1
1,000 to 1,999 hours	606,234	28.2	61,434	112.0
2,000 hours or more	599,805	27.9	59,505	108.5

—continued



**Appendix table 4—Distribution of farm operator household income among farms, 1999—continued**

	Farm income	Off-farm income	Off-farm income as share of total
<b>All operator households</b>	6,359	57,988	90.1
<b>Farm typology:</b>			
Limited-resource	-3,580	13,114	137.5
Retirement	*-1,348	41,991	103.3
Residential/lifestyle	-4,007	87,796	104.8
Farming occupation/lower sales	@-128	39,892	100.3
Farming occupation/higher sales	26,700	26,621	49.9
Large	51,087	34,598	40.4
Very large	165,634	35,572	17.7
<b>Major source of income:</b>			
Farm income less than off-farm income	-13,171	66,343	124.8
Farm income equal to or greater than off-farm income	33,237	46,489	58.3
<b>Sales class of farm:</b>			
Less than \$50,000	-3,786	63,925	106.3
\$50,000 - \$249,999	17,737	39,087	68.8
\$250,000 - \$499,999	51,087	34,598	40.4
\$500,000 - \$999,999	88,232	36,452	29.2
\$1,000,000 or more	287,828	34,183	10.6
<b>Farm type:</b>			
Cash grain, cotton, and oilseed	18,484	41,614	69.2
Other crop	6,200	61,620	90.9
Beef	@-567	57,853	101.0
Hog	*23,738	36,178	60.4
Dairy	46,676	19,105	29.0
Other livestock	@-1,830	82,224	102.3
<b>ERS resource regions:</b>			
Heartland	10,771	51,971	82.8
Northern Crescent	5,326	50,637	90.5
Northern Great Plains	15,212	43,495	74.1
Prairie Gateway	5,752	61,396	91.4
Eastern Uplands	@642	58,532	98.9
Southern Seaboard	@412	59,033	99.3
Fruitful Rim	12,021	78,915	86.8
Basin and Range	#5,068	54,278	91.5
Mississippi Portal	*4,797	55,077	92.0
<b>County type:</b>			
Farming-dependent counties	17,429	42,282	70.8
Other counties	4,719	60,315	92.7
<b>Operator's age:</b>			
Younger than 35 years	10,043	64,788	86.6
35 to 44 years	10,032	54,793	84.5
45 to 54 years	6,641	79,553	92.3
55 to 64 years	5,928	57,856	90.7
65 years or older	2,854	36,771	92.8
<b>Operator's major occupation:</b>			
Farming	21,255	34,038	61.6
Nonfarm work	-3,497	85,394	104.3
Retired, still farming	#-1,014	37,684	102.8
<b>Hours operator worked on farm:</b>			
Less than 500 hours	@-345	76,876	100.5
500 to 999 hours	#-1,694	64,252	102.7
1,000 to 1,999 hours	@74	61,359	99.9
2,000 hours or more	24,328	35,177	59.1

\* = the standard error of the estimate is greater than 25 percent, and is no more than 50 percent.

# = the standard error of the estimate is greater than 50 percent, and is no more than 75 percent.

@ = the standard error of the estimate is greater than 75 percent.

Source: 1999 USDA Agricultural Resource Management Study.

**Appendix table 5—Normalized variance decomposition of farm operator household's income, by farm typology, 1993 and 1999**

Income source	1993	1999
	<i>Percent</i>	
<b>Limited-resource farms:</b>		
Farm income	80.5	69.3
Off-farm business income	1.6	5.1
Off-farm wages/salaries	2.1	14.7
Interest and dividends	1.0	0.5
Other off-farm income	14.8	10.4
<b>Retirement farms:</b>		
Farm income	5.8	7.0
Off-farm business income	7.3	5.1
Off-farm wages/salaries	24.3	12.5
Interest and dividends	38.8	46.0
Other off-farm income	23.8	29.4
<b>Residential lifestyle farms:</b>		
Farm income	2.5	1.5
Off-farm business income	78.9	43.0
Off-farm wages/salaries	14.3	43.7
Interest and dividends	1.6	10.5
Other off-farm income	2.7	1.3
<b>Farming occupation-lower sales:</b>		
Farm income	32.0	16.1
Off-farm business income	14.2	13.0
Off-farm wages/salaries	11.9	26.4
Interest and dividends	14.4	2.5
Other off-farm income	27.5	42.0
<b>Farming occupation-higher sales:</b>		
Farm income	54.1	63.1
Off-farm business income	23.3	6.8
Off-farm wages/salaries	16.2	22.8
Interest and dividends	4.8	4.5
Other off-farm income	1.5	2.8
<b>Large farms:</b>		
Farm income	68.3	57.5
Off-farm business income	7.1	7.4
Off-farm wages/salaries	16.9	11.0
Interest and dividends	0.8	7.5
Other off-farm income	6.9	16.6
<b>Very large farms:</b>		
Farm income	92.5	97.7
Off-farm business income	5.2	0.3
Off-farm wages/salaries	0.2	0.6
Interest and dividends	1.4	0.9
Other off-farm income	0.7	0.4

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 6—Normalized variance decomposition of farm operator household's income, by farm location, 1993 and 1999**

Income source	1993	1999
	<i>Percent</i>	
<b>Northeast:</b>		
Farm income	49.2	65.0
Off-farm business income	4.3	13.1
Off-farm wages/salaries	19.1	15.5
Interest and dividends	22.5	3.5
Other off-farm income	4.9	2.9
<b>North Central:</b>		
Farm income	65.8	46.9
Off-farm business income	10.5	23.0
Off-farm wages/salaries	17.5	23.1
Interest and dividends	3.1	6.0
Other off-farm income	3.1	0.9
<b>South:</b>		
Farm income	23.1	24.7
Off-farm business income	56.9	28.2
Off-farm wages/salaries	10.7	28.9
Interest and dividends	4.7	9.9
Other off-farm income	4.6	8.3
<b>West:</b>		
Farm income	81.7	77.0
Off-farm business income	9.1	3.9
Off-farm wages/salaries	5.0	15.3
Interest and dividends	1.1	1.1
Other off-farm income	3.1	2.6

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 7—Normalized variance decomposition of farm operator household's income, by farm type, 1993 and 1999**

Income source	1993	1999
	<i>Percent</i>	
<b>Cash grains:</b>		
Farm income	65.5	56.8
Off-farm business income	7.4	15.1
Off-farm wages/salaries	21.5	22.5
Interest and dividends	2.2	3.0
Other off-farm income	3.4	2.6
<b>Other crops:</b>		
Farm income	47.1	55.9
Off-farm business income	37.9	19.2
Off-farm wages/salaries	8.7	20.3
Interest and dividends	4.3	2.3
Other off-farm income	2.0	2.3
<b>Dairy:</b>		
Farm income	82.5	91.1
Off-farm business income	6.7	1.7
Off-farm wages/salaries	7.3	5.1
Interest and dividends	2.0	2.0
Other off-farm income	1.5	0.1
<b>Other livestock:</b>		
Farm income	34.1	32.0
Off-farm business income	42.1	22.8
Off-farm wages/salaries	12.2	27.8
Interest and dividends	4.7	9.7
Other off-farm income	6.8	7.6

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 8—Normalized variance decomposition of farm operator household's income, by farm tenure, 1993 and 1999**

Income source	1993	1999
	<i>Percent</i>	
<b>Full owner:</b>		
Farm income	24.3	26.2
Off-farm business income	52.9	24.2
Off-farm wages/salaries	14.1	41.6
Interest and dividends	5.1	2.8
Other off-farm income	3.5	5.2
<b>Part owner:</b>		
Farm income	66.2	60.4
Off-farm business income	17.6	16.6
Off-farm wages/salaries	8.0	7.1
Interest and dividends	3.5	10.4
Other off-farm income	4.8	5.4
<b>Full tenant:</b>		
Farm income	77.5	83.9
Off-farm business income	8.0	4.6
Off-farm wages/salaries	11.2	10.2
Interest and dividends	1.1	0.6
Other off-farm income	2.2	0.6

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 9—Normalized variance decomposition of farm operator household's income, by age of operator, 1993 and 1999**

Income source	1993	1999
	<i>Percent</i>	
<b>Younger than 35 years:</b>		
Farm income	79.1	20.4
Off-farm business income	3.9	27.0
Off-farm wages/salaries	12.2	48.8
Interest and dividends	1.1	2.0
Other off-farm income	3.7	1.9
<b>35 to 44 years:</b>		
Farm income	83.3	75.3
Off-farm business income	5.7	14.1
Off-farm wages/salaries	5.4	8.2
Interest and dividends	2.4	0.9
Other off-farm income	3.2	1.5
<b>45 to 54 years:</b>		
Farm income	32.4	36.9
Off-farm business income	53.0	26.5
Off-farm wages/salaries	10.8	25.7
Interest and dividends	1.7	9.0
Other off-farm income	2.2	2.0
<b>55 to 64 years:</b>		
Farm income	52.3	53.7
Off-farm business income	27.5	9.8
Off-farm wages/salaries	11.1	21.3
Interest and dividends	2.0	3.5
Other off-farm income	7.1	11.7
<b>65 years or older:</b>		
Farm income	41.2	50.5
Off-farm business income	15.7	9.4
Off-farm wages/salaries	10.2	7.7
Interest and dividends	22.0	14.2
Other off-farm income	11.0	18.2

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 10—Normalized variance decomposition of farm operator household's income, by education of operator, 1993 and 1999**

Income sources	1993	1999
	<i>Percent</i>	
<b>Some high school or less:</b>		
Farm income	67.5	54.1
Off-farm business income	23.5	27.7
Off-farm wages/salaries	4.5	11.5
Interest and dividends	1.9	2.4
Other off-farm income	2.6	4.3
<b>Completed high school:</b>		
Farm income	67.5	58.7
Off-farm business income	12.1	19.2
Off-farm wages/salaries	14.4	13.8
Interest and dividends	2.7	3.1
Other off-farm income	3.2	5.2
<b>Some college:</b>		
Farm income	29.2	36.6
Off-farm business income	55.2	26.4
Off-farm wages/salaries	7.0	25.4
Interest and dividends	2.7	11.9
Other off-farm income	5.9	-0.3
<b>Completed college:</b>		
Farm income	52.4	54.9
Off-farm business income	30.1	9.8
Off-farm wages/salaries	10.9	24.1
Interest and dividends	4.0	4.4
Other off-farm income	2.5	6.8
<b>Graduate school:</b>		
Farm income	63.3	22.5
Off-farm business income	6.9	11.7
Off-farm wages/salaries	14.7	44.3
Interest and dividends	11.7	5.7
Other off-farm income	3.4	15.7

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 11—Normalized variance decomposition of farm operator household's wealth, by farm typology, 1993 and 1999**

Wealth source	1993	1999
	<i>Percent</i>	
<b>Limited-resource:</b>		
Farm equity	58.8	15.8
Nonfarm equity	41.2	84.2
<b>Retirement:</b>		
Farm equity	69.9	51.8
Nonfarm equity	30.1	48.2
<b>Residential lifestyle:</b>		
Farm equity	72.7	48.6
Nonfarm equity	27.3	51.4
<b>Farming occupation—lower sales:</b>		
Farm equity	94.5	78.3
Nonfarm equity	5.5	21.7
<b>Farming occupation—higher sales:</b>		
Farm equity	91.6	85.0
Nonfarm equity	8.4	15.0
<b>Large farms:</b>		
Farm equity	99.2	87.8
Nonfarm equity	0.8	12.2
<b>Very large farms:</b>		
Farm equity	98.6	98.6
Nonfarm equity	1.4	1.4

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 12—Normalized variance decomposition of farm operator household's wealth, by farm location, 1993 and 1999**

Wealth source	1993	1999
	<i>Percent</i>	
<b>Northeast:</b>		
Farm equity	90.3	73.0
Nonfarm equity	9.7	27.0
<b>North Central:</b>		
Farm equity	84.6	77.9
Nonfarm equity	15.4	22.1
<b>South:</b>		
Farm equity	92.8	68.1
Nonfarm equity	7.2	31.9
<b>West:</b>		
Farm equity	96.2	95.0
Nonfarm equity	3.8	5.0

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 13—Normalized variance decomposition of farm operator household's wealth, by farm type, 1993 and 1999**

Wealth source	1993	1999
		<i>Percent</i>
<b>Cash grains:</b>		
Farm equity	89.6	80.4
Nonfarm equity	10.4	19.6
<b>Other crops:</b>		
Farm equity	85.5	86.7
Nonfarm equity	14.5	13.3
<b>Dairy:</b>		
Farm equity	94.3	89.3
Nonfarm equity	5.7	10.7
<b>Other livestock:</b>		
Farm equity	95.0	85.8
Nonfarm equity	5.0	14.2

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 14—Normalized variance decomposition of farm operator household's wealth, by farm tenure, 1993 and 1999**

Wealth source	1993	1999
		<i>Percent</i>
<b>Full owner:</b>		
Farm equity	91.4	74.2
Nonfarm equity	8.6	25.8
<b>Part owner:</b>		
Farm equity	94.1	92.4
Nonfarm equity	5.9	7.6
<b>Full tenant:</b>		
Farm equity	73.4	46.9
Nonfarm equity	26.6	53.1

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.



**Appendix table 15—Normalized variance decomposition of farm operator household's wealth, by age of operator, 1993 and 1999**

Wealth source	1993	1999
		<i>Percent</i>
<b>Younger than 35 years:</b>		
Farm equity	98.8	92.3
Nonfarm equity	1.2	7.7
<b>35 to 44 years:</b>		
Farm equity	96.3	83.1
Nonfarm equity	3.6	16.9
<b>45 to 54 years:</b>		
Farm equity	94.8	93.6
Nonfarm equity	5.2	6.4
<b>55 to 64 years:</b>		
Farm equity	88.8	67.6
Nonfarm equity	11.2	32.4
<b>65 years or older:</b>		
Farm equity	90.2	79.7
Nonfarm equity	9.8	20.3

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 16—Normalized variance decomposition of farm operator household's wealth, by education of operator, 1993 and 1999**

Wealth source	1993	1999
		<i>Percent</i>
<b>Some high school or less:</b>		
Farm equity	84.2	81.0
Nonfarm equity	15.8	19.0
<b>Completed high school:</b>		
Farm equity	92.4	89.4
Nonfarm equity	7.6	11.6
<b>Some college:</b>		
Farm equity	92.1	92.5
Nonfarm equity	7.9	7.5
<b>Completed college:</b>		
Farm equity	96.9	73.2
Nonfarm equity	3.1	26.8
<b>Graduate school:</b>		
Farm equity	81.5	59.9
Nonfarm equity	18.5	40.1

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 17—Normalized variance decomposition of farm operator household's expenditures, by farm typology, 1998**

Expenditure	<i>Percent</i>
<b>Limited-resource farms:</b>	
Food and household supplies, excluding utilities	4.2
Household rent/mortgage, utilities, appliances, and furnishings	4.1
Nonfarm transportation	4.6
Medical expenses, insurance, and contributions to retirement plans	84.9
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	2.2
<b>Retirement farms:</b>	
Food and household supplies, excluding utilities	25.1
Household rent/mortgage, utilities, appliances, and furnishings	18.1
Nonfarm transportation	10.1
Medical expenses, insurance, and contributions to retirement plans	27.2
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	19.5
<b>Residential lifestyle farms:</b>	
Food and household supplies, excluding utilities	5.6
Household rent/mortgage, utilities, appliances, and furnishings	45.3
Nonfarm transportation	12.9
Medical expenses, insurance, and contributions to retirement plans	32.2
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	4.0
<b>Farming occupation—lower sales:</b>	
Food and household supplies, excluding utilities	15.3
Household rent/mortgage, utilities, appliances, and furnishings	24.1
Nonfarm transportation	18.1
Medical expenses, insurance, and contributions to retirement plans	20.2
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	22.3
<b>Farming occupation—higher sales:</b>	
Food and household supplies, excluding utilities	18.6
Household rent/mortgage, utilities, appliances, and furnishings	20.4
Nonfarm transportation	16.5
Medical expenses, insurance, and contributions to retirement plans	21.1
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	23.4
<b>Large farms:</b>	
Food and household supplies, excluding utilities	8.1
Household rent/mortgage, utilities, appliances, and furnishings	24.9
Nonfarm transportation	6.1
Medical expenses, insurance, and contributions to retirement plans	49.9
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	11.1
<b>Very large farms:</b>	
Food and household supplies, excluding utilities	2.6
Household rent/mortgage, utilities, appliances, and furnishings	10.0
Nonfarm transportation	2.4
Medical expenses, insurance, and contributions to retirement plans	78.4
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	6.7

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 18—Normalized variance decomposition of farm operator household's expenditures, by region, 1998**

Expenditure	<i>Percent</i>
<b>Northeast:</b>	
Food and household supplies, excluding utilities	6.1
Household rent/mortgage, utilities, appliances, and furnishings	5.5
Nonfarm transportation	2.4
Medical expenses, insurance, and contributions to retirement plans	77.3
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	8.6
<b>North Central:</b>	
Food and household supplies, excluding utilities	8.0
Household rent/mortgage, utilities, appliances, and furnishings	9.8
Nonfarm transportation	57.2
Medical expenses, insurance, and contributions to retirement plans	12.5
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	12.4
<b>South:</b>	
Food and household supplies, excluding utilities	6.3
Household rent/mortgage, utilities, appliances, and furnishings	47.9
Nonfarm transportation	3.4
Medical expenses, insurance, and contributions to retirement plans	38.6
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	3.8
<b>West:</b>	
Food and household supplies, excluding utilities	12.2
Household rent/mortgage, utilities, appliances, and furnishings	39.9
Nonfarm transportation	11.2
Medical expenses, insurance, and contributions to retirement plans	16.4
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	20.3

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 19—Normalized variance decomposition of farm operator household's expenditures, by farm type, 1998**

Expenditure	<i>Percent</i>
<b>Cash grains:</b>	
Food and household supplies, excluding utilities	15.4
Household rent/mortgage, utilities, appliances, and furnishings	27.0
Nonfarm transportation	17.5
Medical expenses, insurance, and contributions to retirement plans	15.7
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	24.3
<b>Other crops:</b>	
Food and household supplies, excluding utilities	10.7
Household rent/mortgage, utilities, appliances, and furnishings	20.1
Nonfarm transportation	8.6
Medical expenses, insurance, and contributions to retirement plans	47.6
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	13.0
<b>Dairy:</b>	
Food and household supplies, excluding utilities	11.2
Household rent/mortgage, utilities, appliances, and furnishings	24.2
Nonfarm transportation	12.1
Medical expenses, insurance, and contributions to retirement plans	38.3
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	14.2
<b>Other livestock:</b>	
Food and household supplies, excluding utilities	5.4
Household rent/mortgage, utilities, appliances, and furnishings	43.5
Nonfarm transportation	12.3
Medical expenses, insurance, and contributions to retirement plans	35.1
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	3.7

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 20—Normalized variance decomposition of farm operator household's expenditures, by farm tenure, 1998**

Expenditure	<i>Percent</i>
<b>Full owner:</b>	
Food and household supplies, excluding utilities	4.9
Household rent/mortgage, utilities, appliances, and furnishings	27.7
Nonfarm transportation	14.8
Medical expenses, insurance, and contributions to retirement plans	47.3
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	5.3
<b>Part owner:</b>	
Food and household supplies, excluding utilities	10.2
Household rent/mortgage, utilities, appliances, and furnishings	63.0
Nonfarm transportation	6.1
Medical expenses, insurance, and contributions to retirement plans	12.9
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	7.8
<b>Full tenant:</b>	
Food and household supplies, excluding utilities	13.3
Household rent/mortgage, utilities, appliances, and furnishings	16.7
Nonfarm transportation	10.4
Medical expenses, insurance, and contributions to retirement plans	41.1
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	18.5

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 21—Normalized variance decomposition of farm operator household's expenditures, by age of operator, 1998**

Expenditure	<i>Percent</i>
<b>Younger than 35 years:</b>	
Food and household supplies, excluding utilities	12.4
Household rent/mortgage, utilities, appliances, and furnishings	38.9
Nonfarm transportation	17.6
Medical expenses, insurance, and contributions to retirement plans	15.9
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	15.2
<b>35 to 44 years:</b>	
Food and household supplies, excluding utilities	17.0
Household rent/mortgage, utilities, appliances, and furnishings	22.2
Nonfarm transportation	17.2
Medical expenses, insurance, and contributions to retirement plans	19.8
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	23.8
<b>45 to 54 years:</b>	
Food and household supplies, excluding utilities	6.5
Household rent/mortgage, utilities, appliances, and furnishings	66.2
Nonfarm transportation	3.8
Medical expenses, insurance, and contributions to retirement plans	17.4
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	6.0
<b>55 to 64 years:</b>	
Food and household supplies, excluding utilities	4.8
Household rent/mortgage, utilities, appliances, and furnishings	6.3
Nonfarm transportation	21.3
Medical expenses, insurance, and contributions to retirement plans	64.4
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	3.1
<b>65 years or older:</b>	
Food and household supplies, excluding utilities	11.3
Household rent/mortgage, utilities, appliances, and furnishings	30.4
Nonfarm transportation	11.3
Medical expenses, insurance, and contributions to retirement plans	36.3
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	10.7

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.

**Appendix table 22—Normalized variance decomposition of farm operator household's expenditures, by education of operator, 1998**

Expenditure	<i>Percent</i>
<b>Some high school or less:</b>	
Food and household supplies, excluding utilities	7.6
Household rent/mortgage, utilities, appliances, and furnishings	29.7
Nonfarm transportation	7.2
Medical expenses, insurance, and contributions to retirement plans	50.3
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	5.3
<b>Completed high school:</b>	
Food and household supplies, excluding utilities	8.0
Household rent/mortgage, utilities, appliances, and furnishings	14.3
Nonfarm transportation	10.0
Medical expenses, insurance, and contributions to retirement plans	53.8
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	13.9
<b>Some college:</b>	
Food and household supplies, excluding utilities	14.0
Household rent/mortgage, utilities, appliances, and furnishings	22.4
Nonfarm transportation	14.5
Medical expenses, insurance, and contributions to retirement plans	32.5
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	16.6
<b>Completed college:</b>	
Food and household supplies, excluding utilities	2.4
Household rent/mortgage, utilities, appliances, and furnishings	57.4
Nonfarm transportation	31.6
Medical expenses, insurance, and contributions to retirement plans	4.4
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	4.1
<b>Graduate school:</b>	
Food and household supplies, excluding utilities	6.8
Household rent/mortgage, utilities, appliances, and furnishings	40.1
Nonfarm transportation	1.9
Medical expenses, insurance, and contributions to retirement plans	49.1
All other family living expenses such as clothing, education, hobbies, recreation, gifts, magazines, charitable contributions, etc.	2.2

Source: USDA, Economic Research Service, 1993 and 1999 Agricultural Resource Management Study.