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Agricultural Income and Finance Outlook

J. Michael Harris, Kenneth Erickson, James Johnson, Mitch Morehart, Roger Strickland, Ted Covey, Chris McGath, Mary Ahearn, Tim Parker, Steve Vogel, Robert Williams, and Robert Dubman

Abstract

All three measures of U.S. farm income are projected to decline in 2009—net farm income is projected to decline by 34.5 percent, net cash income by 28.4 percent, and net value added by 20 percent. Considerable uncertainty surrounds the forecasts of farm assets, debt, and equity in 2009, given the volatility of commodity, energy/input, and financial markets. The overall level of farm-business equity capital is expected to fall in 2009, as farm-sector asset values decline by 3.5 percent. Farm debt is expected to remain steady at \$239 billion in 2009. Farm financial ratios monitoring liquidity, efficiency, solvency, and profitability show that the sector's financial performance in 2008-09, while slightly worse than in 2007, is quite favorable overall when compared to the 1980s and 1990s. Average net cash income for farm businesses (intermediate and commercial operations, including non-family farms) is projected to be \$61,578 in 2009. This would be 10.6 percent below the 2008 estimate of \$68,876. The projected change in income prospects for farm businesses will not affect all farm operations in the same manner or to the same degree. In 2009, the largest declines in farm-business income are forecast for livestock farms, particularly dairy. Farm-operator household income is forecast to be \$76,065, down 3.5 percent from 2008. Household earnings from off-farm sources are projected to be similar to 2008.

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Introduction

In 2008, the U.S. farm production sector was whipsawed by highly volatile domestic and international macroeconomic forces that were initially favorable to U.S. farmers. However, prices of both farm commodities and farm production inputs spiked in the first half of the year and then fell in the latter half. The U.S. farm sector is more intertwined with the world economy than ever. As the world economy sank into recession in 2008, global demand for U.S. agricultural products declined, keeping prices down throughout 2009. As a result, double-digit declines in annual crop cash receipts are expected by the end of 2009. Declines in cash receipts are also expected in 2009 for all the major livestock categories.

Average net cash income for farm businesses (intermediate and commercial operations, including non-family farms) is projected to be \$61,578 in 2009. This would be 10.6 percent below the 2008 estimate of \$68,876. The projected change in income prospects for farm businesses will not affect all farm operations in the same manner or to the same degree. For example, average net cash incomes are forecast to be 5 percent lower for corn farm businesses and similar to 2008 for farm businesses that specialize in soybeans. On the other hand, wheat operations could enjoy a 12-percent increase in average net cash income in 2009. Decreasing costs for feed and energy are expected to push average net cash income 7 percent higher for broiler producers. In contrast, 2009 has the potential to be a devastating year for hog and dairy producers (with average net cash income expected to be 52 and 82 percent below 2008, respectively).

After rising over two decades, farm sector assets and equity declined in 2008 and are forecast to decline in 2009. These declines in farm asset and equity values are affecting the overall solvency of the sector, and thus the ability of farmers to finance new investments in farmland and other assets. While inching up in 2009, debt-to-asset and debt-to-equity ratios are still well below the high levels experienced during the 1981-86 farm financial crisis. Factors that have contributed to the decline in farm asset values include farm investors' lower expected future net returns, declining cash flow, and tighter credit conditions.

Since undergoing a multiyear retrenchment in the 1980s, with debt for farm purposes bottoming out at \$131 billion in 1989, nominal farm debt has exhibited a near steady annual increase over the past two decades. As a result, yearend debt levels reached new nominal records in 2005 and in each year thereafter through 2009.

Farm financial ratios monitoring liquidity, efficiency, solvency, and profitability show that the sector's financial performance is quite favorable overall when compared to the 1981-86 farm financial crisis years. But these ratios reveal a modest decline in overall financial performance relative to 2008. The share of crop farm operations classified as vulnerable will likely remain fairly stable at about 1 percent in 2009. The largest change for any farm type will likely be for dairy operations where the share of vulnerable farms may more than double in 2009, to over 5 percent of all dairy farm businesses.

Average farm household income of principal farm operators—from farm and off-farm sources—is forecast to be \$76,065 in 2009, down 3.5 percent from 2008. The recent instability in national housing and credit markets, as well as rising unemployment, has increased the economic vulnerability of some farm families to income and asset loss. The primary sources of this potential loss are financial and housing equity investments, plus income loss due to the greater risk of joblessness among farm households with off-farm labor earnings. As of 2008, average farm household income was 15 percent higher than that of all U.S. households.

Only 4 percent of all farm households had both low net worth and low income in 2008. This is a much smaller share than for the general U.S. population, but represents an increase in farm households classified in this most vulnerable group since 2005. Nearly half of the persons in households classified as the most vulnerable, not only had incomes below the U.S. median, they had incomes below the official poverty level.

Farm families' exposure to the recessionary downturns in the labor market depends on whether one or both spouses work in off-farm jobs. If the employment experience of farm families matched that of the regional industries in which they were employed, then only in the Corn Belt and Lake States would we expect farm families to experience significantly higher rates of job loss than their nonfarm counterparts.

Income Declines but Extent of Decline Differs Among Farms and Farm Enterprises

- Record net farm income in 2008 was driven by a large increase in the value of crop production, partially offset by rising production costs.
- Crop prices declined late in 2008 and have continued to decline in 2009, while prices for livestock animals and products have also experienced sharp declines.

Net Farm Income Forecast Down 34.5 Percent in 2009

In 2008, the farm sector was whipsawed by highly volatile domestic and international macroeconomic forces that were initially favorable to U.S. farmers. Prices of both farm commodities and farm production inputs spiked in the first half of the year and then fell in the latter half. The U.S. farm sector is perhaps more intertwined with the world economy than ever. Demand arising from both the growing populations and rising incomes in other countries has expanded markets for farm commodities and increased competition for critical production inputs such as feed, fertilizer, and fuel.

Record net farm income in 2008 was driven by a large increase in the value of crop production that was only partially offset by rising production costs for the farm sector (table 1.1). The value of crop production exceeded its previous record (set in 2007) by \$31.6 billion, a 21-percent increase.

Prices of major crops (corn, soybeans, wheat) trended upward in late 2007 and continued doing so in the first part of 2008 as the remainder of the 2007 harvest was marketed. These prices declined in the latter months as the 2008 harvests occurred, but remained high by historic standards.

Exports were strong as a weak dollar relative to other currencies made U.S. commodities more competitive in international markets, and ending-year stocks of many commodities were low. Commodity prices trended downward late in 2008 as the national and world economies worsened.

In 2009, crop prices continued to decline, and prices for livestock animals and products experienced sharp declines (fig. 1.1). With economic conditions deteriorating worldwide, demand for U.S. exports tailed off, with few options available to expand marketing elsewhere. Sharply declining demand in 2009 has forced U.S. farmers to accept prices that are lower than were expected earlier in the year when production plans were made.

Corn production is projected to total about 12.9 billion bushels in 2009, which if realized, would be the second-highest level on record. Soybean production is projected to be about 3.3 billion bushels, which would be the highest on record.

With abundant production and shrinking demand, crop prices have declined in the 12 months following the 2008 harvest (fig. 1.2). With large quantities of most grains and oilseeds available to market, lower prices have pulled

Table 1.1

**Value added to the U.S. economy by the agricultural sector
via the production of goods and services, 2005-09¹**

United States	2005	2006	2007	2008	2009
	<i>\$ billion</i>				
Value of crop production	114.4	118.9	150.9	182.5	164.2
Food grains	8.6	9.1	13.4	20.7	14.5
Feed crops	24.6	29.4	42.3	62.0	49.7
Cotton	6.3	5.6	6.5	5.7	3.3
Oil crops	18.4	18.5	24.6	31.2	31.7
Fruits and tree nuts	17.2	17.3	18.5	18.9	17.4
Vegetables	17.2	18.0	19.3	20.4	21.0
All other crops	23.8	24.5	25.3	24.2	26.0
Home consumption	0.1	0.1	0.1	0.1	0.1
Value of inventory adjustment ²	-1.7	-3.6	0.9	-0.7	0.4
Value of livestock production	126.5	119.4	138.5	139.7	117.4
Meat animals	64.8	63.7	65.1	64.7	57.2
Dairy products	26.7	23.4	35.5	34.8	23.9
Poultry and eggs	28.8	26.7	33.1	36.8	32.6
Miscellaneous livestock	4.6	4.8	4.9	4.8	4.8
Home consumption	0.3	0.3	0.3	0.3	0.3
Value of inventory adjustment ²	1.3	0.5	-0.3	-1.7	-1.4
Revenues from services and forestry	33.0	37.2	37.1	42.6	41.1
Machine hire and customwork	2.8	2.6	2.7	3.0	2.9
Forest products sold	0.7	0.7	0.7	0.7	0.7
Other farm income	10.7	13.2	12.9	16.0	17.6
Gross imputed rental value of farm dwellings	18.8	20.6	20.8	22.9	19.8
Value of agricultural sector production	274.0	275.4	326.5	364.9	322.7
Less: Purchased inputs	144.2	153.7	183.4	201.4	186.0
Farm origin	57.1	61.1	73.4	79.5	76.7
Feed purchased	28.0	31.4	41.9	46.9	43.4
Livestock and poultry purchased	18.7	18.6	18.8	17.5	16.1
Seed purchased	10.4	11.0	12.6	15.1	17.2
Manufactured inputs	35.4	37.5	46.3	55.0	44.2
Fertilizers and lime	12.8	13.3	17.7	22.5	16.3
Pesticides	8.8	9.0	10.5	11.7	12.1
Petroleum fuel and oils	10.3	11.3	13.8	16.2	11.1
Electricity	3.5	3.8	4.3	4.5	4.7
Other purchased inputs	51.6	55.2	63.7	66.9	65.0
Repair and maintenance of capital items	11.9	12.5	14.3	14.8	14.5
Machine hire and customwork	3.5	3.5	3.8	4.1	3.8
Marketing, storage, and transportation expenses	8.9	9.1	10.3	10.1	9.9
Contract labor	3.1	3.0	4.4	4.7	4.8
Miscellaneous expenses	24.3	27.1	30.8	33.2	32.0

See footnotes at end of table.

—continued

Table 1.1

**Value added to the U.S. economy by the agricultural sector
via the production of goods and services, 2005-09¹—Continued**

United States	2005	2006	2007	2008	2009
	<i>\$ billion</i>				
plus: Net Government transactions	15.8	6.2	0.9	0.9	0.7
+ Direct Government Payments	24.396	15.789	11.903	12.238	12.5
- Motor vehicle registration and licensing fees	0.6	0.6	0.6	0.6	0.6
- Property taxes	8.0	9.0	10.3	10.7	11.1
Gross value added	145.6	127.9	144.1	164.4	137.4
less: Capital consumption	24.9	26.2	27.1	28.7	29.1
Net value added	120.7	101.7	117.0	135.7	108.4
less: Payments to stakeholders	42.0	43.2	46.1	48.6	51.3
Employee compensation (total hired labor)	20.5	21.2	24.0	24.9	25.7
Net rent received by nonoperator landlords	8.9	7.6	7.0	9.3	10.5
Real estate and nonreal estate interest	12.6	14.4	15.1	14.5	15.1
Net farm income	78.7	58.5	70.9	87.1	57.0

¹ 2009 forecast.

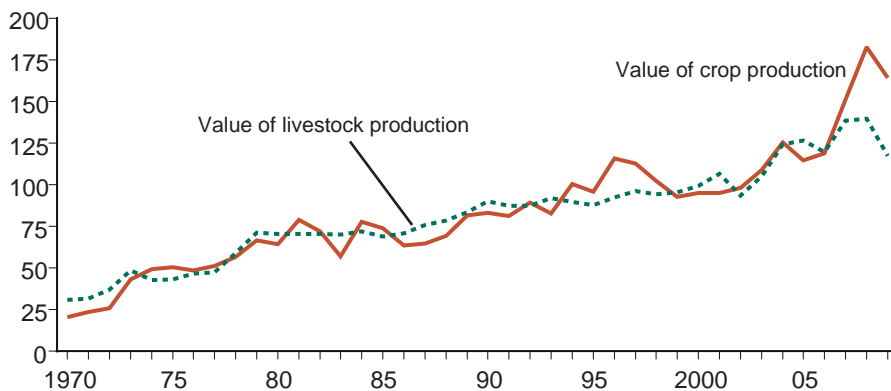
² For explanation of terms, see www.ers.usda.gov/Briefing/FarmIncome/Glossary/def_icg.htm.

Source: USDA, Economic Research Service, www.ers.usda.gov/Briefing/FarmIncome/nationalestimates.htm.

Figure 1.1

Value of crop and livestock production, 1970-2009

\$ billion



Note: 2009 forecast.

Source: USDA, Economic Research Service.

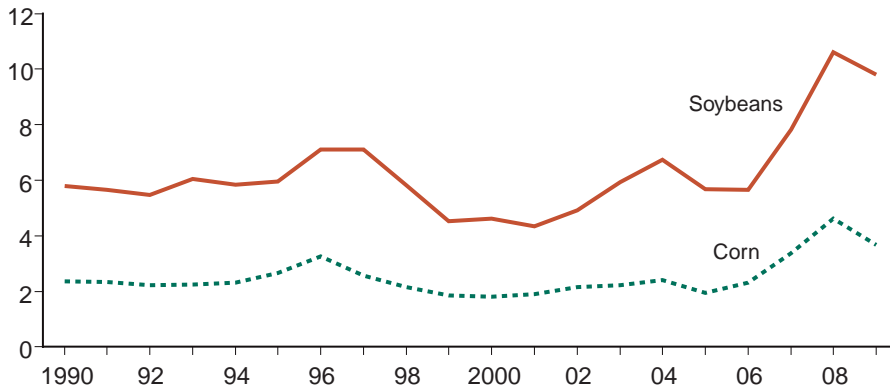
down receipts and production values from 2008's record level. The value of crop production is projected to decline by 10 percent in 2009.

A substantial reduction in milk prices going into 2009 signaled the same outcome for livestock commodities. Prices for animals and their products have fallen in 2009 because of declining exports and a lag in adjusting production for changing market conditions and expectations. Overall, the value of livestock production is projected down by 16 percent in 2009.

Figure 1.2

Annual average prices for crops, 1990-2009

Dollars per bushel



Note: 2009 forecast.

Source: USDA, National Agricultural Statistics Service.

Crop Farms Expected to Contribute 84 Percent of U.S. Agriculture's Net Value Added in 2009

Farm level data obtained from the USDA's Agricultural Resource Management Survey (ARMS) can be used to measure where U.S. agriculture's value added is generated and how it is distributed among its sources and owners. Farm equity holders' share of net value added rises and falls with increases and decreases in U.S. agriculture's net value added, consistent with their role as residual income recipients. Among the three equity holder groups (family farms, nonfamily farms, and contractors), family farm operators¹ most clearly reflect this relationship over time (table 1.2).

Most of the value added that U.S. agriculture is expected to add to the U.S. economy in 2009 is expected to come from farm operations specializing in crop production, particularly cash grains and soybean production (fig.1.3). This reflects relatively larger declines in the value of livestock production rather than increases in the value of crop production. Crop farm operations are forecast to generate about 72 percent of U.S. agriculture's payments to hired labor, farm lenders, and nonoperator landlords (table 1.3). Of the nine ERS farm resource regions in the U.S., farm operations in America's Heartland are expected to account for almost one-third of U.S. agriculture's 2009 net value added (fig. 1.4).

Larger farm operations, though few in number, dominate value added from farm operations and net farm income. While commercial farms² accounted for about 12 percent of U.S. farm operations in 2008, they are expected to create over 80 percent of U.S. agriculture's 2009 net value added and net farm income (fig. 1.5). About 45 percent of U.S. agriculture's net value added in 2009 is expected to come from farm operations with at least \$1 million in sales (table 1.4).

Overall, it is expected that farm equity holders' share of U.S. agriculture's net value added will decline in 2009, especially so for family farmers (table 1.5). This is the usual case in a "down market" as equity holders assume the risks inherent in earning net farm income. Stakeholders' share of U.S. agriculture's

¹Family farms are operators organized as proprietorships, partnerships, or family corporations that do not have hired managers.

²Commercial farms have annual sales of \$250,000 or more.

Measuring Agriculture's Value Added and Net Farm Income: Farm-Sector and Farm-Level Approaches

USDA measures U.S. agriculture's value added and net farm income using two approaches: one based on aggregate farm-sector data and the second based on farm-level data. Both approaches generate data used in this publication's tables and figures. Tables and figures relying on value-added measures from the farm-level accounts have as a source line "USDA, Agricultural Resource Management Survey, NASS and ERS."

Farm-sector approach

The farm-sector approach relies on farm-sector data obtained from a wide variety of sources, supplemented with farm-level data from USDA's survey of individual farm-level operations, the Agricultural Resource Management Survey (ARMS). In general, sectorwide data neither identify nor distinguish individual farms. Therefore, the sector approach is restricted to constructing sector totals for different value-added measures for the United States.

Farm-level approach

The farm-level approach relies almost entirely on ARMS surveys of individual farm operations. The advantage of using farm-level data is that it allows ERS to look at the distribution of value-added at the farm level rather than estimating a single farm-sector estimate. Farm-level data makes it possible to identify and distinguish the differing contributions of U.S. value added among stakeholders and equity holders, specialization of farm output, and sizes of farm operation.

Each year, ARMS produces a farm-level estimate of value added that is as consistent as possible with sectorwide measures of value added and its components. Weighted estimates of firm-level value added are compared with sectorwide estimates produced from multiple sources of data as a check for consistency.

2009 net value added pie, as well as their payments received in the form of hired labor compensation, interest, and rental income, is expected to increase. Stakeholders' shares are less vulnerable. One reason is that shares are usually negotiated before production and involve contractual obligations.

Large Declines in Cash Receipts Expected in 2009

Double-digit declines in annual crop cash receipts are expected by the end of 2009. Declines in cash receipts are also expected in 2009 for all the major livestock categories. These declines result mostly from large declines in crop and livestock prices at the farm level. While crop quantities sold are relatively stable or even marginally higher, small declines are expected in livestock quantities sold.

Leading the way are large expected annual declines in cash receipts for cotton, wheat, and corn. While there are expected increases in quantities sold in 2009 for many crops, large price declines are expected to contribute to declining receipts.

If USDA yield forecasts are realized, the 2009-10 corn crop will have the highest yields, resulting in the second-largest harvest on record. Corn is

Table 1.2

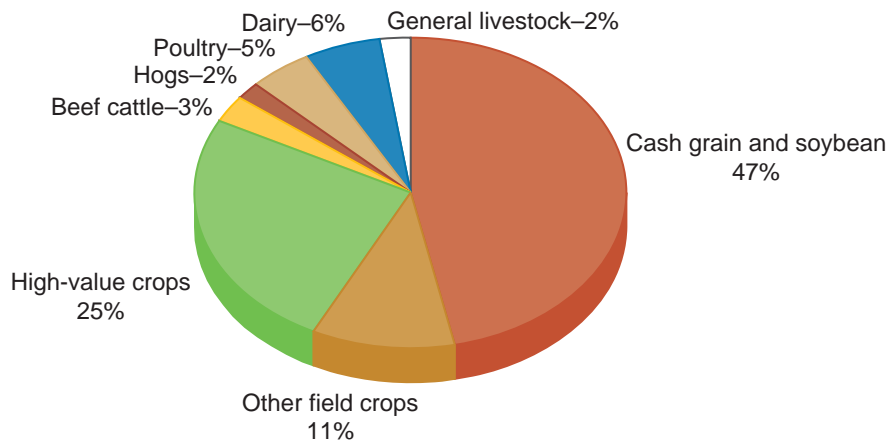
Distribution of net value added among resource owners, 2005-09

	2005	2006	2007	2008	2009
	<i>Percent</i>				
Stakeholders	34.5	44.3	35.1	40.0	54.6
Hired labor	17.5	21.9	16.9	20.0	26.3
Lenders	8.4	11.3	9.1	9.4	12.9
Nonoperator landlords	8.6	11.1	9.1	10.6	15.4
Equity holders	65.5	55.7	64.9	60.0	45.4
Family farm operators	43.9	34.4	44.6	44.1	29.7
Nonfamily farm operators	8.0	9.3	8.4	7.0	9.0
Contractors	13.6	12.0	11.9	8.9	6.7
Total	100.0	100.0	100.0	100.0	100.0

Note: 2009 forecast.

Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 1.3

Distribution of U.S. net value added by farm production specialty, 2009

Note: 2009 forecast.

Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Table 1.3

Shares of U.S. value of production (VOP), stakeholder payments, and net farm income by production specialty, 2009

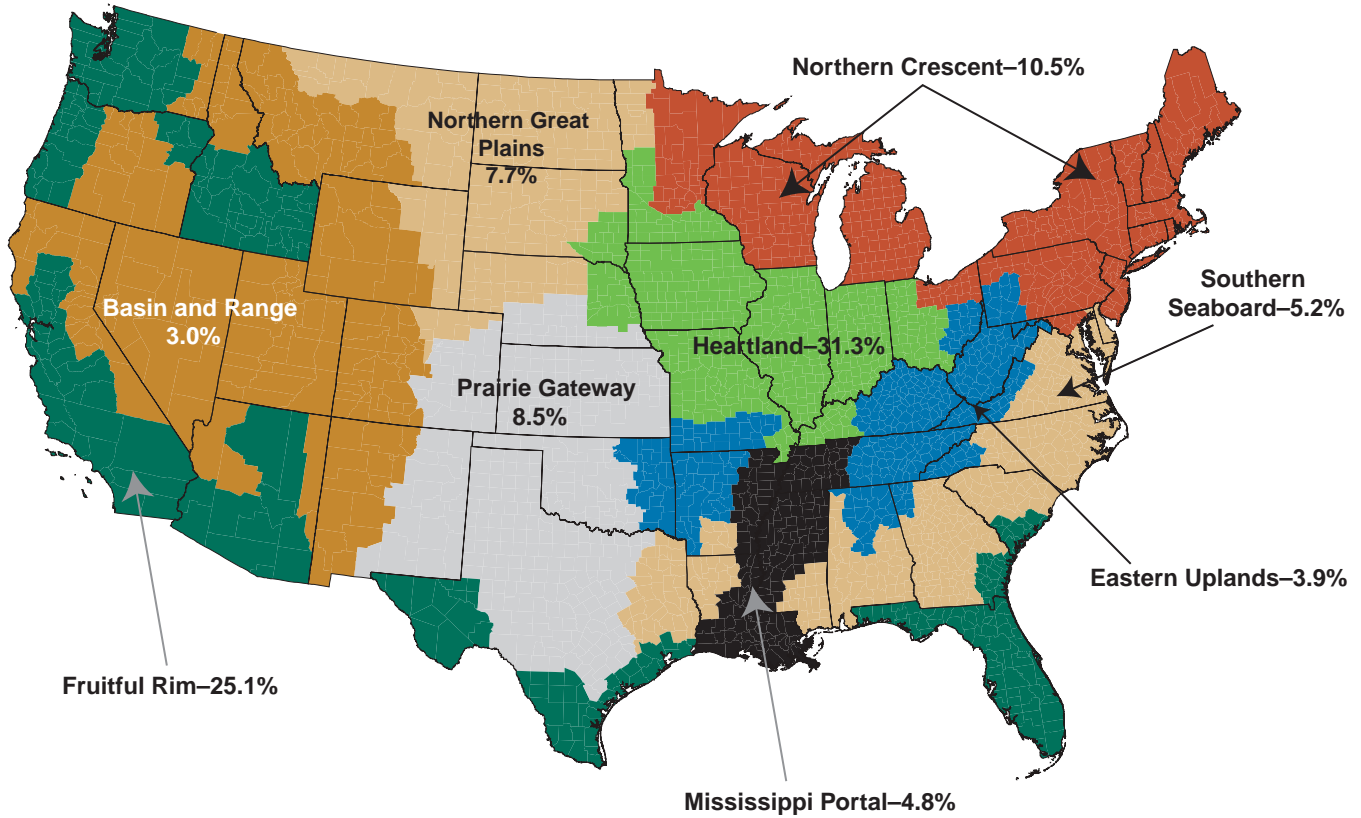
Type of production	Farms in 2008	Crop VOP	Livestock VOP	Stakeholder payments	Equity holder net income
	<i>Percent</i>				
Crop farms	45.1	95.2	4.9	72.3	95.2
Cash grains and soybeans	14.8	54.5	3.8	36.6	58.9
Other field crops	23.1	11.3	0.9	9.8	11.8
High-value crops	7.2	29.4	0.2	25.9	24.5
Livestock farms	54.9	4.8	95.1	27.7	4.8
Beef cattle	30.8	1.9	30.8	8.6	-4.1
Hogs	1.1	1.2	12.4	3.1	0.1
Poultry	2.0	0.4	21.1	2.4	7.5
Dairy	2.7	0.8	26.2	9.3	1.5
General livestock	18.3	0.5	4.6	4.3	-0.2
Total	100.0	100.0	100.0	100.0	100.0

Notes: 2009 percentages are USDA forecasts; percent of farms is based on 2008 data.

Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 1.4

Regional distribution of value added, 2009

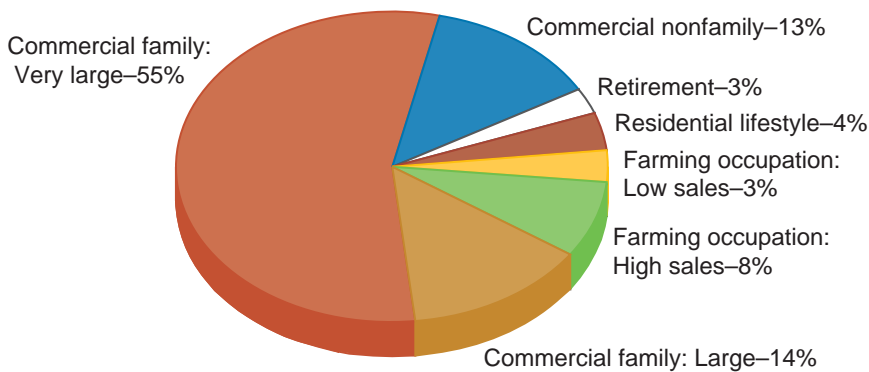


Note: 2009 forecast.

Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 1.5

Distribution of U.S. net value added by farm typologies, 2009



Note: 2009 forecast.

Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Table 1.4

Share of net value added (NVA), value of production (VOP), net farm income, and stakeholder payments by sales class, 2009

Sales class (dollars)	Farms in		Crop VOP	Livestock VOP	Stakeholder payments	Equity holder net income
	2008	NVA				
<i>Percent</i>						
1 million and above	1.8	45.3	42.9	61.6	47.6	41.4
500,000-999,999	2.3	21.1	15.2	12.8	13.9	24.1
250,000-499,999	4.5	14.4	17.2	9.6	15.1	16.6
100,000-249,999	8.0	10.1	12.2	7.8	11.1	11.9
Below 100,000	83.4	9.1	12.5	8.2	12.3	6.0
All farms	100.0	100.0	100.0	100.0	100.0	100.0

Notes: 2009 percentages are USDA forecasts while the percent of farms is based on 2008 data.
Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Table 1.5

Shares of value of production (VOP), stakeholder payments, and net farm income by farm typologies, 2009

Farm typology	Farms in		Crop VOP	Livestock VOP	Stakeholder payments	Equity holder net income
	2008	NVA				
<i>Percent</i>						
Rural residence family	63.4	6.4	5.1	9.0	4.8	
Retirement	18.2	1.6	1.2	1.8	4.4	
Residential/lifestyle	45.2	4.8	3.9	7.2	0.4	
Intermediate family	26.1	17.4	10.5	13.6	11.9	
Farming occupation, low sales	20.1	8.2	3.9	5.3	2.2	
Farming occupation, high sales	6.0	9.2	6.6	8.3	9.7	
Commercial family	8.0	60.7	68.6	60.5	73.6	
Large	4.3	16.5	9.3	14.5	15.8	
Very large	3.7	44.2	59.3	46.0	57.8	
Family farms	97.5	84.5	84.2	83.1	90.3	
Nonfamily	2.5	15.5	15.8	16.9	9.7	
Total	100.0	100.0	100.0	100.0	100.0	

Notes: 2009 percentages are USDA forecasts; percent of farms is based on 2008 data.
Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

expected to experience a \$1 per bushel price decline from calendar year 2008 to 2009. Corn is estimated to account for 92 percent of feed and residual use in the 2009 feed grain harvest. Feed needs have declined as milk producers have culled their herds in the hope of cutting milk production costs in the face of low milk prices.

Wheat's 2009 calendar year price is expected to decline over \$2.50 per bushel from 2008. All-wheat production in 2009 is down almost 279 million bushels from 2008 as all-wheat harvested area is down 5.6 million acres and the all-wheat yield is down about 0.5 bushels per acre from 2008's record levels. Domestic use for wheat in 2009-10 is projected down from 2008-09 as declines in feed and residual use more than offset higher food use. Total projected exports for 2009-10 are down 115 million bushels from 2008-09 as

higher than expected wheat production in the main wheat-exporting countries and aggressive export promotion by the Canadian Wheat Board have reduced U.S. market share.

The calendar year price for cotton lint is expected to decline about 13 cents per pound. The 2009 U.S. cotton crop is expected to be nearly 1.4 percent above 2008-09 whereas world cotton production is forecast down 3.5 percent in 2009-10. While lower foreign production coupled with an expected slight increase in foreign consumption could potentially bolster U.S. cotton exports, near-record foreign stocks at the end of 2008-09 are expected to moderate export demand for U.S. cotton.

Soybean crop cash receipts are expected to be relatively stable as a large decline in price of almost \$1 per bushel in calendar year 2009 is expected to be almost offset by a forecast 17-percent increase in quantity sold. Depleted soybean stocks in South America are turning importers to U.S. suppliers.

Fruit and tree nut cash receipts are expected to decline over 10 percent as prices are expected to decline almost 5.5 percent overall. Large percentage increases in quantities sold are expected for pecans, sweet cherries, and lemons. Export volume for U.S. cherries was up almost 40 percent in the first half of 2009 compared to the same period in 2008, a result of sharply lower cherry prices due to large supplies of very good quality. The forecast for 2009 U.S. sweet cherry production, if realized, would be up 52 percent from 2008 and the largest on record. Supply increases from larger domestic crops of lemons are depressing lemon prices.

The largest percentage declines in 2009 quantities sold are expected for grapefruit, almonds, oranges, and temples. The current forecast for U.S. 2008-09 grapefruit production is 17 percent below the 2007-08 crop. Crop size was smaller in each of the producing States and demand for fresh grapefruit is weak. Florida's total citrus acreage declined 1.3 percent between 2008-09 and 2009-10 in response to citrus canker and citrus greening diseases. A stronger dollar and weaker foreign economies dampened international demand for U.S. citrus. Weather factors contributed to a smaller almond crop, which is expected to be 17 percent below 2008. Demand has been strong for the 2008-09 crop in both domestic and international markets.

Not all crops are expected to experience declines in receipts. Despite an expected large decline of almost \$1.80 per hundredweight (cwt) in the calendar year rice price, an increase of more than 31 percent is expected for rice sold, resulting in a more than 7-percent rise in rice receipts. Supplies are the largest since 2005-06. Total use of U.S. rice in 2009-10 is up almost 2 percent from last year, with increases projected for both export and domestic markets.

Sluggish foodservice demand and slightly larger fall supplies should result in a sharp decline in potato prices in the 4th quarter of 2009. Potato cash receipts, while higher in the first half of 2009 versus the same period last year, are expected to decline in the latter half of 2009. Overall, a slight decrease in annual potato receipts is expected by the end of 2009. Prices for dry beans in 2009 are expected to average about \$5.70 per cwt below 2008, resulting in declining receipts as well. However, an expected increase in receipts from

other vegetables means that total vegetable receipts, which include melons, are expected to increase almost 1.5 percent from 2008 to 2009.

Dairy receipts are expected to decline by almost one-third in 2009 as milk prices received by dairy farmers are expected to decline by almost \$6 per cwt from 2008. The U.S. dairy herd continues to decline through 2009. However, export prospects are improving as demand has increased in China, North Africa, and Middle Eastern markets. The milk-feed price ratio, a popular profitability measure in the dairy sector, reached its lowest level (1.5) in 35 years in May-June 2009.

Double-digit declines in cash receipts also are expected for meat animals. Cattle prices are expected to drop about \$8.50 per cwt while the 2009 price for calves is expected to decline about \$4.60 per cwt. There has been a decrease in consumer demand mostly resulting from the economic downturn. Year-to-date, beef exports have declined 4 percent with double-digit declines in exports to Mexico and Canada, the largest foreign buyers. Hog prices are expected to fall about \$6.80 per cwt. September 1, 2009, breeding animal inventories declined more than 3 percent from 2008, likely a producer response to persistent negative returns beginning in late 2007. Shipments of pork to all major foreign buyers, except Mexico, are down from 2008.

Broiler receipts are expected to decline over 5 percent, mostly due to a decline in quantity sold as broiler prices are expected to remain relatively stable. Quarterly broiler meat production has been declining beginning in the third quarter of 2008 reflecting in part cutbacks in domestic demand. Broiler exports are forecast down 5 percent from 2008. Egg receipts are expected to decline by almost 25 percent in 2009 reflecting an annual price decline of about 28 cents per dozen. Egg exports were down in the first half of 2009 in comparison to first half of 2008, but are expected to be higher in the latter half of 2009 than they were in the second half of 2008.

Government Payments Forecast at \$12.5 Billion in 2009

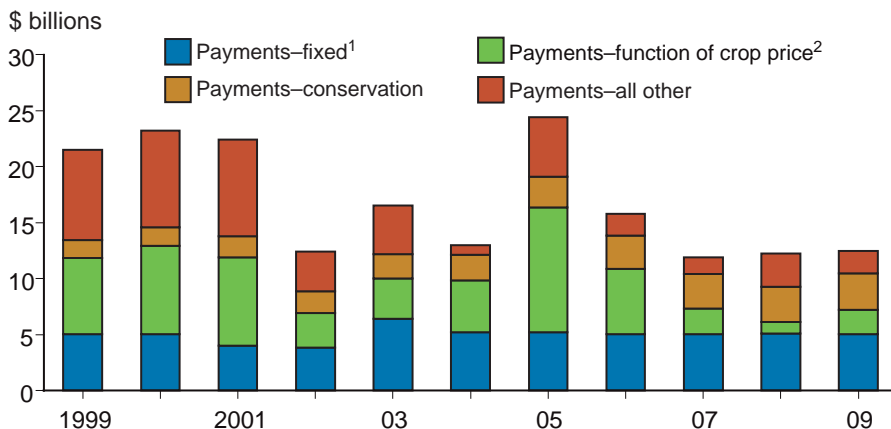
Direct Government payments are expected to total \$12.5 billion in 2009, a 2-percent increase above the level of payments made in 2008 (fig. 1.6). Direct payments under the Average Crop Revenue Election (ACRE) program and the direct and counter-cyclical payments program (DCP) in 2009 are forecast at \$5.06 billion. Since direct payment rates are fixed in legislation and are not affected by the level of program crop prices, and the ACRE program is in its infancy, there has been little change in the volume of direct payments.

Both counter-cyclical program payments and marketing loan benefits vary with market prices. Counter-cyclical payments are expected to be \$1.23 billion and marketing loan benefits to be \$948 million. Cotton payments account for all counter-cyclical payments and 91 percent of all marketing loan payments. The other crops receiving marketing loan benefits are wheat, barley, wool, mohair, and pelts.

The Milk Income Loss Contract (MILC) program compensates dairy producers when domestic milk prices fall below a specified level. For 2009, current economic uncertainties have reduced both domestic and export

Figure 1.6

Government payments, 1999-2009



Note: 2009 forecast.

¹Production flexibility contract payments and direct payments whereby payment rates are fixed by legislation.

²Counter-cyclical payments, loan deficiency payments, marketing loan gains, and certificate exchange gains whereby commodity payment rates vary with market prices.

Source: USDA, Farm Service Agency, Natural Resources Conservation Service, and Commodity Credit Corporation.

demand for dairy products to such an extent that lower milk prices are expected to generate \$900 million in MILC payments.

Conservation program payments of \$3.23 billion in 2009 reflect programs being brought up toward funding levels authorized by current legislation. Other Government payments are forecast at \$1.09 billion and are primarily made up of Tobacco Transition Payment Program (TTPP) payments and ad hoc and emergency relief payments. At a projected \$740 million in payments to producers, TTPP payments are less than the budgeted outlays in 2008 because a significant number of tobacco producers and quota owners cashed out of the 10-year program by taking single lump-sum payments in previous years.

Ad hoc and emergency disaster program payments are forecast to be \$325 million in 2009. The Emergency Conservation Program, various Crop Disaster programs, the Noninsured Assistance Program, and the Upland Cotton Assistance Program are disbursing over 80 percent of this total. Disaster payments appropriated under Title IX—Agricultural Assistance—of the U.S Troop Readiness, Veterans’ Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007, were paid out in 2008, resulting in a projected drop in these payments in 2009 by 85 percent from 2008 levels. The 2008 Farm Act created a permanent fund for disaster assistance, the Agricultural Disaster Relief Trust Fund. Payments from this fund and from the 2009 Recovery Act are expected to amount to \$25 million in 2009.

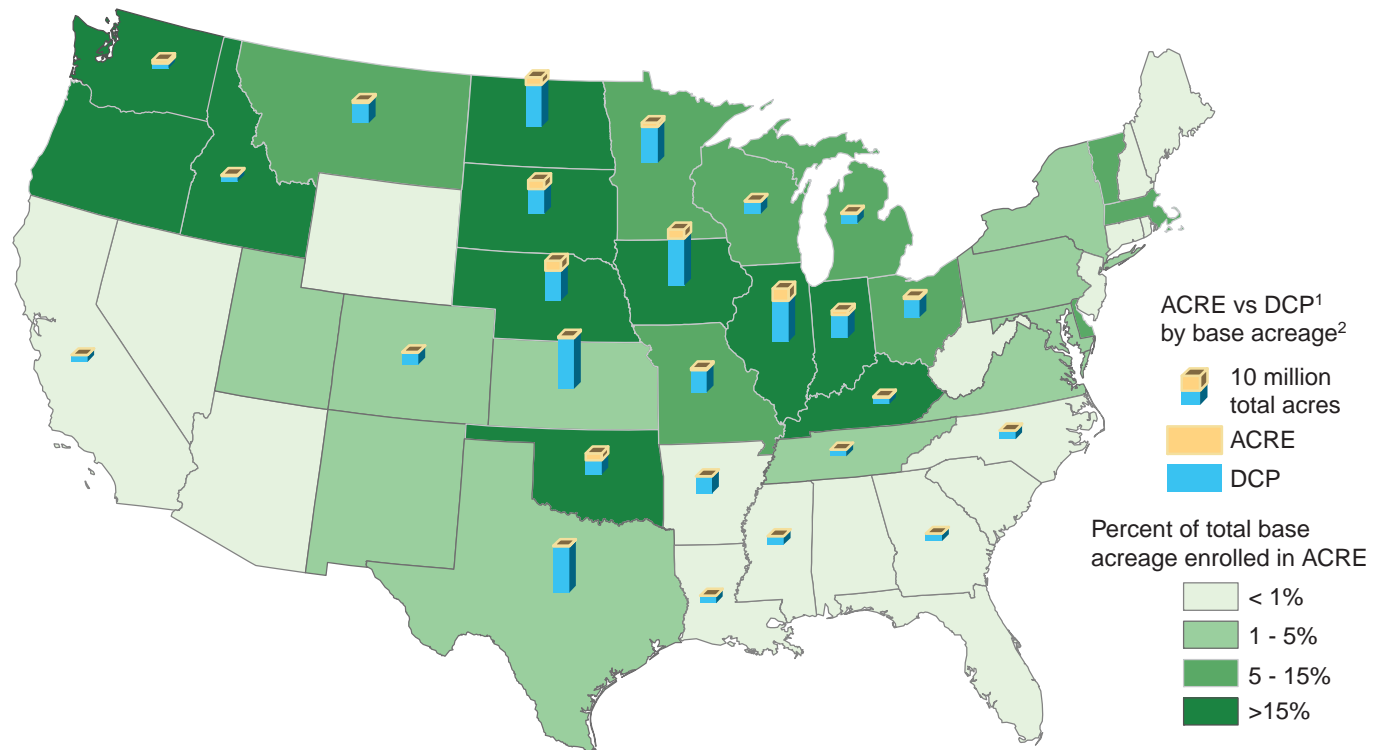
The ACRE Program recently authorized by the 2008 Farm Act provides revenue protection to producers in exchange for a 20-percent reduction in their annual direct payment allotments, a 30-percent reduction in marketing loan rates, and the forgoing of counter-cyclical payments. Once enrolled, ACRE participants remain in the program through the 2012-13 crop year. Participants in the ACRE program are eligible for State-based revenue

coverage that reflects recent yields and recent national prices for designated program crops. Since the payments are tied to decreases in state revenue, ACRE payments can be triggered by a decrease in national prices or reported State yields per planted acre. Enrolled producers will receive ACRE payments when both State-level and farm-level payment triggers are met. For the 2009-2010 crop year, 128,600 producers enrolled 32 million base acres in the ACRE program. They represent about 8 percent of all participants in the DCP and ACRE program. Furthermore, DCP participants only enrolled 13 percent of the in eligible base acres in ACRE. Due to these low enrollments, the effect on direct payments will be minimal in 2009.

States with the highest levels of ACRE-enrolled base acres were in regions dominated by wheat, corn, and/or soybean production; 96 percent of the national total of planted acreage on ACRE farms is in those regions (fig. 1.7). Low wheat prices and below-average yields induced an enrollment of 43 percent of total base acres in Washington and 33 percent in Oklahoma. Seventy-four percent of wheat plantings on ACRE farms were in five States: Oklahoma (2.4 million acres), followed by Washington, South Dakota, Montana, and North Dakota. Seventy-one percent of corn and soybean plantings on ACRE farms were in Illinois, Iowa, Nebraska, South Dakota, and North Dakota. Plantings on ACRE farms in these latter five States accounted for 60 percent of the national total of enrolled base acres.

Figure 1.7

ACRE program enrollments concentrated in the Heartland, 2009-10 crop year



¹DCP = direct and counter-cyclical payments.

²Excludes States with less than 2 million base acres.

Source: USDA, Economic Research Service calculations based on data from USDA, Farm Service Agency, and USDA, National Agricultural Statistics Service.

Farm Household Income, Net Worth, and Well-Being

- Average farm operator household income is forecast to be \$76,065 in 2009, down 3.5 percent from the 2008 estimate.
- In 2008, the average net worth of farm operator households was \$875,259, and the median net worth was \$525,262.
- Large- (or commercial-) farm households averaged \$182,842 in household income in 2008.

Average farm household income of principal farm operators—from farm and off-farm sources—is forecast to be \$76,065 in 2009, down 3.5 percent from 2008 (table 2.1). (See boxes, “How Does USDA Define Farm Operator Households?” and “How Is Farm Household Income Defined?”)

Average household income from farm sources is forecast to decline by 24.4 percent between 2008 and 2009, from \$10,302 to \$8,770; in contrast, household income from off-farm income sources is forecast to decrease by about 1 percent to \$69,440. The average share of farm household income from farm sources is forecast to decline from 11 percent in 2008 to 8.7 percent in 2009. Approximately 60 percent of farm operator households have either an operator or the operator’s spouse working off-farm. Only for the households that operate the largest farms (those with sales of \$250,000 or more) is average farm income greater than off-farm income in a typical year.

Changes in farm income are determined by a complex array of factors. The forecast decline in farm income from 2008 to 2009 is largely the result of a drop in cash receipts, in contrast to relatively stable Government payments. However, the decline in cash receipts came after 2 years of large gains in cash receipts. The 2008-09 decline in off-farm income is the result of the economy-wide recession, affecting rural as well as urban areas.

Farm Household Net Worth

Current income can be an unreliable indicator of the well-being of farm operator households. Many farm households generate low earnings, or even losses, from the farm business in a given year, but may experience much better financial performance over the long run. Equity, or net worth, the difference between assets and debts as of the last day of the year, is a useful indicator of this longer-term performance of farm businesses, since net worth reflects the accumulation of wealth over time. Moreover, depending on its liquidity, net worth can be an important reserve to sustain the household in years of lower income, like 2009.

There was a modest 2.7-percent decline in the net worth of farm households from 2007 to 2008, owing largely to a decline in nonfarm asset values. However, after more than 20 years of increasing farmland values, the typical farm operator household is in a historically strong financial position. In 2008, the average net worth of farm operator households was \$875,259, and the median net worth was \$525,262. (USDA does not forecast farm operator

Table 2.1

Farm operator household income, 2004–09

Item	2004	2005	2006	2007	2008	2009
			<i>Number</i>			
Number of principal farm households	2,060,822	2,034,048	2,021,903	2,143,398	2,129,869	n.a.
			<i>Dollars per family farm</i>			
Net cash business income of farm	20,228	19,891	15,611	21,099	21,449	18,986
Net cash earnings of the household from farming activities	13,325	13,381	7,620	10,302	8,770	6,626
Off-farm income of the household	67,279	67,091	72,502	77,438	70,535	69,440
Earned income	48,818	46,034	51,674	58,939	50,761	50,041
Off-farm wages and salaries	38,416	34,876	38,481	48,947	42,606	n.a.
Off-farm business income	10,402	11,158	13,193	9,992	8,155	n.a.
Unearned income	18,461	34,438	20,827	18,499	19,271	19,399
Total household income of farm operators, average	80,604	80,472	80,122	87,740	78,803	76,065
Total household income of farm operators, median	53,529	53,779	55,696	53,367	50,971	n.a.
U.S. household income	60,466	63,344	66,570	67,609	68,424	n.a.
			<i>Percent</i>			
Farm income as a percent of total farm household income	16.5	16.6	9.5	11.7	11.1	8.7
Average farm household income as a percent of U.S. household income	133.3	127.0	120.4	129.8	115.2	n.a.

2009 forecast. n.a. = Not available.

Note: For information on the accounting of income, see box “How is Farm Household Income Defined?” on p. 21.

Source: USDA Agricultural Resource Management Survey, NASS and ERS; and U.S. Census Bureau, Current Population Survey..

household net worth for 2009. The 2008 estimate is based on farm survey data, collected in 2009, for the end of the calendar year 2008.) The debt-to-asset ratio of farm operator households in 2008 was 11 percent, with average assets of \$987,955 and average debt of \$112,696.

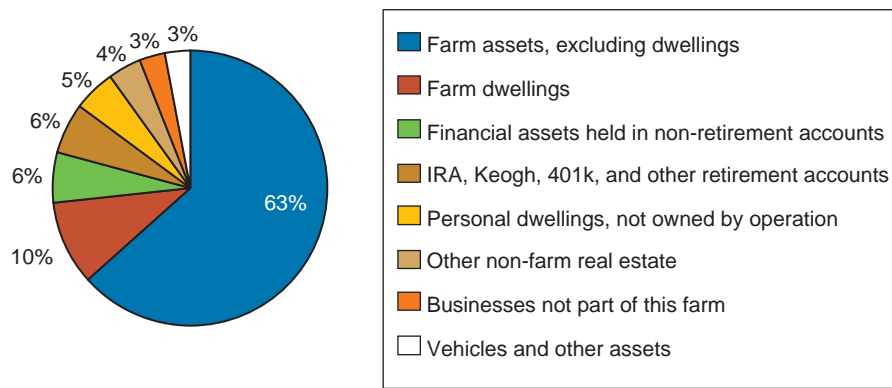
About three-quarters of the total assets of farm operator households is associated with farm assets, including the households’ personal dwellings on the farm. In 2008, farm-owned operator dwellings represented 10 percent of total household assets, and all other farm assets represented 63 percent (fig. 2.1). The share of assets represented by dwellings reflects the fact that many farms are small and a major portion of their value is in the farm operator’s dwelling. Although operator households typically derive most of their wealth from farm assets, farm households have a broad portfolio of nonfarm investments, including financial investments and nonfarm real estate. The portion of household debt associated with the farm (54 percent) is smaller than the portion of assets associated with the farm (76 percent) (fig. 2.2). The major source of nonfarm debt is from nonfarm personal dwellings. Mortgages on other real estate and nonfarm business loans are also major sources of household debt.

Farm Size and Financial Well-Being

Farm household income varies, of course, across subgroups with different demographic and farm characteristics. A key distinction among farm

Figure 2.1

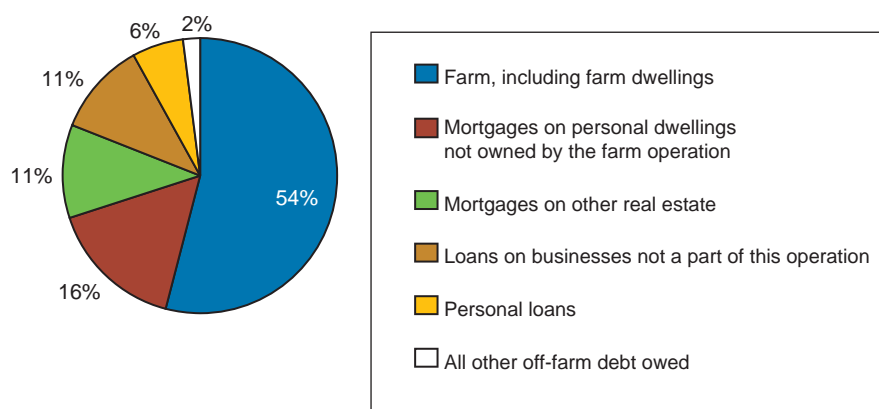
Composition of farm household assets, 2008



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 2.2

Composition of farm household debt, 2008



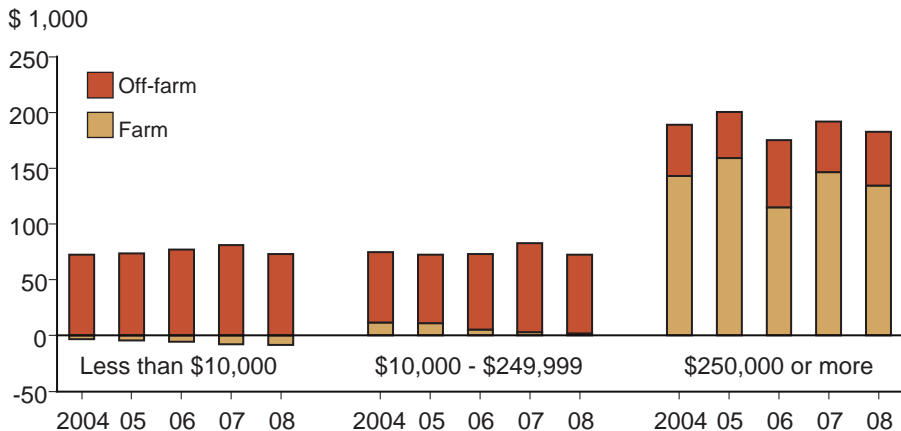
Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

households is related to farm size, largely due to USDA’s liberal definition of a farm, which includes many small farms that produce little, if any, agricultural output in a given year along with farms that produce more than \$10 million in product. Small farms are commonly defined to be those with sales of less than \$250,000. While less than 10 percent of all farms, large farms (those with annual sales of \$250,000 or more) generate 80 percent of all sales. Because over 90 percent of farms are small, it is useful to consider subgroups of small farms, for example, the 60 percent of farms that have \$10,000 or less in gross sales and the 30 percent of farms with \$10,000 to \$249,999 in gross sales.

Households operating large (or commercial-size) farms had an average 2008 household income of \$182,842. More so than other households, they rely on farm income, which made up 73 percent of their total 2008 household income (fig. 2.3). Like households associated with smaller farms, these households experienced declines in average farm income. But, unlike households associated with smaller farms, they experienced an increase in off-farm income. The

Figure 2.3

Farm household sources of income by farm size (gross sales), 2008



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

7.5-percent increase in off-farm income for this group of farm households did not fully make up for the decline in their farm earnings, relative to 2007.

Income from farm sources is less important to small family farms. The smallest farm households (with sales under \$10,000), experienced an 11-percent decline from 2007 to 2008 in household income (\$64,843 in 2008) due to declines in both farm and off-farm sources of income (see fig 2.3). Households operating farms with \$10,000 to \$249,999 in gross sales experienced larger percentage declines in both farm and off-farm income sources than the other two groups of farm households. Their 2008 average household income was \$72,479.

Regardless of the sizes of the farms they operate, farm households have significant net worth. Not surprisingly, net worth is positively related to the size of the farm. In 2008, the average net worth of farm households with sales of less than \$10,000 was nearly \$600,000 while the net worth of households operating large farms was over \$2 million.

Well-Being of Farm Households Compared to That of the U.S. Population

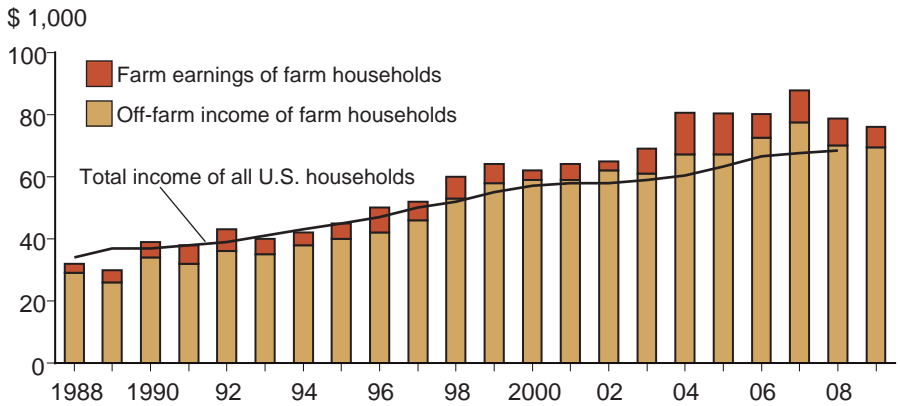
In 2008, average farm household income was \$78,803, 15 percent higher than that of all U.S. households (\$68,424) (fig 2.4). Since the 1980s, ERS has reported a money income measure for farm operator households that is comparable to that reported by the U.S. Census Bureau for all U.S. households. Since 1996, average income among farm households has exceeded the average income of all U.S. households. Off-farm income, the largest component of farm household income, has exceeded the U.S. average household income from all sources since 1998. The median incomes are \$50,971 for farm households and \$50,303 for all U.S. households. Unlike nonfarm households, whose net worth is mostly in houses and other real estate, the major share of the net worth of farm households is in farm business wealth, including farmland. Consequently, as the average net worth of farms has increased over time, so has the net worth of farm operator households. The latest information available on net worth of all U.S. families is for 2007 (Federal Reserve Board, 2009). The median value of net worth for all U.S. households was \$102,300 in 2007, compared with \$525,262 for farm

households. This puts the median net worth of farm operator households at more than four times the median net worth of U.S. households.

Farm households have significant net worth in part because capital assets, such as farmland and equipment, are generally necessary to operate a successful farm business. Similarly, households with self-employed heads have greater net worth than the average U.S. household. Even so, farm operator households also have greater net worth than all U.S. households with a self-employed head. The dollar value of the net worth gap (i.e., the difference between farm household and all U.S. household median net worth) has increased since 2001 from \$226,000, to \$364,000 in 2004, and \$405,000 in 2007, due in large part to the rising value of farmland and equity held by farmers overall, coupled with declines in residential real estate values in some areas (fig. 2.5).

Figure 2.4

Average farm operator household income, by source, compared with U.S. household income, 1988-2009

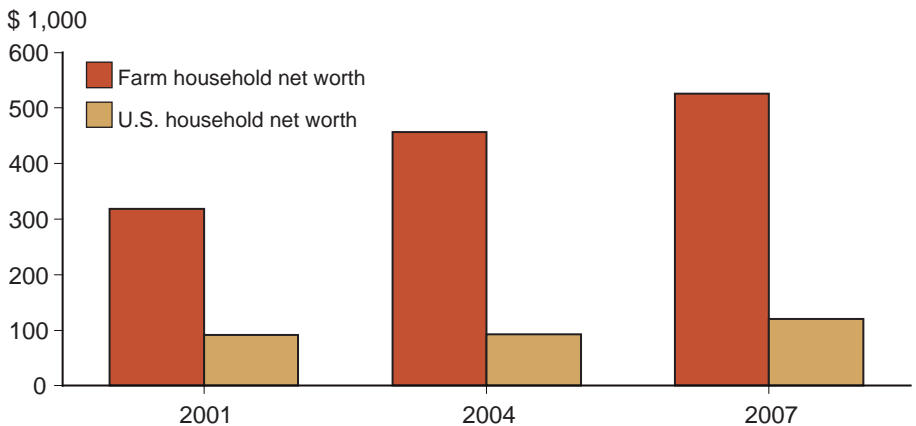


Note: 2009 forecast.

Source: USDA, Agricultural Resource Management Survey, NASS and ERS, and U.S. Bureau of the Census, Current Population Survey.

Figure 2.5

U.S. household and farm operator household median net worth, 2001, 2004, and 2007



Source: USDA, Agricultural Resource Management Survey, NASS and ERS, and Board of Governors, Federal Reserve Board, *Survey of Consumer Finance*.

How Does USDA Define Farm-Operator Households?

The farm-operator household population includes everyone who shares the dwelling unit with a principal operator of a family farm. This includes students away at school who are supported by the principal operator household and, if not away at school, would be sharing a dwelling unit with the principal operator. A farm is defined as any place from which \$1,000 or more of agricultural products were produced and sold, or *normally would have* been sold, during the year.

Since the definition allows farms to be included even if they did not have at least \$1,000 in sales, but *normally would have*, USDA's National Agricultural Statistics Service (NASS) developed a system for determining how much a farm *normally would have* sold in a given year. If a place does not have \$1,000 in sales, a "point system" assigns dollar values for acres of various crops and head of various livestock species to estimate a normal level of sales. Point farms are farms with less than \$1,000 in sales but have points worth at least \$1,000. More than one-quarter of farms have no sales in a typical year, and at least another 30 percent have positive sales of less than \$10,000.

The current definition of a family farm (beginning with the 2005 estimates) is based on the Agricultural Resource Management Survey, and is a farm where the majority of the business is owned by individuals related by blood, marriage, or adoption. In 2008, 97.2 percent of U.S. farms were classified as family farms, and although the definition has changed slightly over time, this share has been stable for at least a decade. The farm operator is the person who runs the family farm, making the day-to-day management decisions. In the case of multiple operators, the respondent for the farm survey identifies who the principal farm operator is during the data collection process.

USDA provides financial information for principal farm operators of family farms and their households, referred to as farm-operator households in this publication. For farms where there is more than one operator and the multiple operators do not share a housing unit, detailed household data and off-farm income are not collected for the additional operators on either the NASS Census of Agriculture or the ARMS—household data is only collected for a single principal operator. In addition, USDA does not collect information on the financial position of farm-operator households who operate nonfamily farms.

How Is Farm Household Income Defined?

USDA's definition of farm-household income parallels that of the U.S. Census Bureau's definition of household income for all U.S. households in the Current Population Survey (CPS). The CPS definition includes all cash income of the household, except in the case of self-employment income (like farming) the definition departs from a strictly cash concept by deducting depreciation, a noncash business expense, from the income of self-employed people. There are several factors that affect how much of the farm-business income is earned by the household of the principal operator, including:

- Some farms have multiple operators who do not share a single household. In such cases, household income is calculated only for the principal farm operator's household and includes only that household's share of farm-business income.
- Also, if a farm is organized as a C-corporation, the profit that the firm generates is retained by the business until the business pays out those earnings in the form of dividends. For C-corporations, farm-business dividends paid to the principal operator household are included in household farm income. (The remaining profit of C-corporations is retained by the farm business or paid to other shareholders and not reflected in the principal farm operator's household income.)
- Operators of C- and S-corporations may also pay themselves a wage for operating the farm, and those payments are included both as an expense to the business and an income to the farm household when they are paid. In addition, other farm-related earnings, such as rental income from another farming operation, are included as income in the calculation of earnings of the operator household from farming activities. Earnings of the operator household from farming activities as defined in the USDA measure are not a complete measure of the returns provided by the farm. It leaves out some resources the farm business makes available to the household.

For example, depreciation is an expense deducted from income that may not actually be spent during the current year. Increases in inventories are excluded from the earnings measure, but they could be sold to raise cash. Nonmoney income, such as the imputed rental value of a farm-owned dwelling, represents a business contribution to household income because it frees up household cash that would otherwise be spent on housing.

Finally, farm losses, or negative farm earnings, of the operator household can reduce the income taxes paid on off-farm sources of income. In order to calculate total operator household income, the earnings of the operator household from farming activities is added to the income from off-farm sources. Off-farm income may come from a variety of sources, including wages and salaries, off-farm self-employment, interest, dividends, private pensions, Social Security, veteran benefits, and other public programs.

Earnings Differ Among Farm Businesses and Enterprises

- U.S. agriculture is a diverse sector represented by a complex mix of business enterprises. Income forecasts highlight the diversity of financial outcomes and are based on applying sector level forecasts and receipts and expenses to the latest Agricultural Resource Management Survey (ARMS) data.
- Average net cash income for farm businesses (intermediate and commercial farm operations) is projected to be \$61,578 in 2009, 10.6 percent below the 2008 estimate of \$68,876.

Agriculture is a diverse sector represented by a complex mix of business enterprises. This section focuses on the more than 800,000 farm businesses that are responsible for the majority of economic activity in the sector (see box, “Defining Farm Businesses” on the next page for more detail). Results reported here are designed to highlight the diversity of financial outcomes based on applying sector-level forecasts of receipts and expenses to the latest Agricultural Resource Management Study (ARMS). Estimates of farm-level income reported by USDA have been developed to reflect both the contributions of factor providers, such as creditors and landlords, and the use of business arrangements such as contracts. The net cash income reported for farms is the income available to share among owners and operators who participate in the farm’s financing, production, and marketing outcomes. Cash flow projections can be summarized across various groups of farms, based on regional location, commodity specialization, or size. The model is static and therefore does not account for changes in crop rotation, weather, and other local production impacts that occurred after the base year.

Average net cash income for farm businesses (intermediate and commercial operations, including nonfamily farms) is projected to be \$61,578 in 2009. This would be 10.6 percent below the 2008 estimate of \$68,876. The projected change in income prospects for farm businesses will not affect all farm operations in the same manner or to the same degree. There is considerable variation in business structure, including the extent to which assets are owned, the mix of crop and livestock produced, the contribution of Government payments to gross income, and the relative importance of energy inputs and borrowed capital to production costs. Several classifications of farms—including commodities produced and geographic location—reflect this diversity.

With the potential for strong yields, the 2009 corn crop is likely to be the second-highest on record. Even with the prospect for a large harvest, higher domestic use, particularly in ethanol production, has prevented dramatic price declines, with the annual average price forecast to be 17 percent below 2008’s \$4.08 per bushel. Strong exports have helped to maintain soybean prices despite expectations for an exceptionally large harvest. The U.S. season-average soybean price is expected to be 10 percent below the 2008 level. As a result, U.S. cash receipts are forecast to decline by 20 percent for corn and increase by 2 percent for soybeans. Expense declines are similar for these farms, with

Defining Farm Businesses

The official USDA farm definition (an operation with \$1,000 of gross agricultural sales or the potential to generate such sales) encompasses a widely diverse 2.1 million operations. Farms vary in their level of business activity, resource allocation, goals, and a host of other attributes. ERS developed a typology of farms to categorize farms into more similar groups based on gross sales, major occupation, and total household earnings (for more information, see *Structure and Finances of U.S. Farms: Family Farm Report, 2007 Edition*, www.ers.usda.gov/Publications/EIB24). In order to concentrate analysis of business performance on those farms with significant labor allocation to farming and household dependence on business income, several of the farm typology classifications are excluded. These include limited-resource farms, retirement farms, and residential/lifestyle farms. A majority of these farms have negative business income and, as a result, depend on off-farm sources of income to support their household (see information in chapter 2). Farm businesses, for purposes of performance analysis, include the more than 800,000 remaining family and nonfamily farms who indicated that farming was the primary activity of the operator.

average cash expenses expected to fall by 12 percent. Items with the largest expected declines are fuel (32 percent) and fertilizer (28 percent). Average net cash incomes are forecast to be 5 percent lower for corn farm businesses and similar to 2008 for farms that specialize in soybean and peanut production (table 3.1). Total wheat production is forecast to be nearly 11 percent lower than in 2008 based on a reduction in harvested acres due to adverse weather conditions in some areas. With the potential for high ending stocks and reduced exports, the average annual wheat price for 2009 is forecast to be 28 percent below 2008's record price. The combination of higher prices and production is projected to reduce average crop receipts for farms that specialize in wheat production by 12 percent in 2009. Average cash expenses are forecast to drop by 13 percent—led by a 32-percent reduction in fuel costs and a 28-percent decline in fertilizer costs. Average net cash income is forecast to increase by 12 percent, with the reduction in expenses more than offsetting the reduction in crop receipts. Insurance indemnity payments and other sources of farm-related income are forecast to increase by 6 percent, on average, helping bolster average gross cash income on wheat farms.

On farms that specialize in cotton and rice production, fertilizer accounts for almost a third of average cash expenses and is forecast to decline by 28 percent. Fuel is also forecast to decline by 32 percent in 2009. With the decline in expenses nearly keeping pace with the projected reduction in crop receipts and substantially higher government payments, average net cash income is forecast to increase by almost 4 percent for cotton and rice farms. Crop farms, both specialty crop producers and farms that specialize in other field crops (tobacco, sugarcane, sugar beets, hay, and others) are forecast to have the largest increases in average net cash income. For specialty crop farms, a small increase in crop receipts coupled with a 4-percent reduction in expenses results in nearly a 22-percent increase in average net cash income. These farms were some of the few crop producers that experienced a decline in net cash income in 2008.

Table 3.1

Change in average net cash income by type of farm operation, 2009

Commodity specialization	Percent change in average net cash income	Key determinants of change
Program crops		
Mixed grain	-2	Crop receipts 12 percent below 2008. Cash expenses 12 percent lower. Fuel, fertilizer, and utilities are the expense items with the largest declines.
Wheat	12	Crop receipts down 12 percent. Farm related income up 7 percent. Cash expenses forecast to decline by 13 percent. Fuel, fertilizer, and utilities had the largest declines.
Corn	-5	Crop receipts down 12 percent. Cash expenses forecast to decline by 12 percent. Fuel, fertilizer, and utilities are the expense items with the largest declines.
Soybeans and peanuts	0	Crop receipts down 11 percent. Cash expenses forecast to decline by 11 percent. Fuel, fertilizer, and utilities are the expense items with the largest declines.
Cotton and rice	4	Crop receipts down 14 percent. Cash expenses forecast to decline by 13 percent. Government payments increased by 23 percent.
Nonprogram crops		
Other field crops	14	Crop receipts down 6 percent. Cash expenses forecast to decline by 10 percent.
Specialty crops	22	Crop receipts up 1 percent. Cash expenses forecast to decline by 4 percent.
Livestock		
Beef cattle	-26	Livestock receipts down 12 percent. Cash expenses 8 percent lower. Fuel expected to decline by 32 percent and feed by 8 percent from 2008.
Hogs	-52	Livestock receipts down 18 percent. Cash expenses 7 percent lower. Fuel expected to decline by 32 percent and feed by 8 percent from 2008.
Poultry	7	Livestock receipts down 14 percent. Cash expenses 7 percent lower. Other farm related income 7 percent higher than 2008.
Dairy	-82	Livestock receipts down 26 percent. Cash expenses 6 percent lower. Fuel expected to decline by 32 percent and feed by 8 percent from 2008.
Other livestock	7	Livestock receipts down 9 percent. Cash expenses 6 percent lower. Other farm related income 7 percent higher than 2008.

Note: 2009 forecast.

Source: USDA, Economic Research Service farm-level forecast model.

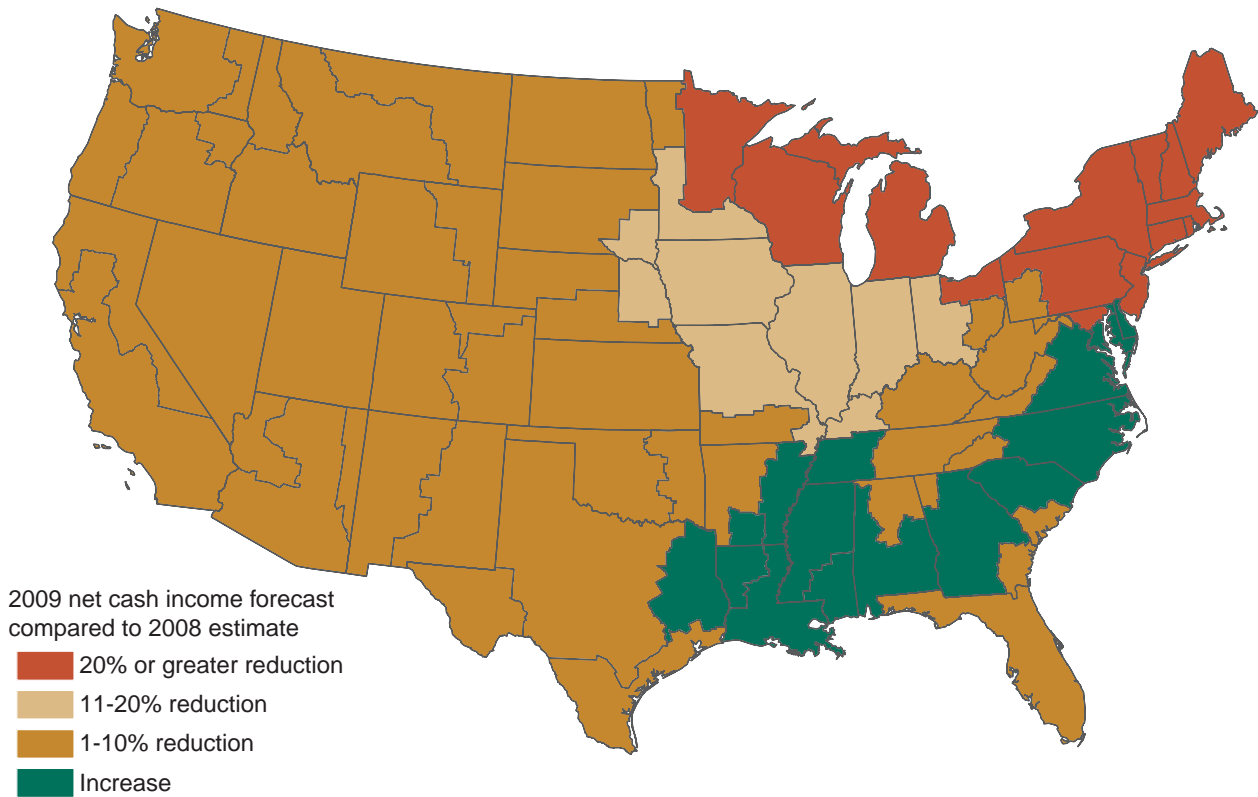
Resurgence in exports, particularly for broilers is helping sustain receipts for poultry farms. Despite lower production, 2009 average poultry receipts are forecast to be 11 percent below 2008's record level. Decreasing costs for feed and energy related inputs are expected to push average cash expense 7 percent below 2008 levels. The result is a projected 7-percent increase in average net cash income. In contrast, 2009 has the potential to be a devastating year for many other types of livestock producers. A combination of record hog supplies and declining demand in foreign markets has driven prices down and resulted in lower production. As a result, average livestock receipts on hog farms are forecast to decline by 18 percent in 2009. Even with some fallback in feed costs, average expenses are forecast to decline by only 7 percent, leaving average net cash income 52 percent below 2008.

The situation for dairy farms is similar. Persistently high milk production, combined with low, recessionary domestic demand and slow exports has continued to put downward pressure on prices. The all-milk price is expected to drop to nearly \$12.40 per hundredweight (cwt), compared to the

2008 annual average of \$18.29 per cwt. Average receipts for milk and dairy products are forecast to fall by 31 percent in 2009. Dairy expenses, which have risen sharply in the last several years, are forecast to fall by more than 6 percent, on average, in 2009. The reduction in expenses, however, is not enough to maintain incomes, with average net cash income forecast to fall by 82 percent in 2009. The situation is only marginally better for beef-cattle producers where the average decline in net cash income is forecast at 26 percent. Again, the expected reduction in average cash expenses of 8 percent is not enough to compensate for lower receipts.

There is considerable regional diversity in the farm business net cash income forecasts for 2009, which is due in large part to the geographic concentration of commodity production (fig. 3.1). The Northern Crescent region, where dairy is the most prominent commodity, is forecast the have the largest decline in average net cash income at 32 percent. By contrast, average farm business net cash income is expected to increase by almost 9 percent in the Mississippi Portal, where poultry, cotton and rice, other field crops, and specialty crops are the primary commodities. The Southern Seaboard region, where the relatively optimistic outlook for specialty crop, grain, and poultry farms offset the expected losses on hog farms, is also expected to have higher average net cash income in 2009. Most other regions of the country are expected to have average net cash income declines of less than 10 percent in 2009, with the exception being the Heartland, which has a forecast 14-percent decline.

Figure 3.1
Change in average net cash income by resource region, 2008



Note: See figure 1.4 for map of ERS resource regions.
 Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Asset Values Erode For First Time in Over Two Decades

- After rising steadily over two decades, farm-sector assets and equity (net worth) declined in 2008 and are forecast to fall further in 2009.
- Declines in farm asset and equity values affect the overall solvency of the sector. If they continue, these declines can affect the ability of farmers and other investors to finance purchases of farmland and other assets.
- Factors that have contributed to the decline in farm asset values include farm investors' lower expected future net returns, declining cash flow, and tighter credit conditions.

The Value of Farm Sector Assets and Equity Declined in 2008 and 2009

Many significant changes have occurred since December 2008, when the *Agricultural Income and Finance Outlook (AIS-86)* was last published. Based on newly revised estimates, farm sector asset and equity values declined in 2008, reversing an increasing trend that began in the 1980s (fig. 4.1). After reaching a low of \$722 billion in 1986, sectorwide asset values increased nearly threefold to nearly \$2.1 trillion in 2007. In 2008, however, the nominal value of farm sector assets decreased for the first time since 1986 to \$2.0 trillion, and is projected to decrease again in 2009 to \$1.9 trillion.

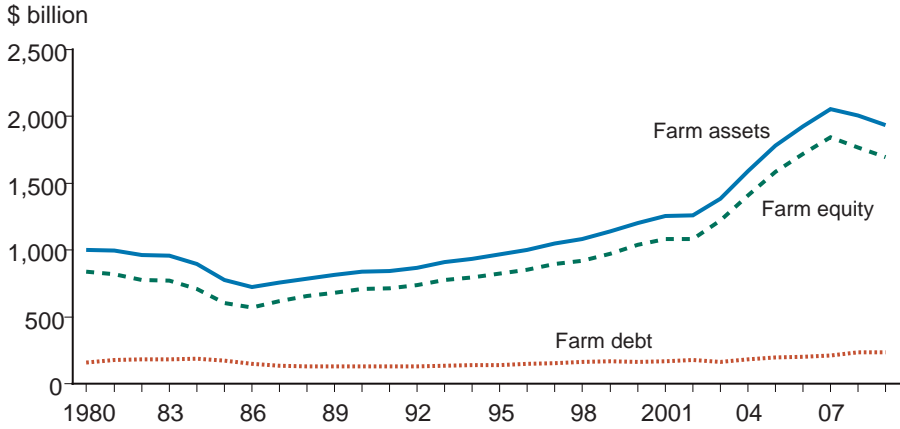
Land, the single largest asset in farming, has underpinned changes in the sector's asset values. The per-acre value of land has increased nearly every year over the last two decades. Real estate, which accounted for 75 percent of total farm sector assets in 1986, stood at 85 percent of farm sector assets in 2007. Lower farm-sector asset values in 2008 and 2009 are largely due to reduced farm real estate values. Real estate values are, however, still projected to be 84 percent of total farm asset values in 2009. Overall, real estate asset values are projected to be down by nearly 7 percent from their 2007 peak in 2009. Machinery and equipment values are also projected to be lower in 2009.

Farm-sector equity (the difference between asset values and debt) also rose significantly over the past two decades, reaching a nominal record high nearly every year between 1996 and 2007 (fig. 4.2). Not only did equity rise to new nominal highs, but the share of total assets accounted for by owner equity rose from 79 percent in 1985 to 90 percent in 2007. Even with 2008's reduction in asset values and the projected decline in 2009, equity will still account for about 88 percent of the total value of assets in U.S. agriculture in 2009. In 1980, equity accounted for 84 percent of the sector's total asset value.

A key question is: how are declines in asset and equity values affecting the profitability of farm businesses and the ability of farmers and other equity holders to finance new investments in farmland and other farm assets? Are farm investors facing credit constraints? In light of declining and more volatile returns on farm investments, how are farm operators adjusting their capital structures and portfolios of farm and nonfarm investments to maximize their expected future profits and wealth?

Figure 4.1

Farm business balance sheet, 1980-2009

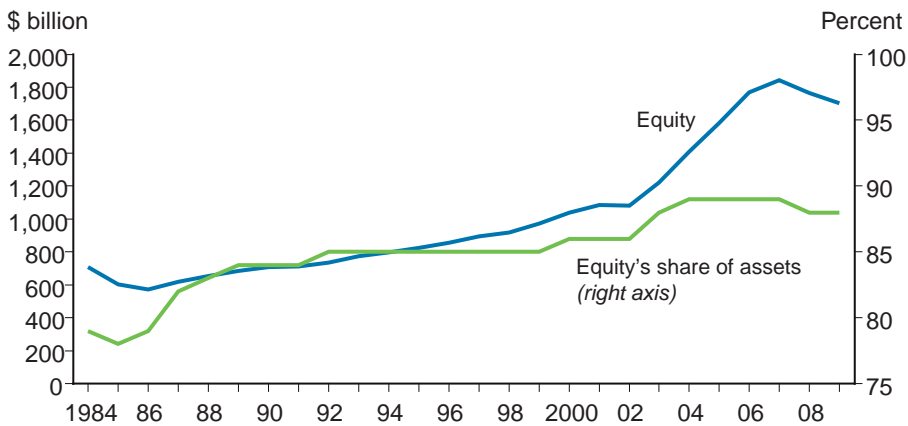


Note: 2009 forecast.

Source: USDA, Economic Research Service.

Figure 4.2

U.S. farm sector equity, 1984-2009



Note: 2009 forecast.

Source: USDA, Economic Research Service.

To shed light on these questions, we examine the farm business balance sheet and related financial ratios to see how the sector’s capital structure has changed. Later in this report, we also examine how farmers and ranchers are managing increased market risks by altering their ownership and management of farm assets, including tenure and leasing arrangements, multiple-owners/managers, and contracting.

The Farm Sector Balance Sheet Forecast for 2009

The farm sector balance sheet forecast reflects current market fundamentals—declining cash receipts, declining but still high production expenses, and declining returns on farm investments—that lead to declines in the value of the farm sector’s assets and equity (net worth). Forecasts of declining cash receipts for crops and livestock (-10.9 percent and -16.6 percent, respectively),

continuing volatility in agricultural commodity and input (feed, fuel, and fertilizer) markets imply that returns on farm investments will continue to decline in 2009 (from \$48.3 billion in 2008 to \$19.9 billion in 2009) (fig. 4.3).

Although agricultural lenders are generally extending credit at low interest rates, they have altered loan terms and tightened credit standards in response to increased risk in agricultural lending. Agricultural loan quality has declined given reduced farm income expectations and increased volatility in agricultural markets. Thus, lenders, especially commercial banks, have shortened loan maturities and raised collateral requirements. Whether agricultural lenders will tighten credit further will depend largely on how soon the global economy begins to recover and when the U.S. financial crisis is resolved.

Debt capital is expected to remain available to qualified borrowers at reasonable cost, while less qualified borrowers may expect to pay higher interest rates. Farm sector debt is expected to remain at 2008 levels during 2009, at close to \$240 billion.

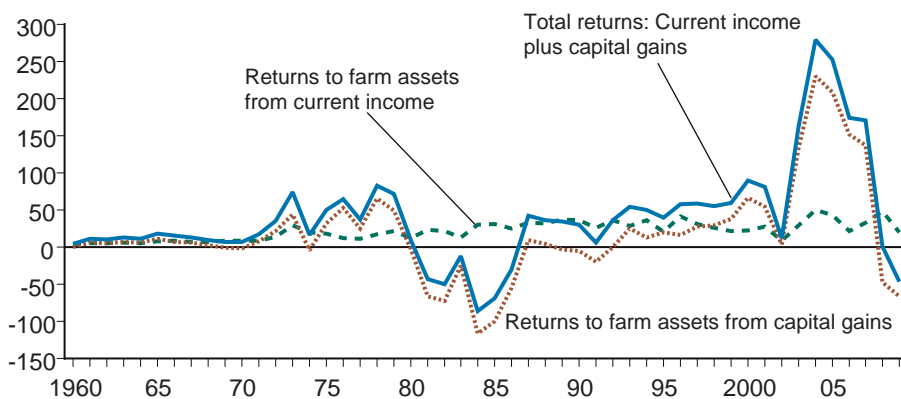
On the asset side, the overall level of farm business equity capital is expected to fall as well, with farm sector asset values expected to decline from \$2.005 trillion in 2008 to \$1.944 trillion in 2009 (a 3.1-percent decline). This reflects lower expected returns on farm investments. The value of machinery/equipment is expected to decline, while the values of financial assets and purchased inputs are expected to rise slightly in 2009.

The decline in farm sector equity forecast for 2009 is largely due to an expected 3.5-percent decline in the value of farm business real estate, which excludes the value of operator and other dwellings but includes the value of land and other real estate of the farm business. This estimate reflects the continued softening of farmland markets due to lower expected earnings on farm investments, tighter credit, and greater overall market uncertainty.

Figure 4.3

Total returns to U.S. farm business assets: Current income and capital gains (inflation-adjusted), 1960-2009

\$ billion



Note: 2009 forecast.

Source: USDA, Economic Research Service.

Farmland's Importance in Farm Financial Performance and Solvency

- Farmland values are a major component of farm wealth, and thus affect sector solvency, profitability, and the ability of farm households to efficiently allocate their farm and nonfarm assets to increase their profits and to build farm and nonfarm wealth.
- Land tenure and leasing affect both the size and distribution of land rents and the ability of farm investors to acquire land and other capital and to build farm wealth.
- Nearly one-third of U.S. farmland is operated under some form of lease.
- The number of acres operated, owned, and leased varies across time, by farm size (acres operated, value of sales), and by type of farm.

Farmland occupies a uniquely important role in the financial performance of U.S. production agriculture because of its dominance in the farm sector balance sheet. Farm real estate accounts for roughly 80 percent of the total value of farm sector assets and is thus a major component of farm wealth. Farm wealth is an important indicator of household well-being. The distribution of farm household wealth is important for several reasons. First, it affects the ability of farm households to efficiently allocate their farm business and household assets to earn the greatest return on their investments. Second, wealth influences contractual arrangements, including land leasing, tenure, and management decisions. Third, wealth can increase the efficiency of production and marketing contracts since wealthier operators may have access to superior contracts that more closely match the operator's business objectives.

There are special features of farmland that affect the financial viability and performance of farm operations. These include: (1) a historically large capital gains/loss component in total returns to farm assets relative to current income, (2) low correlation with returns to other (financial) asset classes, (3) irreversible development potential and nonagricultural demands for agricultural landholdings, (4) the capitalization of Government payments into land values, (5) uncertainty about the stream of policy benefits in the future, and (6) the potential for asset price "bubbles."

Capital Asset Pricing, Land Values, and Boom-Bust Cycles

The values of farmland and other farm assets are determined by the discounted present value of (expected) returns to farmland, interest rates, and nonfarm demand for farmland. However, in the short run, significant deviations from the discounted value model occur. It has been well documented that farmland values increase more than would be appropriate in response to an increase (decrease) in returns (Schmitz, 1995). These periods of overreaction are referred to as "boom-bust cycles." A boom (bust) is a period of time in which farmland increases (decreases) in value above (below) its fundamental value (i.e., the present value of expected future returns to farmland). Sustained periods of either overvaluation or undervaluation are inconsistent

with efficient markets for farmland. Since farmland values account for about 80 percent of U.S. farm assets, boom-bust cycles have a profound effect on farm operation wealth and access to credit. As a result of boom-bust cycles, some of the more efficient and profitable producers may be forced to exit, business risks (including borrowing costs) may rise, and rural communities may experience increased financial difficulties.

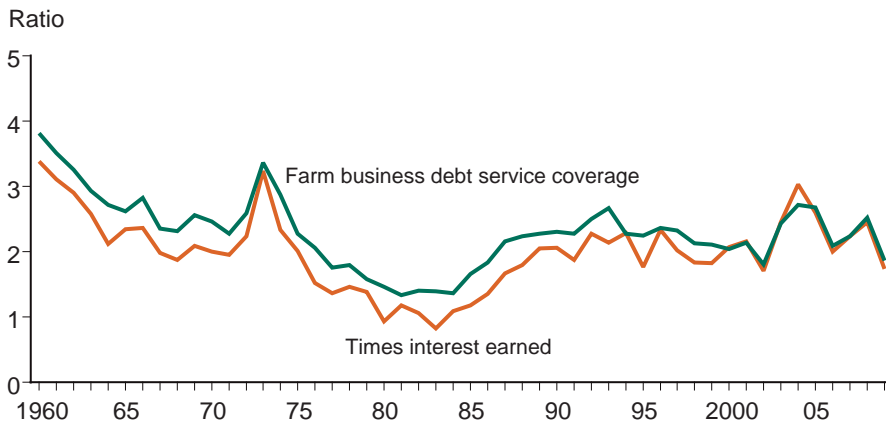
Financial Structure and Capital Market Imperfections

The illiquidity of farmland and of agricultural-equity markets contributes to boom-bust cycles for farmland and to price bubbles. Arbitrage (taking advantage of a price differential between two or more markets) could mitigate the effects of boom-bust cycles of farmland prices if investors could put downward pressure on farmland values by selling short on farmland (i.e., selling farmland that they do not actually own, which is common in equity markets). But short sales are difficult in farmland markets.

The recent contraction (2008-09) in farmland prices and returns may raise concerns that liquidity (ability of farm investors to secure adequate capital at affordable costs) could contract or even dry up. However, the U.S. farm production sector has not experienced the severe liquidity crisis which the U.S. financial and real estate sectors of the economy are experiencing. The U.S. farm production sector did experience a farm financial crisis from 1981 to 1986. During this period, the profitability of farm investments was negative, as measured by the “spread” between the total return on farm assets and the total cost of financing those investments. However, measures of farm sector liquidity such as the current ratio and the debt servicing ratio suggest that for the sector overall, farm investors are able to secure adequate capital, but with generally tighter terms. An examination of the current ratio and the debt servicing ratio for the U.S. farm business sector reveals both the changes in overall sector liquidity over time, and the current upturn in sector liquidity forecast in 2009 (fig. 5.1).

Figure 5.1

Liquidity ratios, 1960-2009



Note: 2009 forecast.

Source: USDA, Economic Research Service.

The real net return on farm assets (RNROA), or “spread,” is an indicator of the profitability of farm investments. The RNROA was as low as -16.7 percent in 1984 during the farm financial crisis of the 1980s, indicating that debt financing was unprofitable for the farm sector. However, the “spread” between total returns on farm investments and the total cost of financing is forecast to be positive in 2009, although lower than in 2007 and 2008 (fig. 5.2).

Factors Affecting Farmland Values

The most important factor affecting real estate values is “location, location, location,” and this is accurate for farmland as well. Farm owners in the Northeast see their land values greatly influenced by urban development. In other regions (e.g., Midwest, Plains States) land values are buoyed by Government payments. And in the Rocky Mountain region, people pay extra for the amenity values associated with mountain properties.

Many factors affect farm investors’ returns on their portfolios across regions and over time, including: (1) the productivity of land when in agricultural production, (2) urban influence, (3) policy effects (such as Government payments, conservation programs, and credit policy), (4) amenity effects, (5) capital gains taxation, and (6) inflation. To this list, one might add two additional factors: the globalization of world input and commodity markets, and increased market volatility.

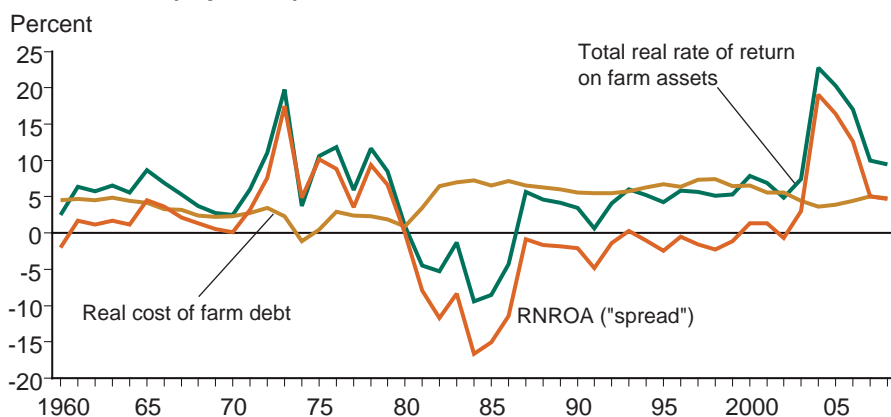
Land Tenure and Leasing and the Distribution of Land Rents

Among the key structural changes in U.S. production agriculture are changes in the control of farmland, as measured by the leasing market, and changes in farmland ownership, as measured by land tenure. These changes are partly in response to increased market and production risks in the sector.

Data from the 2000 and 2008 ARMS show changes in the average number of acres owned and leased by farm type, by type of lease. Cash rent leases

Figure 5.2

Total real rate of return on farm assets, real cost of farm debt and RNROA (“spread”), 1960-2008



RNROA = real net return on farm assets.

Source: USDA, Economic Research Service.

are becoming increasingly popular relative to share rent leases (table 5.1). This table shows both the higher proportion of cash rent to share rent leases, and the relatively large proportions of acres rented in for farm operations in the Northern Plains and in the Mountain States in 2008.

Renting land allows the farm operator to expand by controlling additional land without the debt and commitment of capital associated with ownership (Reimund and Gale, 1992). For about two-thirds of medium- and large-scale farms, farm operators own part of the land they operate and rent the rest. Also, 14 percent of large-scale farms—versus 6 percent of all farms—are run by tenants who own none of the land they farm. About three-quarters of large-scale tenants specialize in crops, compared with two-fifths of farms in general (Hoppe et al., 2007).

The extent to which benefits are shared among landowners and farm operators may differ greatly. Land tenure and leasing affect both the size and distribution of land rents to farm operators and landlords, and the ability of farm investors to acquire land and other capital. ARMS data allow us to follow these structural changes both in terms of tenure structure (full owner, part owner, or tenant) and by type of lease (cash rent, share rent, a combination of cash and share rent, or other lease type).

Periods of high volatility in farm income can potentially diminish farm borrowers' ability to adequately service their loans, as deteriorating profit margins erode farm liquidity. During these times, farmers can adopt alternative payment plans that rely less on returns from the farm business and more on other sources, including: off-farm income, minimizing withdrawals from owners' equity funds, asset liquidation, reliance on Federal subsidies, enterprise diversification, and expanding the size of their farms through either share or cash leasing. These alternative arrangements involve different risk-return profiles and liquidity mechanisms. These are important considerations in determining debt-servicing plans for the farm business. (See box, "Debt-Financed Land Ownership, Cash Leasing, and Share Leasing: Advantages and Disadvantages," p. 34 for a summary of the

Table 5.1

Acres owned and leased per farm, by type of lease, U.S. and by region, 2000 and 2008

Region	Owned		Leased in:								Leased out	
	2000	2008	Cash + share + free		Cash		Share		Free		2000	2008
			2000	2008	2000	2008	2000	2008	2000	2008		
United States	273.0	265.4	211.3	169.1	151.8	123.9	47.6	33.8	11.9	11.4	25.4	7.1
Northeast	106.3	105.2	44.2	43.3	30.0	31.1	1.9	1.3	12.3	10.9	4.6	7.1
Lake States	159.9	156.4	110.1	97.6	96.2	90.9	8.1	4.3	5.8	2.4	14.3	22.6
Corn Belt	156.6	158.1	155.3	145.6	93.1	102.7	59.0	40.2	3.2	2.7	18.7	18.7
Northern Plains	554.7	626.4	527.2	499.2	335.3	359.8	186.0	132.6	5.9	6.8	87.0	107.9
Appalachian	124.7	116.2	52.0	54.0	34.9	39.0	6.7	5.4	10.4	9.6	7.6	4.0
Southeast	108.6	181.1	83.0	56.2	73.0	48.9	1.3	1.5	8.7	5.8	4.9	10.3
Delta	147.8	154.1	146.4	132.9	83.0	70.8	52.6	49.0	10.8	13.1	9.7	8.6
Southern Plains	259.9	301.7	209.2	196.9	158.2	145.4	26.5	29.9	24.5	21.6	23.8	23.6
Mountain	962.9	698.0	661.7	343.1	516.7	251.8	122.9	64.8	22.1	26.5	68.7	64.1
Pacific	162.3	139.6	139.5	137	91.2	99.0	41.9	31.9	6.4	6.1	26.0	14.9

Source: USDA, 2000 and 2008 Agricultural Resource Management Surveys, NASS and ERS.

advantages and disadvantages of cash and share leasing compared to debt-financed land ownership.)

Nearly one-third of U.S. farmland is operated under some form of lease, according to the 2007 Census of Agriculture. The most common form of lease, the cash rental agreement, is a fixed payment negotiated before planting. Share rental agreements, by contrast, vary with the amount of product harvested. Under cash rental leases, the tenant bears all of the production and market-price risk; share rental arrangements divide production and market risks between tenant and landlord.

Cash rents are usually considered a short-term indicator of the return to a landowner's investment. To tenants, however, cash rents are a major expense and, like farm real estate values, have been increasing for a number of years. Because rents reflect the income-earning capacity of the land, they vary widely across the country. Cropland rents tend to be highest in areas where higher value crops are grown. The highest average cash rents in 2008 were reported for irrigated land in California, at \$360 per acre. Cropland most suitable for corn and soybean production, principally in the Midwest, also commands high rents. The highest rents for nonirrigated cropland in 2008 were \$180 per acre in Iowa and \$170 per acre in Illinois.

Purchases of Farmland

The decision to purchase farmland is a financial decision that materially affects the size and, perhaps, the scope of the farm. The decision to purchase farmland adds assets to the farm operation, and may be financed with debt (borrowed funds) or with equity (internal funds).

Among the key factors that farm investors must consider are: (1) the effects of risk on land prices; (2) the effect of transaction costs and the thinness of farmland markets (only about 1-2 percent of acres turn over each year); and (3) the globalization of farmland market—worldwide demand for farmland is growing and returns to land are subject to the upswings and downturns in commodity markets, in world financial markets, and to exchange rate adjustments.

The 2008 ARMS asked farm operators about other farm-related income they and all their partners received, including income from farmland sales for their operations:

- the proceeds from sales of farmland and other farm real estate for this operation
- the recognized gain/loss on sales of farmland and other farm real estate, and
- who purchased the farmland: nonrelative, relative, or both?

For those farm operators who sold farmland in 2008, the average income (farm real estate proceeds) was \$533,270 and the average recognized gain/loss on the sale of farmland and other real estate was \$380,726. Figure 5.3 shows the percent distribution of farm operators purchasing farmland and other farm real estate, and the percent distribution of real estate purchase

Debt-Financed Land Ownership, Cash Leasing, and Share Leasing: Advantages and Disadvantages

	Debt-financed land ownership	Cash leasing	Share leasing
Advantages:	Maintain ownership—You choose to run your business your own way.	Offers farmers simpler, more flexible bidding opportunities for greater farmland control.	The most highly risk efficient financing option for farmers (Barry et al., 2000)
	Tax deductions—This is a huge attraction for debt financing.	Simple. Owner is assured of a steady income. Owner does not have to help manage; the tenant has freedom to manage within the restrictions of the agreement.	Uncertainty of production and prices are shared by landowner and tenant. The positive correlation between the value of harvested crops and the tenant farmer's rental obligation to the landowner stabilizes the farmer's net income, thus providing greater risk-reducing benefits for the farm operator.
			Capital requirements of the tenant are reduced, and thus also financial risk. A knowledgeable landowner may improve income by participating in operating decisions. The owner has more control over the use of the land and other assets.
			The landlord is obligated to disburse his/her share of the variable costs when payment is due. This offers significant liquidity relief for the farm operator who only has to pay his share as stipulated in the leasing contract.
Disadvantages:	Repayment—Loan payments must be made at particular dates as stipulated in the loan contract.	The farmer ends up assuming all production and income risks	The tenant is not totally free to make operating decisions. The tenant has to share during good years and bad; the landowner may receive a lower return than he/she would have for cash rent in poor income years.
	High rates—Interest rate may exceed return on the underlying investments.	The owner does not share in very profitable years.	
	Impacts the borrower's credit rating.	An owner may rent to a tenant who exploits the land and improvements.	

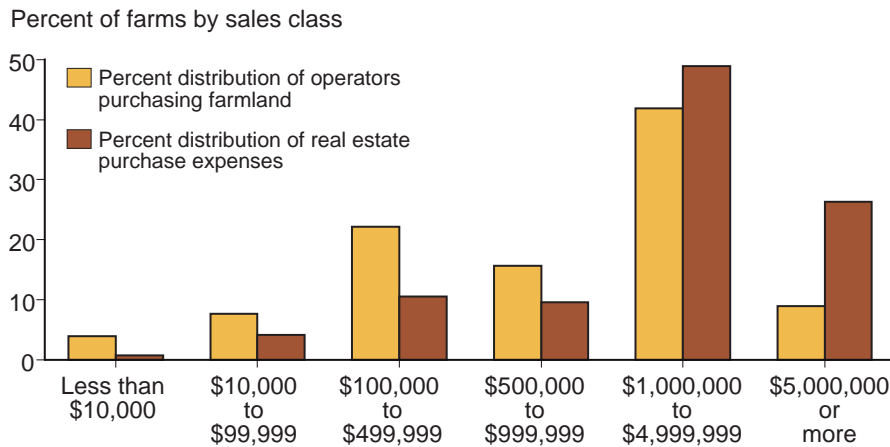
Sources: Barry et al., 2000; Gunderson, Detre, and Boehlje, *AgriMarketing*, June and July/August, 2005.

expenses, by sales class, 2008. It is noteworthy that a significantly larger percentage of farm operators and of farmland purchase expenses occurred in the \$1,000,000 to \$4,999,999 sales class (the *large farm* category). Figure 5.4 depicts the percent distribution of farm operators purchasing farmland and other real estate, and the percent distribution of real estate purchase expenses, by region.

Beginning Farmers' Land Acquisitions

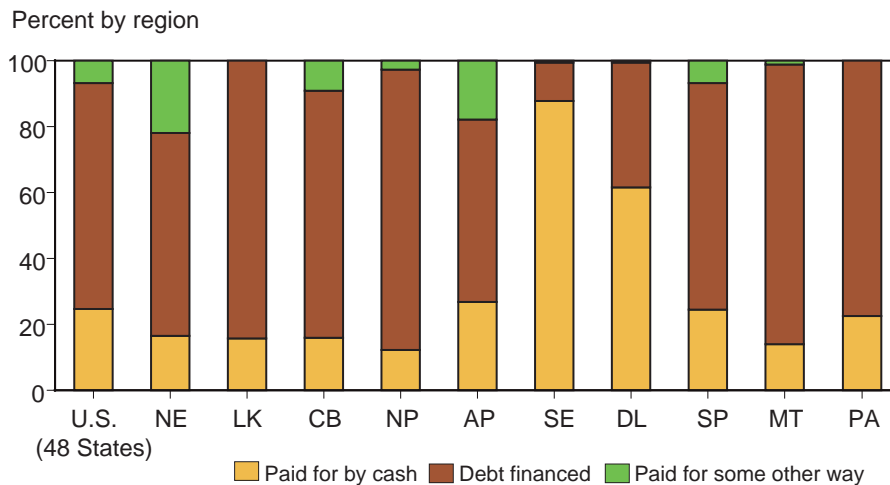
According to the most recent Ag Census data, the number of young people entering farming continues to decline, but the number of new farmers and ranchers over the age of 35 is rising, as is the number of smaller farms and

Figure 5.3
Percent distribution of number of operators purchasing farmland, and of real estate purchase expenses, by sales class, 2008



Source: USDA, 2008 Agricultural Resource Management Survey, NASS and ERS.

Figure 5.4
How farm operators financed land purchases: Type of financing by ERS production region, 2008



Note: NE=Northeast; LK=Lake States; CB=Corn Belt; NP=No. Plains; AP=Appalachia; SE=Southeast; DL=Delta; SP=So. Plains; MT=Mountain States; PA=Pacific.

Source: USDA, 2008 Agricultural Resource Management Survey, NASS and ERS.

ranches nationwide. USDA defines beginning farmers and ranchers as those who have operated a farm or ranch for 10 years or less either as a sole operator or with others who have operated a farm or ranch for 10 years or less. Beginning farmers tend to be younger than established farmers to and operate smaller farms.

Access to capital and land markets is especially important to beginning farmers because of high startup costs and limited availability of land. In 2006, the average beginning farmer purchased nearly 4 acres of land from relatives, just over 12 acres from nonrelatives, inherited nearly 9 acres, and otherwise received less than 1 acre of land. About 20 percent of beginning farm operators reported that full market price was paid for all the acres reported, and just over 22 percent reported that interest rates were the full market interest rates (table 5.2).

Table 5.2

Beginning farmers' land purchases, 2006

How much land was:	Average acres per farm
purchased from relative?	3.87
purchased from other than relative?	12.31
inherited?	8.98
received as a gift?	0.69
Characteristics of land purchases	Percent of beginning famers
The full market price was paid for all the acres reported	19.93
If loans were used to purchase the land, interest rates were the full market interest rates	22.23

Source: USDA, 2006 Agricultural Resource Management Survey, NASS and ERS; Section I. *Farm Management and Use of Time*.

Farm-Sector Debt Level Rise Moderates

- Thirty percent of U.S. farms held debt in 2008, compared to 60 percent in 1986.
- Debt is concentrated in larger farms, and in dairy, poultry, and hog farms.
- The Northern Plains, Corn Belt, and Lake States have the highest percentage of farms with debt.

Since undergoing a multiyear retrenchment in the 1980s, with debt for farm purposes bottoming out at \$131 billion in 1989, nominal farm debt has exhibited a near steady annual increase over the past two decades. As a result, yearend debt levels reached new nominal records in 2005 and in each year thereafter through 2009 (fig. 6.1).

U.S. farm sector debt reached an estimated \$238.9 billion by yearend 2008 and is forecast at about the same amount for 2009. Debt classified by lenders as being for real estate purposes accounted for 50.5 percent of total farm sector debt in 2008, down from 52.6 percent in 2007. Real estate debt is now projected to rise to around 56 percent of farm sector debt in 2009, reflecting an increase in real estate debt of about \$2 billion over 2008 in combination with a reduction in non-real estate debt. The relatively stable share of real estate and non-real estate debt in recent years likely reflects farmers' ongoing need to use debt financing for a wide range of purposes—from acquiring increasingly expensive machinery, equipment, and inputs to the purchase of farmland, buildings, and other structures.

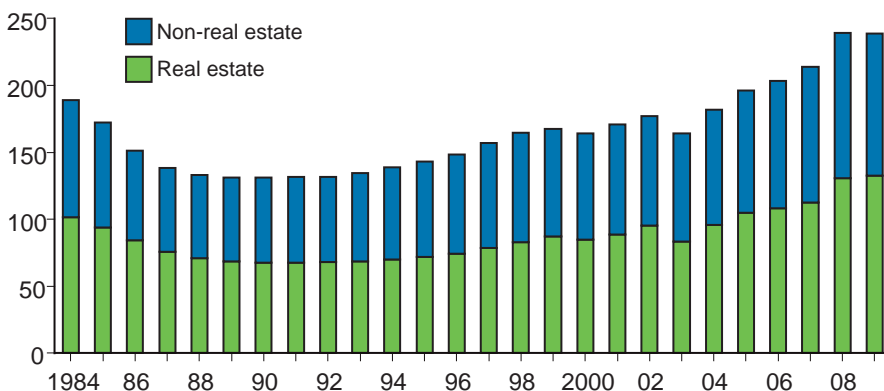
Total Debt Use Also on the Rise for Farm Businesses

The agricultural sector includes farm businesses, nonoperator landlords, and other equity holders such as individuals or businesses engaged in contractual arrangements with farm operators. ARMS data allow us to examine the

Figure 6.1

U.S. farm-sector debt, 1984-2009

\$ billion



Note: 2009 forecast.

Source: USDA, Economic Research Service.

portion of the farm sector debt accounted for by farm operators. USDA began tracking debt use among farm operators at the individual farm level in the mid-1980s. Farm debt volume reported by farm operators tracks changes in farm-business debt use. Like sectorwide estimates of debt, the volume of debt reported by farm businesses bottomed out in 1989 (at about \$80 billion). In the 20 years since, farm-level business debt has trended upward and stood at \$158.5 billion at the end of 2008, the last year for which farm survey data are available (fig. 6.2). Approximately \$15.2 billion is for liabilities such as accounts payable, leaving about \$143 billion owed to various lenders.

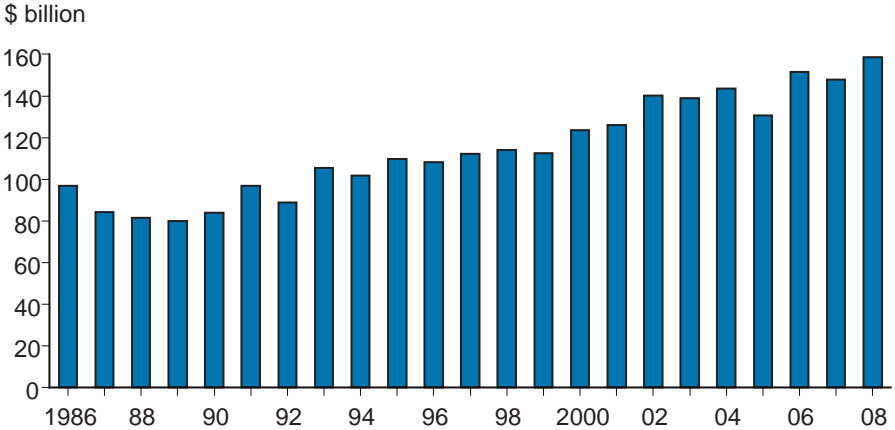
Debt Stays Low Relative to Asset and Equity Values

An increase in the level of debt used in farming may be perceived as drawing down the farm sector’s credit reserve. And depending on the prevailing view of prospective farm earnings and underlying collateral values, growth in debt outstanding may be regarded as financially troublesome. But debt, by itself, is only part of the story. Debt levels need to be examined relative to the value of equity contributed by farmers and other stakeholders, and relative to the amount of income available to meet debt service and other funding requirements.

Asset values are important in the broader view of farm debt. The relationship between debt and its underlying collateral base indicates both the degree of leverage in U.S. agriculture and the share of total assets provided by creditors, farm owners, or other stakeholders engaged in agriculture.

The increase in the value of assets and equity has altered the farm sector’s capital structure. Debt relative to the total value of assets used in agriculture has fallen in recent years, particularly between 2003 and 2007 when sectorwide asset values were experiencing substantial annual increases in nominal terms (fig. 6.3). Thus, creditors’ claims on assets have fallen from more than one dollar out of five during the 1980s, to around one dollar out of eight in 2009. As a result, the risk exposure of both farm asset owners and farm lenders has been reduced.

Figure 6.2
Farm debt use reported by owners and operators of farm businesses, 1986-2008

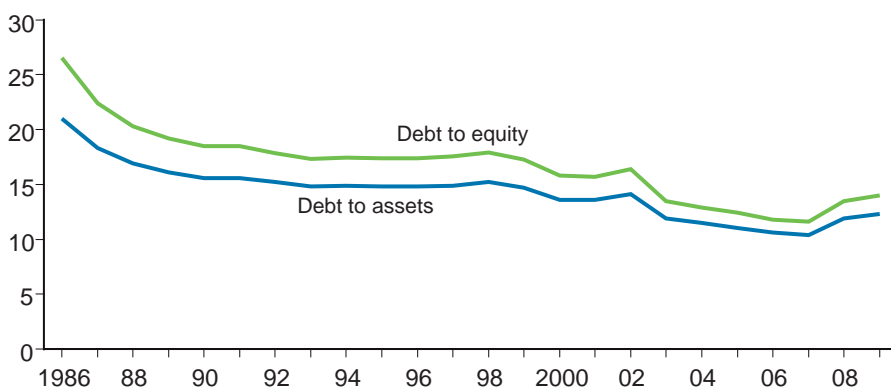


Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 6.3

U.S. farm sector debt-to-asset and debt-to-equity ratio, 1986-2009

Percent



Note: 2009 forecast.

Source: USDA, Economic Research Service.

Debt Declines Relative to Stakeholder Income

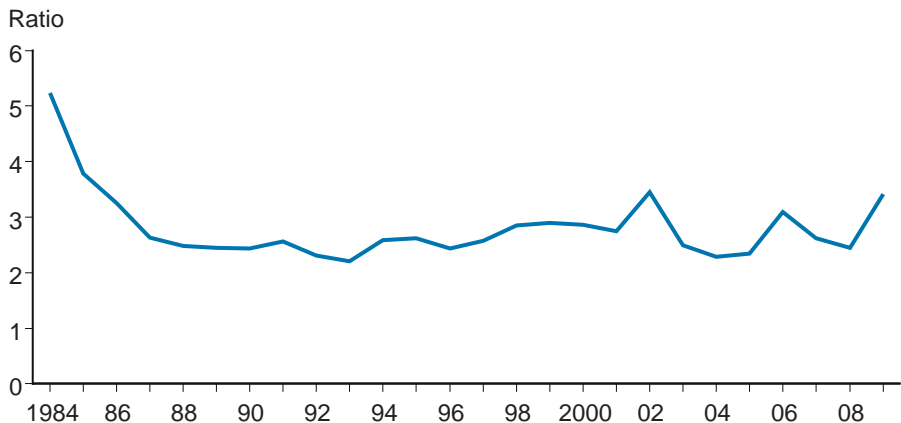
While the rise in sectorwide asset values, particularly for farmland, substantially enhanced the financial position of U.S. agriculture, it is “earnings” and funds available to agricultural stakeholders, not assets or equity, that service farm debt. Nominal farm earnings, as measured by net income, and cash availability, as measured by net cash income, have trended upward since the late 1980s. Even after adjusting for inflation, net farm income rose to challenge the levels earned three to four decades ago. With the drawdown in net farm income projected for 2009, net income adjusted for inflation will likely fall to its lowest level (in 2000 dollars) since 2002. Cash income will also be at its lowest inflation-adjusted level since 2002 and at the second lowest level since the early 1980s. Still, income gains over the last decade mean that sector-wide debt use relative to net cash income dropped from a ratio of 5 or more in the 1980s to less than 3 for most of the last 20 years (fig. 6.4). In 2009, sectorwide debt use is expected to remain at near-record levels, but net farm income is projected to fall. At 3.2 times net cash income in 2009, debt burden is expected to have been higher in only one other year since 1985 (3.45 in 2002).

Debt Relative to Assets and Equity at the Farm Level

Debt in relation to both equity and assets has dropped significantly to less than half the level it was when farm-level balance sheets were first estimated. The farm-level debt-to-asset ratio was estimated to be 0.22 in 1986, but stood at 0.08 in 2008, a drop of nearly two-thirds. The drop in debt volume in relation to the amount of assets owned means that farm operators are providing a much larger share of the capital used in farming, and that farms have become significantly less leveraged. Consequently, across all farmers, lenders have a smaller stake in farm assets and both farmers and lenders have less financial risk exposure from farm business debt than was the case when farm businesses emerged from the 1980s’ crisis years and throughout the 1990s.

Figure 6.4

U.S. farm sector debt to net cash income, 1984-2009



Note: 2009 forecast.

Source: USDA, Economic Research Service.

Debt Also Declines Relative to Cash Income Earned

The trends in debt use and earnings among farm businesses roughly mirror farming as a whole, with the percentage increase in the level of cash earnings exceeding the increase in the level of debt by a wide margin. Net cash income earned by farm businesses, as measured from farmers' survey responses, increased almost fourfold during the past two decades, rising from about \$13 billion in 1986 to over \$53 billion in 2008.¹ Meanwhile, even though farm business debt reported by farmers for their businesses has increased, debt in relation to net cash income earned across all farm businesses has dropped. In 2008, debt amounted to 2.9 times income in 2008, up from around 2.5 times cash income in 2007 (fig. 6.5).

Debt Is a Smaller Share of Farms' Capital Structure

Farmers' responses to annual ARMS questions about debt use indicate that the share of operators that finance business activities with debt capital has dropped over the past two decades (fig. 6.6). Overall, farms as individual businesses mirror changes in the farm sector as a whole, with debt comprising a smaller share of their capital structure. However, neither a sectorwide nor an aggregate farm business-level perspective about debt use relative to assets or income is sufficient to understand the debt-use landscape facing U.S. farms. Aggregate industry and "all-farm" views fail to indicate which farm operators use debt to finance their farm operations or the potential severity of financial distress within farming.

Concentration of Debt Among Farm Businesses

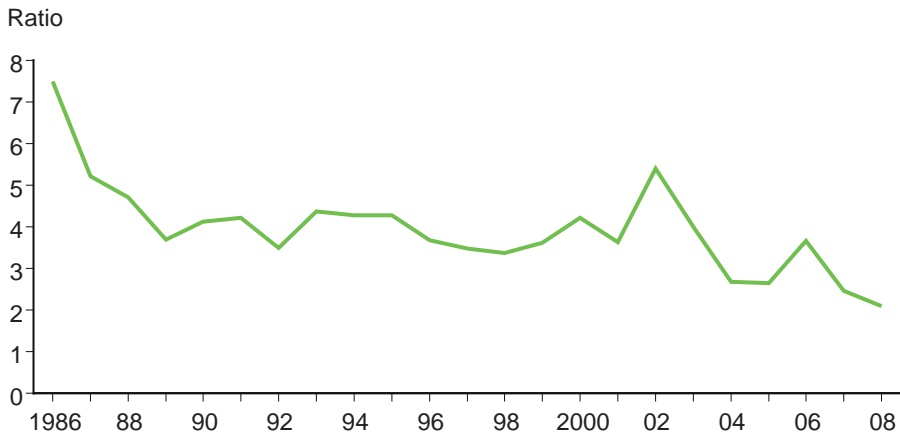
Large farm businesses, as measured by value of sales, more frequently report use of debt than smaller farms.² Nationally, 30 percent of farms owed debt at yearend 2008. Not only do larger farm businesses more frequently use debt,

¹This is the nominal amount of net income that is owned by farms as business establishments. It does not include any portion of net cash income generated from agricultural activities that accrue to other stakeholders in U.S. agriculture, such as the income earned by contractors that establish production contracts with farmers. ERS has estimated that contractors owned 11.9 percent of the net value added generated by U.S. agriculture in 2007.

²For more information on farm business debt, see Harris et al., 2009.

Figure 6.5

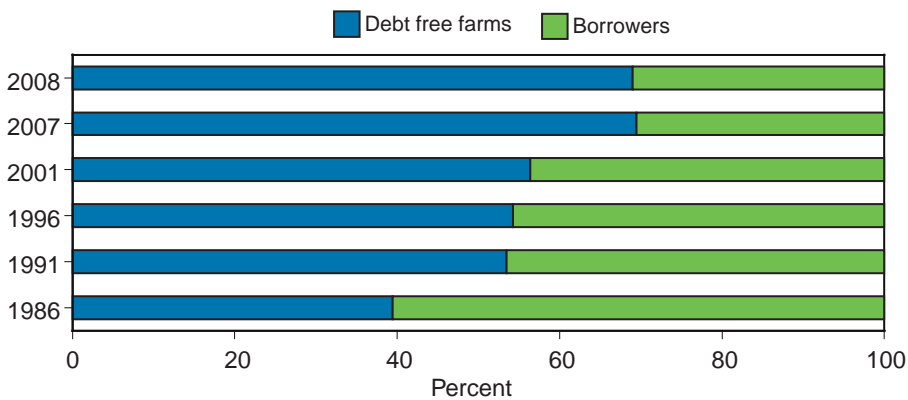
Debt owed by farm businesses in relation to net cash income, 1986-2008



Source: USDA, Agricultural Resource Management Survey, NASS and ERS; and Farm Costs and Returns Survey.

Figure 6.6

Farm operator debt use, selected years, 1986-2008



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

the average amount of debt per farm that is acquired by these businesses is also substantially larger. For example, in 2008, the average amount of debt carried at yearend rose from about \$95,000 for farms with sales of \$100,000-\$250,000 to \$287,000 for farms with sales of \$500,000-\$999,999 and to \$3.2 million for farms with sales of \$5 million or more. Although smaller farms are more numerous, the higher frequency of debt use by large farms and their greater debt load results in debt is being concentrated among larger farm businesses.

Larger farm businesses have consistently used more debt since the 1980s. In 1986, for example, 86 percent of farms with sales over \$500,000 reported debt while 43 percent of farms with sales less than \$10,000 had debt. While the share of farms with debt has declined for all sales classes, the relationship between large and small farm operations has not changed.

Businesses that used debt financing had a larger percentage of rented property than operations functioning without debt. Farmers that did not have debt payable at year's end were more likely to be full owners than were farmers who owed debt.

Distribution of Debt Among Farms

Even though a smaller proportion of farms rely on debt than in the past, some farms remain highly leveraged. The 2008 ARMS indicates that 0.3 percent of farms owed more debt than they had assets, which is similar to the level in 1991. Farms with more debt than assets in 2008 owed 4.1 percent of total farm business debt, versus 2.4 percent in 1991.

Farms that either held debt equal to 71 to 100 percent of asset values or that were technically insolvent (with debt levels in excess of the current market value of assets) include all sizes and types of farms.³ Poultry, dairy, and other field crop farms had a larger than proportional share of insolvent farms in 2008. Farms with debt equal to 71 to 100 percent of asset values included a more than proportional share of hog, dairy, poultry, and beef cattle operations. General livestock farms, which tend to be among the smallest farms both in terms of the acreage operated and value of production, also reported a larger than proportional share of highly leveraged and technically insolvent farms in 2008.

To further assess the degree of debt concentration, farms were ordered by percentile groupings to enable measurement of the fewest number of farms that held 50, 25, and 10 percent of debt at different points in time over the past 20 years (table 6.1). In 1991, 50 percent of farm business debt was held by 23 percent of farm operators. By 2008, this proportion of debt was held by 15 percent of farm operators, which was the same as in 2007. Between 1991 and 2008 the number of farms needed to account for half of farm business debt fell from over 488,000 to about 338,000 or nearly a third. About 68,000 farms were needed to account for 10 percent of farm-level debt in 2008, down from nearly 98,000 farms in 1991.

³Debt-asset ratios up to 70 percent may be acceptable in some farming circumstances where income and cash flows are more readily available to meet debt service requirements; although lenders become more cautious with debt-asset ratios over 50 percent (Blocker et al., 2003).

Table 6.1

Concentration of U.S. farm business debt in selected years, 1986-2007

Item	1986	1991	1996	2001	2006	2007	2008
Top 50 percent of debt							
Number	458,483	488,318	468,002	459,078	366,401	333,453	338,335
Percentage	30.2	23.3	23.1	21.4	17.6	15.2	15.4
Top 25 percent of debt							
Number	226,438	250,804	233,946	224,478	184,418	167,448	169,093
Percentage	14.9	11.9	11.6	10.4	8.9	7.6	7.7
Top 10 percent of debt							
Number	90,562	97,712	93,520	90,298	75,341	66,723	67,662
Percentage	6.0	4.7	4.6	4.2	3.6	3.0	3.03.1

Source: USDA, Agricultural Resource Management Survey, NASS and ERS; and Farm Costs and Returns Survey.

Farm Financial Performance and Financial Stress

- Farm financial ratios monitoring liquidity, efficiency, solvency, and profitability show that the sector’s financial performance is quite favorable overall when compared to the 1981-86 farm financial crisis years.
- But these ratios reveal a modest decline in overall financial performance relative to 2008.

Farm Financial Ratios Worsening, But Still Strong

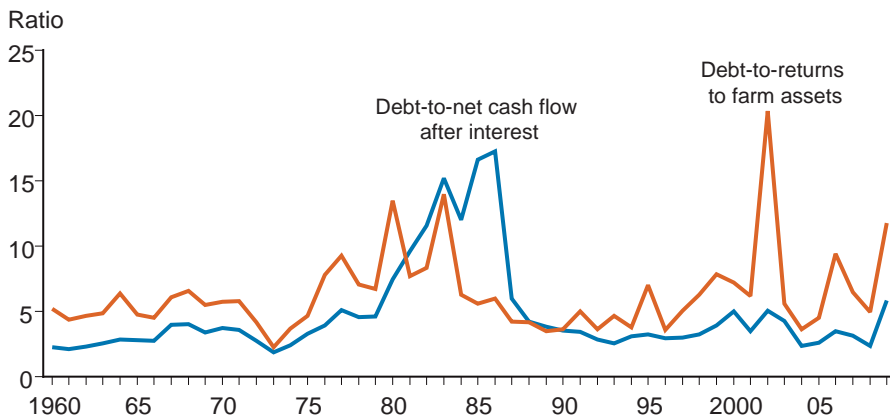
Financial ratios express financial relationships between a business’s income statement and balance sheet and provide a basis for monitoring the relative financial strength of farm businesses and the farm sector over time. (See box, “Definitions of Selected Financial Ratios.”) These financial ratios indicate that farm financial liquidity, solvency, efficiency and profitability of the farm production sector overall have declined since 2008. However, these ratios show that the sector’s financial performance is quite favorable when compared to the 1981-1986 farm financial crisis years.

Cash flow and returns earned in U.S. production agriculture are key factors affecting farm asset values. From 2002 to 2008 debt-to-net cash flow fell, but is forecast to rise in 2009. This suggests that the ability of farm investors to finance investments in land and other capital from internal cash flow is declining, particularly for those with larger outstanding debt and interest payments (fig. 7.1).

The total rate of return on farm assets includes returns from current income and from capital gains. The total return to farm assets peaked at \$170.3 billion in 2007 (with current income of \$33.1 billion and capital gains of

Figure 7.1

Debt-to-net cash flow after interest and debt-to-returns to farm assets, 1960-2009



Note: 2009 forecast.

Source: USDA, Economic Research Service.

Definitions of Selected Financial Ratios

<i>Ratio</i>	<i>Computational method</i>	<i>Significance</i>
Liquidity		
Debt servicing	(Interest + principal payments)/gross cash farm income	Measures share of farm business's gross income needed to service debt
Efficiency		
Asset turnover	Gross cash farm income/farm business assets	Measures gross farm income generated per dollar of farm business assets
Solvency		
Debt to assets	Farm business debt/farm business assets	Measures debt relative to farm business assets, indicating overall financial risk
Debt to equity	Farm business debt/farm business equity	Measures the relative proportion of funds invested by creditors (debt) and owners (equity)
Profitability		
Rate of return on assets (equity): current income	Returns to farm assets from current income/farm business assets (equity)	Measures the per-dollar return on farm assets (equity)
Capital gains	Capital gains (adjusted for inflation in current year) on farm business assets	Measures the per-dollar (accrued) return on farm assets (equity) from (accrued) capital gains
Total return on assets (equity)	Total: current income + (accrued) capital gains	Measures the total per-dollar return on farm assets (equity)
Operating profit margin	Returns to farm assets/gross cash farm income	Measures the profits earned per dollar of gross cash income

Source: USDA, Economic Research Service.

\$137.2 billion). The projected total return on assets is expected to be \$1.4 billion in 2008 and is forecast to drop to -\$46.3 billion in 2009 (fig. 7.2).

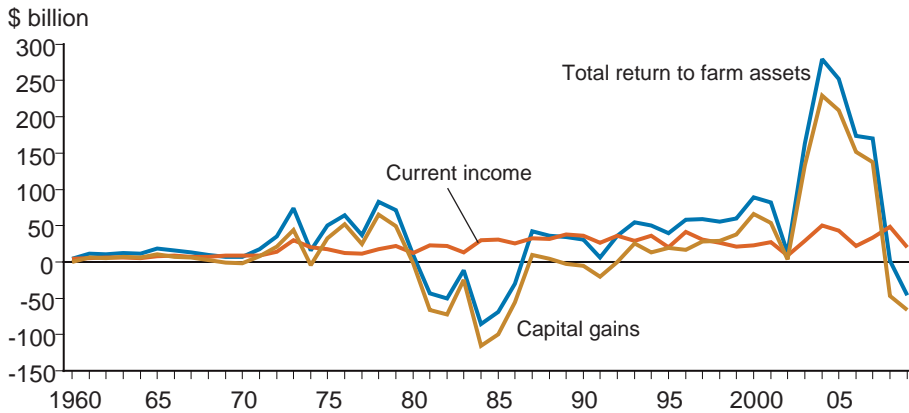
Recent turmoil in financial markets has heightened awareness of the importance of credit availability. As many of the nation's largest financial institutions have experienced severe financial stress (with over 100 U.S. bank failures in 2009), credit availability has decreased.

Farm Financial Ratios and Financial Stress

Farm financial ratios help to provide a perspective on farm sector and farm-level financial performance over time and across farms and ranches. But the ratios tend to be "one dimensional" and thus do not adequately capture the multidimensional nature of farm financial performance. For example, widespread financial stress generally describes a period in which the financial system is under strain and the system's ability to mediate between borrowers

Figure 7.2

Total returns to U.S. farm assets from current income and capital gains, 1960-2009



Note: 2009 forecast.

Source: USDA, Economic Research Service.

and lenders is impaired. Financial stress in the overall macro-economy tends to be associated with:

- large shifts in asset prices
- an abrupt increase in risk and/or uncertainty
- liquidity problems
- concerns about the health of the banking system.

The events affecting financial market conditions can be varied and have external or domestic origins, such as risk reassessments of investors, changes in preferences, unexpected financial or corporate losses, or certain policies such as sharp changes in monetary policy and tightening of credit.

The U.S. farm sector has experienced periods of financial stress, typically associated with “boom-bust” cycles (Schmitz, 1995). Agricultural economists generally agree that financial stress is composed of an income problem, a debt problem, or a combination of the two. The seriousness of the debt problem is determined by the leverage ratio (e.g., the debt-to-asset ratio) and the interest rate relative to the rate of return on assets. But financial stress is not solely related to debt; income and balance sheet measures must also be used to quantify financial stress (Melichar, 1979, 1985; Johnson et al., 1987). As a result, stress measures typically combine multiple measures of performance.

Approaches for Measuring Stress

To complement perspectives that can be drawn from use of a variety of single-dimension indicators, measures of financial stress have been developed that combine information from both the income statement and the balance sheet. Stress measures also combine several dimensions of financial performance to permit a more focused assessment of the ability of farms and farm operators to meet their financial obligations and remain viable business enterprises.

We focus on three approaches to measure the overall financial performance of farms and ranches, each providing a slightly different perspective and time horizon. The first measure combines a farm's net income and solvency position. The second measure extends the combined net income-solvency position of farms to derive an indication of a farm's debt repayment capacity utilization (DRCU). The third measure (referred to as the 3-circle approach) integrates the availability of working capital to the farm relative to its level of expenditure on production inputs with the farm's solvency position and ability to meet term debt commitments.

While the income/solvency measure of financial performance provides a longer term view of farms that generate accrual-based net returns relative to how solvent they are, the debt repayment capacity utilization measure provides insight into which farms report income and obligation data that indicate potential difficulty in meeting financial commitments, including debt service. As a result, this measure of financial condition can be used to provide a perspective about debt volume that may not be serviced. The 3-circle measure attempts to highlight which farms might need to borrow, the financial structure and inherent financial risk associated with a farm's indication of solvency, and the farm's ability to meet its obligations. This three-pronged measure of financial condition is intended to provide a hybrid measure that weaves together both shorter term (potential need to access borrowed capital) and longer-term perspectives (solvency and repayment capability) to characterize a farm's financial condition.

Farms' Net income and Solvency Position

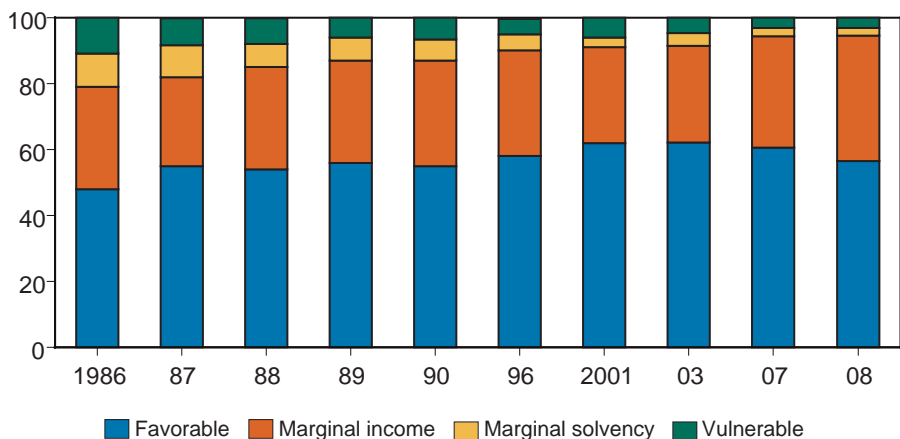
On December 31, 2008, the overall measure of financial performance indication classified 3.6 percent of farms as being in a vulnerable position, having both negative net cash income and a debt-to-asset ratio over 0.40 (fig. 7.3). On a net farm income basis, which includes all sources of non-money income such as change in inventories and charges for capital items like tractors or buildings, approximately 3.1 percent of farms were classified as vulnerable. Use of a cash income measure shifts about 10,000 more farms into the vulnerable class moving farms largely from a position of high leverage and positive income to a negative earnings circumstance on a cash basis.

At the lower debt end of the spectrum, more farms are also classified as being in a marginal income position as a result of having negative net cash incomes, but relatively low debt levels. When nonmoney sources of earnings and expenses are considered, a larger share of farms is classified in a favorable position. This outcome just means that non money sources of earnings are larger than nonmoney sources of expenses across all farms. Both measures of income are used in the assessment of farm financial condition reported in this bulletin for two reasons. One is to examine whether choice of income measure dramatically alters the share of farms classified as vulnerable in our 2008 cross-section data and thus affects the comparative analysis of potential farm stress. The second is to provide a bridge to the outlook for farm financial performance for 2009. ERS forecasts of income at the farm level are for net cash income. Forecasts of change in inventory and capital costs, as measured by depreciation, are not undertaken at the farm level. This precludes development of a projection of net farm income for farm businesses.

Figure 7.3

Share of farms by overall financial performance position, selected years, 1986-2008

Percent of farms



Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

The share of all U.S. farms classified as vulnerable has dropped since 1986 (the year when combined net farm income and balance sheet statements were first available for farm businesses), when nearly 12 percent of farms were in this financial position. The share of farms classified as being in a vulnerable position had a fairly sizable drop between 1986, when the 1980s farm crisis was ongoing, and the late 1980s and early 1990s as debt was pared relative to asset values and incomes improved. More recently, the share of farms classified as vulnerable has dropped in this decade to the lowest levels that ERS has recorded as a result of expanding income levels and shrinking debt in relation to asset values. Even with the more than 6 percent reduction, on average, in net cash income across all farms between 2007 and 2008 the share of farms classified as vulnerable remained relatively stable at slightly more than 3 percent of farms.

At the other extreme, about 59 percent of farms were in a favorable financial position entering 2009. These farms had both positive income and relatively low farm debt. For comparative purposes, 48 percent of farms were classified as favorable in 1986. In addition to a smaller share of farms being classified as vulnerable, another striking change has occurred in the share of farms with a high debt burden (over 40 percent of asset values) and positive net income. This measure is down from 10 percent of farms in the mid-1980s to around 2 percent in 2009. This change in classification reflects both the larger share of farms that report no yearend debt and the farms that do report debt use being in a less leveraged position as reflected by debt level in relation to assets and owner equity. The substantial rise in asset values, particularly land, over the past two decades contributed to the reduction in financial leverage borne by farms in early 2009.

Of the nearly 69,000 farms classified as vulnerable in early 2008, 67 percent were rural residence farms while 15 percent were commercial-size farm businesses. For farms with over \$100,000 in sales, 60 to 73 percent were classified

in a favorable position in 2008 (fig. 7.4).⁴ Hogs, general livestock, dairy, and beef cattle were farm types that ended 2008 with the largest share of farms in a vulnerable position with from 3 to 7 percent of farms being classified as vulnerable. Dairy farming also had the largest share of farms in a favorable position, at 75 percent, while hog farms were at the low end with 48 percent in a positive income, low-debt position. Over 70 percent of corn and soybean farms were also in a favorable position in early 2009.

Debt Repayment Capacity

Debt repayment capacity can be defined as the maximum amount of debt that can be supported by net cash income available for loan repayment (see box, “Components of Sectorwide DRCU Calculations,” p. 50). At the farm-sector level, debt repayment capacity utilization (DRCU) is the ratio of farm stakeholders’, including operators’, farm debt to the maximum feasible debt in any given year based on current earnings of the business.

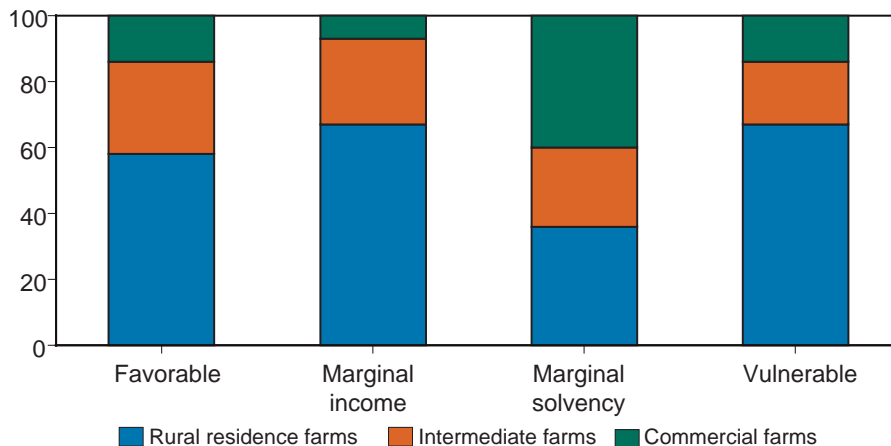
DRCU indicates the potential for farm repayment problems, given farm earnings and interest rates on debt owed by the sector (fig. 7.5). Overall, the relationship between debt owed and debt levels that could be supported from current earnings suggests that farm sector asset owners have maintained a sizeable repayment cushion since the crisis years of the 1980s. Falling interest rates and rising incomes have supported the repayment cushion. Repayment capacity is projected to shrink in 2009. Despite little change in interest rates, and little increase in nominal farm debt levels, a decrease in farm income will result in higher debt repayment capacity utilization for farmers and farm stakeholders (fig. 7.6).

⁴Farms in a vulnerable financial position have debts in excess of 40 percent of the value of their assets and negative farm income. Farms in a favorable financial position have debts less than 40 percent of their assets and positive farm income. Marginal solvency refers to positive-income, high-debt farms, while marginal income refers to negative-income, high-debt farms.

Figure 7.4

Distribution of farms by overall financial performance classification and typology of farms, 2008

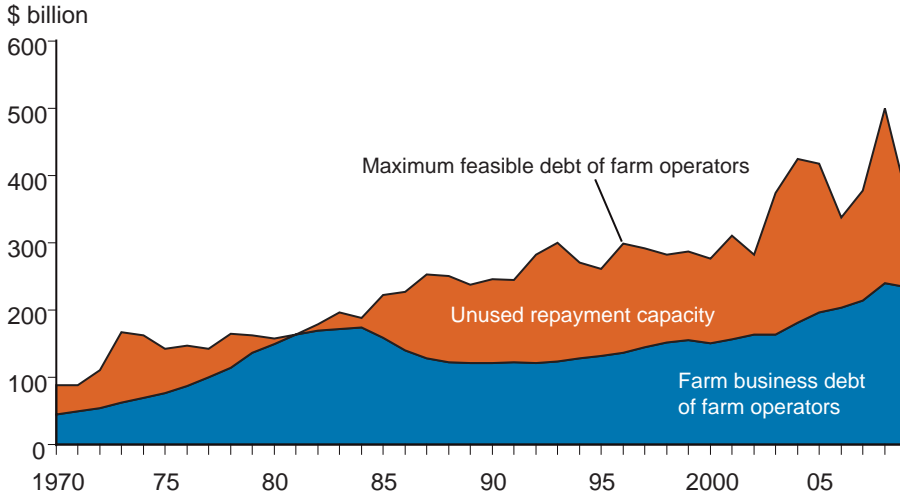
Percent of farms



Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

Figure 7.5

Farm operator debt and repayment capacity, 1970-2009

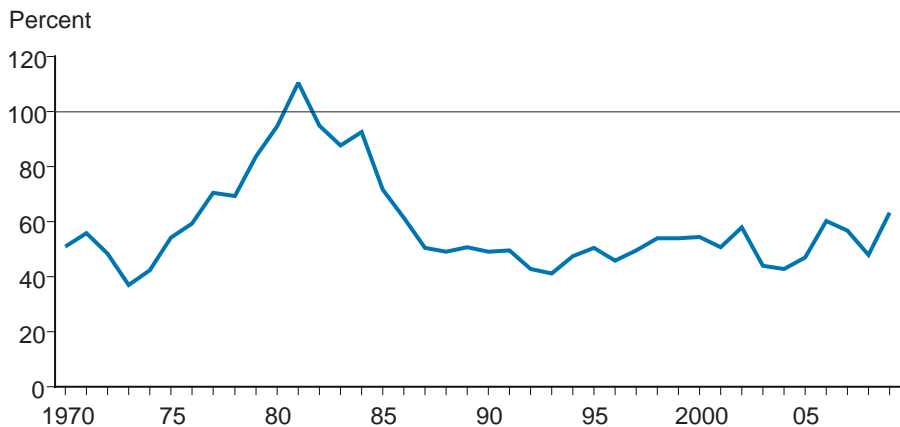


Note: 2009 forecast.

Source: USDA, Economic Research Service.

Figure 7.6

Sector debt repayment capacity utilization (DRCU), 1970-2009



Note: 2009 forecast. DRCU For farm operators = Actual debt / debt that could be repaid from current income.

Source: USDA, Economic Research Service.

Debt Repayment Capacity Utilization Varies Over Time at the Farm Level

Farmers’ use of their farms’ debt carrying capacity has declined in recent years. In 2007, debt repayment capacity utilization for all farm businesses (see box, “Components of Farm Business DRCU Calculations,” p. 51) stood at less than 20 percent, while farms with debt outstanding used about 41 percent of their debt repayment capacity (fig. 7.7). DRCU fell both for all farms and for farms with debt through 2007. However, DRCU crept up in 2008 as income growth slowed and borrowing continued to rise.

Components of Sectorwide DRCU Calculations

Income for debt coverage = Net farm income + interest on capital debt

Debt repayment = Principal and interest on capital debt + capital lease payments

Total debt coverage ratio = Income for debt coverage / debt repayment

Debt coverage margin = Income for debt coverage – debt payment

Minimum debt coverage ratio = lender requirement; based on a coverage ratio of 1.25 which requires that no more than 80 percent of the loan applicant's income be used for repayment of principal and interest on loans

Maximum loan payment = Income for debt coverage / minimum debt coverage ratio

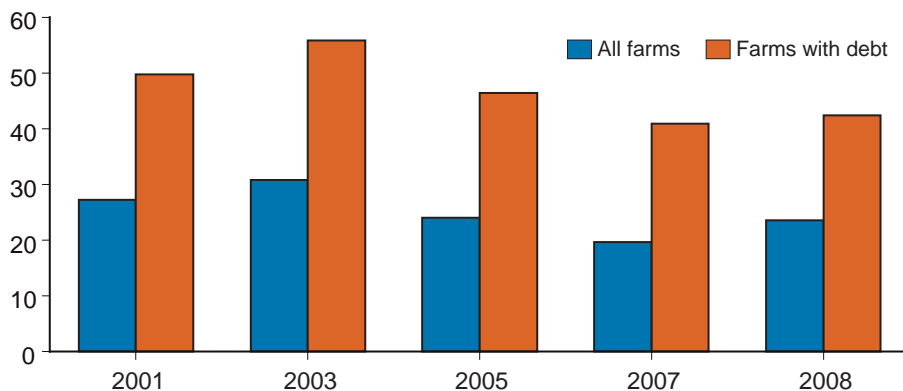
Debt repayment capacity = Maximum loan payment x $(1-(1+r)^{-n})/r$, where $(1-(1+r)^{-n})/r$ = present value of an annuity of \$1, at r percent for n periods

Debt repayment capacity utilization = Debt / debt repayment capacity

Figure 7.7

Farm business debt repayment capacity utilization (DRCU) in selected years, 2001-08

Percent



Note: DRCU = debt repayment capacity utilization.

Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

Applying a minimum debt coverage ratio requirement to any farm operation permits us to determine the maximum amount of debt that can be repaid from any level of income. ERS has traditionally used a total debt service ratio of 1.2:1. At this point, a farm would owe 20 percent more debt than could be serviced with annual income (Ryan and Morehart, 1992). Farms with debt repayment capacity utilization above 1.2 may have difficulty meeting debt service obligations from current farm income.

The share of farms with DRCU values over 1.2 was nearly 5 percentage points, or more than a fifth, lower in 2007 than in 2001 (fig. 7.8). In addition, the level of debt held by these potentially distressed farms was over 17 percentage points lower in 2007 than it was in 2001. But both measures began creeping up in 2008, mirroring the overall trend in the DRCU of farm businesses.

Components of Farm Business DRCU Calculations

Income for debt coverage = Net farm income + interest on capital debt + depreciation + interest on capital debt + capital lease payments - taxes

Debt repayment = Principal and interest on capital debt + capital lease payments

Total debt coverage ratio = Income for debt coverage / debt repayment

Debt coverage margin = Income for debt coverage – debt payment

Minimum debt coverage ratio = lender requirement; based on a coverage ratio of 1.25 which requires that no more than 80 percent of the loan applicant's income be used for repayment of principal and interest on loans

Maximum loan payment = Income for debt coverage / minimum debt coverage ratio

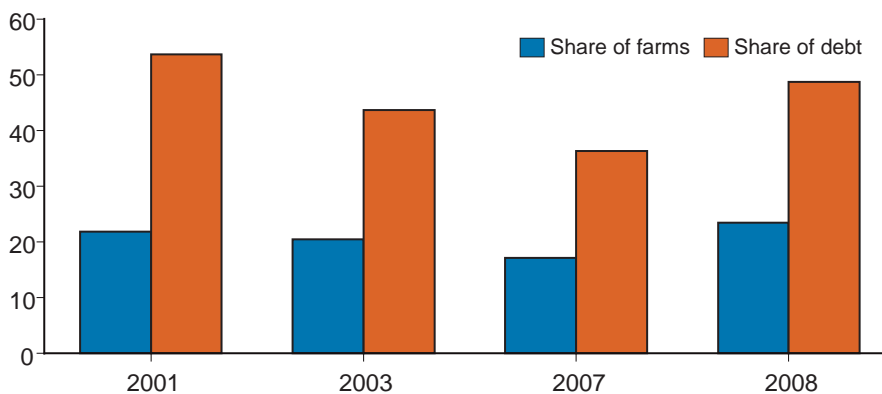
Debt repayment capacity = Maximum loan payment x $(1-(1+r)^{-n})/r$, where $(1-(1+r)^{-n})/r$ = present value of an annuity of \$1, at r percent for n periods

Debt repayment capacity utilization = Debt / debt repayment capacity

Figure 7.8

Share of farm businesses with a DRCU over 1.2, 2001-08

Percent



Note: DRCU = debt repayment capacity utilization.

Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

Working Capital, Relative Debt Levels, and Term Debt Coverage

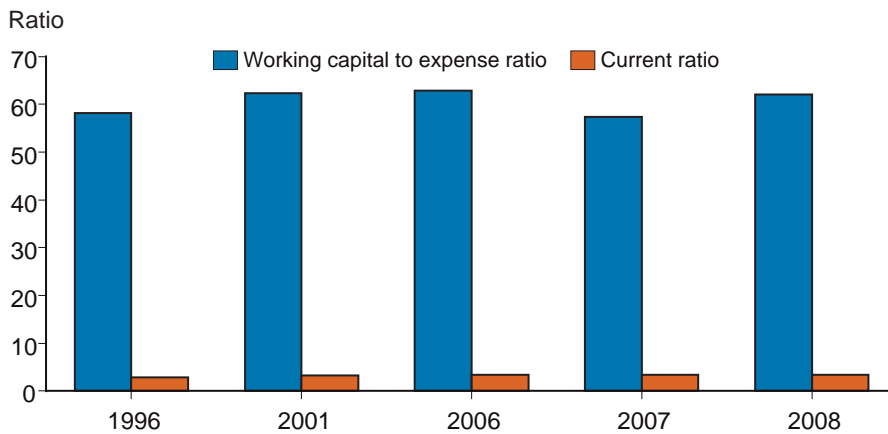
Working capital, defined as current assets minus current liabilities, is a dollar measure. To enable comparison among farms of different types and sizes, we divide the amount of working capital available to a farm by the farm's input expenditures to measure the share of expenses that could be covered by available farm assets without needing to incur debt or draw down household incomes or assets. Commonly used financial benchmarks indicate that a working capital to expense ratio below 10-25 percent indicates higher financial risk (Davis, 2002).

For our analysis of working capital in 2008, we used a working capital-expense ratio of less than 20 percent (figs. 7.9 and 7.10). Farm results for yearend 2008 indicate that about 41 percent of all farms had working capital of less than 20 percent of total production expenditures in 2008, which remained on par with the 41 percent of farms in this position in 2007. In 2008, as in 2007, most of these farms were rural residence farms.

Together, intermediate and commercial farms (farm businesses) accounted for 38 percent of farms in 2008 with a working capital-expense ratio below 20 percent, up slightly from the 36 percent estimated for 2007. Intermediate farms—those with sales less than \$250,000 where farming is reported as being the operator’s primary occupation—with low ratios were primarily beef and general crop and livestock farms. Commercial farms—those with sales over \$250,000—with low ratios were primarily cash grain, field crop, high-value crop, and poultry operations. While reporting a relatively low ratio of working capital to expenses, intermediate farms in this group averaged \$9.30

Figure 7.9

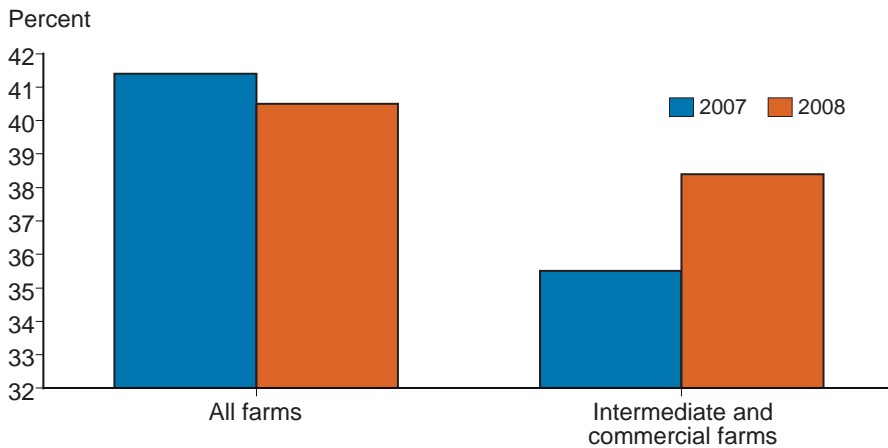
Measures of farm liquidity, selected years, 1996-2008



Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

Figure 7.10

Working capital to expenses of less than 20 percent, 2007-08



Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

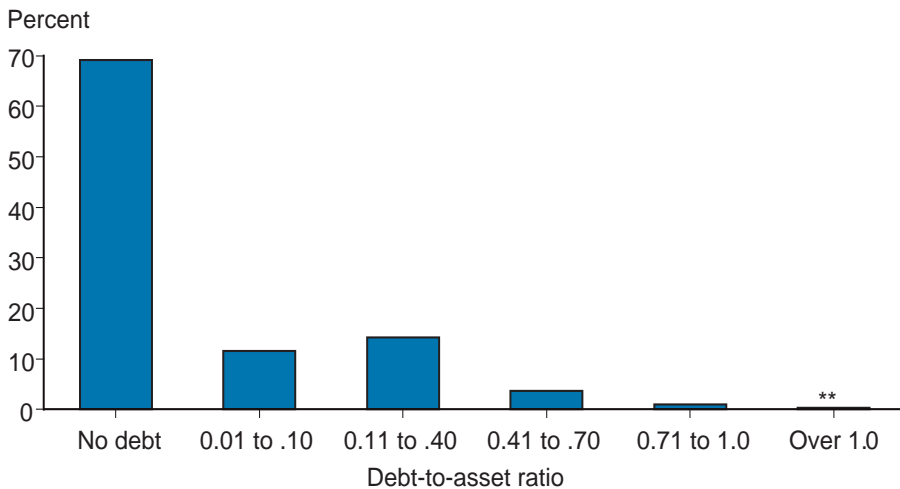
in assets for each dollar in debt entering 2009, while commercial farms had \$4.89. Moreover, only 46 percent of intermediate farms and 65 percent of commercial farms reported owing farm debt at yearend 2008.

Information about the amount and proportion of debt in a farm's capital structure in conjunction with the amount of working capital available to the business provides an indication of how difficult it might be for farmers to obtain credit for use in operating their businesses or for purchasing larger capital items such as machinery or equipment. Five percent of farms held debt in excess of 40 percent of asset values entering 2009 (fig. 7.11). Debt-asset ratios ranging from 60 to 70 percent have been offered as a leverage position that begins to indicate possible financing difficulty and lender caution with regard to extending financing for business activities. In 2009, around 2 percent of farms held debt in excess of 60 percent of asset values, while 1.3 percent held debt in excess of 70 percent. This result is little changed from 2007 when farm survey data showed 2.1 percent of farms with debt greater than 60 percent of asset values. Farms with a high degree of financial leverage were primarily beef, field crop, high-value crops, general livestock, poultry, and cash grain businesses. Relatively small farms (sales less than \$100,000) accounted for 71 percent of farms with debt over 60 percent of asset values in 2008.

Term debt coverage is a ratio that shows the funds available for repayment as a percentage of estimated principal and interest payments. The higher the margin, the better for farm owners, and the easier that debt can be repaid. For our purposes, term debt coverage was estimated using only farm business-related sources of income and farm business-related debt, interest, and estimated principal payments. Thus, a ratio of less than 100 percent indicates that a farm could not meet its obligations without altering payment and loan structures, selling assets, or tapping household nonfarm sources of income and assets. In line with the farm finance scorecard, we use a term-debt coverage ratio of 110 percent as a benchmark of potential debt repayment difficulty.

Figure 7.11

Distribution of farms by debt-to-asset ratio, 2008



Note: ** less than 0.5 of percent farms.

Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

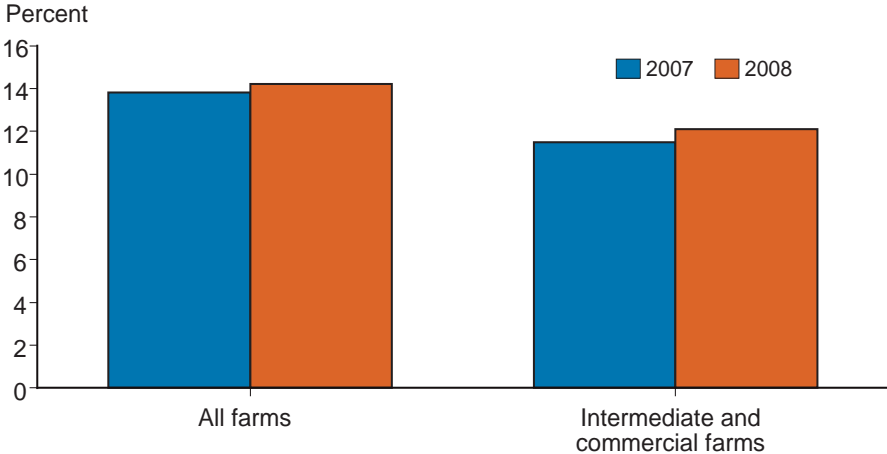
Farm survey results for the 2008 calendar year showed that about 14 percent of all U.S. farms had a term debt coverage ratio of less than 110 percent (fig. 7.12). In 2008, 14.7 percent of farms were in this financial position. In 2007, slightly over two-thirds of farms with term debt coverage ratios of less than 110 percent were rural residence farms, where farms, on average, lose money from their farming activities. Given this outcome from their production and marketing choices, it is not surprising that they cannot repay farm debt out of business earnings. Operators of these farms also rely on off-farm occupations and in the majority of cases both operators and spouses work off-farm.

Commercial size farm businesses were 10 percent of farms with term debt coverage ratios less than 110 percent in 2008, while intermediate farms accounted for 23 percent. Commercial farms with term debt coverage less than 110 percent (cash grain, beef, dairy, poultry, and high-value crop farms) were the same as in 2007. These commercial operations were located principally in the Northern Great Plains, Northern Crescent, Fruitful Rim, and the Heartland regions, with over half having sales in excess of \$500,000.

Farms characterized by relatively high debt, relatively little working capital in relation to production expenses, and estimated not to have met debt service obligations entering 2009 are likely among the farms experiencing the most stressful circumstances (fig. 7.13). About 31,000 farms were in this position at the beginning of 2009. This amounts to about 1.4 percent of all farms. About 1 percent, or 22,000 farms, were in this position entering 2008. Most (70 percent) of these farms were rural residence farms that generated less than \$100,000 in sales during 2008. About 3,700 (12 percent) were commercial size businesses, while the remaining 18 percent were intermediate farms. Farms with relatively high debt, low working capital, and term debt coverage less than 110 percent reported owning about 9.8 percent of the farm business debt reported by operators at the end of 2008. The approximate 3,700 commercial-size farms owed about 45 percent of the debt reported by this group of farm operators. Rural residence farms owed 42 percent.

Figure 7.12

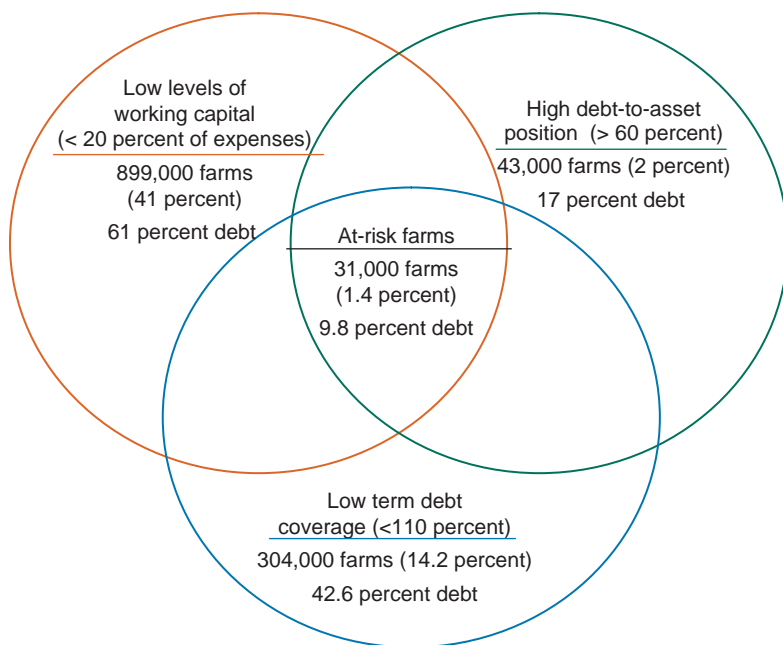
Farms with term debt coverage ratios of less than 110 percent



Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

Figure 7.13

Gauging solvency, liquidity, and debt coverage of U.S. farm businesses, 2008



Source: USDA, 2008 Agricultural Resource Management Survey and predecessor surveys, NASS and ERS.

A Summary Perspective for Farm Businesses

Focusing on the 854,000 farms, including family and nonfamily operations where the respondent identified farming as his primary occupation, suggests that roughly 19,000 to 23,000 operations were in a vulnerable financial position in early 2009 depending on whether net farm or net cash income was used to measure net income. Fewer farms were classified as vulnerable and more were in a favorable position using net farm income than was the case for cash income. This outcome results from the addition of nonmoney sources of income such as inventories and imputed rents that more than offset capital changes and leave farms in a better financial position. Regardless of income measure, beef and cash grain farms accounted for over two-fifths of vulnerable farms. Other farm types that accounted for a large share of vulnerable farm businesses include high-value crops, poultry, and other field crop businesses. Drawing from the 3-circle financial condition monitor, about 9,300 farm businesses were estimated to have relatively high debt, relatively little working capital, and low term debt coverage entering 2009.

Cross-walking between the 4-quadrant income/solvency measure of financial performance and the 3-circle financial condition monitor reveals that 77 percent of 3-circle farms would have been classified as vulnerable with the remainder having high debt and low incomes. (For an explanation of the 4-quadrant income/solvency measure, see Hoppe, Robert, and David E. Banker. May 2006. *Structure and Finances of U.S. Farms: 2005 Family Farm Report*, EIB-12, USDA, Economic Research Service, p. 19.) The 3-circle monitor places fewer farms in a potentially stressful circumstance than the traditional 4-quadrant performance measure. This occurs because

only 38 percent of vulnerable farms under the 4-quadrant measure have debt in excess of 60 percent of assets. Adjusting for the difference in debt cutoff (40 percent for the 4-quadrant measure versus 60 percent for the 3-circle measure) places the indicator of farms in a potentially stressful circumstance in the range of 26,000 to 31,000 farms entering 2009.

Shifting the focus to farm businesses and to the use of a cash income measure can be used to draw out implications for farms as businesses. ERS's 2009 forecast of income, assets, and debt for U.S. farming in total suggests that both income and balance sheet prospects will decline in 2009, with income, assets, and debt all being lower. Applying sectorwide results to farm businesses, as a group, indicates that income, on average, could decline by over 12 percent while assets may drop by around 3 percent. These overall changes are anticipated to shift more farms into both a lower earnings, marginal income circumstance from what had been a positive earnings, favorable position.

The projected reduction in income and debt levels is likely to result in more farms being classified in a vulnerable position in 2009. Overall changes in debt and assets forecast for 2009 are not likely to have much effect on the share of farms with relatively higher debt, relatively little working capital, and a low term debt circumstance. Farms with these combined characteristics are likely to remain about 1 percent of all farm businesses, the same as in 2008. Overall, this 1 percent of potentially stressed farms is projected to owe around 7 percent of farm debt held by all farm businesses, again about the same as in 2008.

The share of farms classified as vulnerable will likely rise by about a percentage point for farms with sales in excess of \$1 million and by a lesser amount for smaller sized farm businesses. Farms with sales over \$1 million account for about half of the value of all output originating on U.S. farms. The reduction of income forecast for U.S. farming will affect primarily larger commercial farm businesses, thus having more of these larger farm operations projected to be in a vulnerable situation is consistent with falling income and falling debt. The share of crop farm operations classified as vulnerable will likely remain fairly stable in 2009. The largest change for any farm type will likely be for dairy operations, where the share of vulnerable farms may more than double in 2009 to over 5 percent of all dairy farm businesses.

Farmers' Input Sourcing, Marketing, and Sales Practices Differ

Farm businesses in the United States are formed through a variety of ownership and organizational structures. About half of U.S. farms are owned by one person, with another 47 percent having two owners. Altogether less than 5 percent of farms (4.8 percent) have three or more owners. A similar story exists for the number of operators or managers associated with U.S. farms, with 59 percent of farms reporting one operator. Another 38 percent of farms report two operators while less than 3 percent (2.6 percent) reported three or more operators.

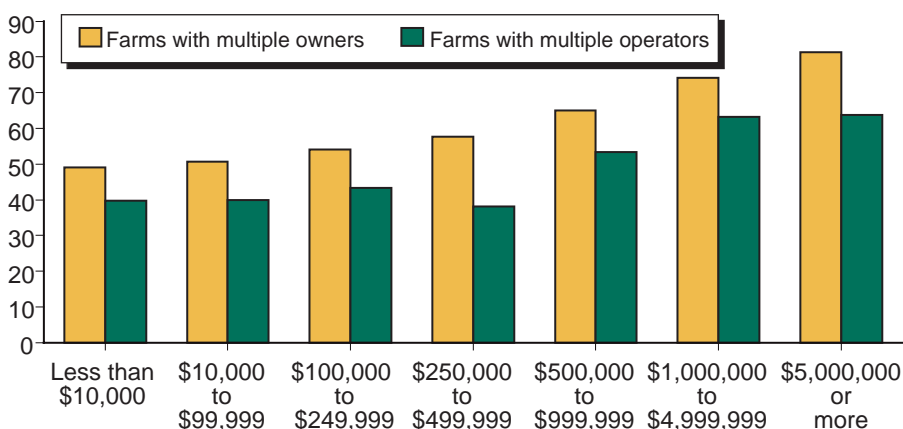
Responses to USDA's Agricultural Resource Management Survey (ARMS) reveal two key farm ownership and management attributes:

1. While farms of all sizes may have multiple owners, the share of farms that report multiple owners rises from just about half of farms with sales of less than \$100,000 to over four-fifths of farms with \$5 million or more in sales (fig. 8.1). A similar pattern emerges for number of operators, except that smaller farm businesses more frequently report one operator (60 percent) than one owner (51 percent). This occurs as a result of operators and spouses commonly holding joint ownership of their farming operations.
2. Not all large farm businesses have either multiple owners or multiple operators. Some larger farm-business units, as measured by sales, report one owner with multiple operators, while other large farms may have multiple owners and a single operator. Likewise, not all smaller operations have a single owner-operator. Still, as farms increase in size and especially as sales exceed \$1 million the frequency of reporting multiple owners and operators rises.

Figure 8.1

U.S. farms with multiple owners and multiple operators, 2008

Percent of farms



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Regardless of whether a farm operation has one or many owners who hold residual claim to business profits and changes in net worth, or one or more operators who make decisions for the operational management of the business, key management functions and activities have to be addressed by someone in order for the business to function. Principal management functions include planning and organizing crop or livestock production or other business-related activities to be undertaken by the farm (Dobbins et al., 2000).

Key business functions include procuring inputs and marketing products and services sold by the farm. Another way to view these functions is to consider procurement or input purchasing as a support activity undertaken so that crops or livestock can be produced or other services provided (Gray, 2008). In this context, procurement focuses on the processes used to acquire inputs and may involve a range of choices that extend from negotiating contracts and participating in purchasing groups to a variety of bidding processes and Internet purchases. On the other hand, marketing/sales is the primary activity associated with how a farm's output is made available to buyers and market channels. Marketing activities used by farm managers extend from traditional cash sales through local outlets to use of activities or practices such as options, futures, or other contracts or pricing strategies.

As part of the ARMS, farm operators are asked about use of various practices to procure inputs and to market outputs at different points in time. The 2008 ARMS asked farmers about their marketing practices and input procurement to elicit information about how approaches to management differ among farmers, farm types, and areas of the country.

Results for 2008 show that use of input sourcing and marketing practices has been much greater among operators with farming as a major occupation and among larger farm businesses. Results are consistent across both input procurement and marketing practices. Rural-residence farmers make much less use of any of the management practices asked about in the 2008 survey than either intermediate or commercial farms do.

Incorporation of management practices into business planning, operation, and control activities also jumps by a considerable amount between intermediate and commercial farms, with commercial-size farms being the most likely to use any of the specific practices asked about in 2008 (table 8.1). The significant differences transcend all types of procurement activities ranging from leasing, hiring labor services, to use of selected strategies such as forward pricing, and to place of purchase. Results, for example, demonstrate that a larger share of commercial-size farms acquired selected operating inputs beyond their nearest town than either intermediate or rural-residence farms. From a marketing perspective, larger farms more frequently reported use of services, and having onfarm storage capability. Commercial farms also reported, by a large margin, greater use of options and futures contracts. A larger share of commercial-size operations also reported having written forward price contracts for a portion of their 2009 crop production. Rural residence farmers predominantly focus work time on off-farm pursuits, which are the main source of household income, and often have different business-related goals than do other farm operators. Operators of larger farm businesses may more commonly use a variety of input procurement or marketing practices as a result of differences in the approach to business management,

Table 8.1

Distribution of farms by sales class, 2008

Item	Farm Service Agency condensed typology grouping w/no limited-resource category			
	Rural residence farms	Intermediate farms	Commercial farms	All
Number of farms	1,312,834	623,226	255,749	2,191,809
Percent of farms	59.9	28.4	11.7	100.0
Input procurement				
Share of farms:				
Cash rented land	16.2	32.0	60.9	25.9
Share rented land	3.0	7.2	28.8	7.2
Leasing livestock	*1.2	*0.8	1.9	1.2
Leasing machinery	3.6	5.9	20.6	6.2
Hiring labor	12.0	23.3	63.0	21.2
With custom hire	21.3	34.7	56.1	29.2
With hired management services	10.4	13.9	28.3	13.5
With informal management team members	5.6	7.0	9.8	6.5
Reporting use of debt	28.4	34.7	71.2	35.2
Reporting line of credit	11.7	25.0	60.0	21.1
Locking in price of inputs	4.0	11.6	40.4	10.4
Shopping for best price from suppliers	19.3	33.0	53.9	27.2
Negotiating price discounts	18.2	26.6	53.9	24.8
Participating in buying club	*0.6	*1.7	3.0	1.2
Marketing practices				
Share of farms:				
Using advisory services	1.3	3.4	12.0	3.1
Using options	*0.2	*1.0	10.8	1.7
Using futures	1.0	1.9	14.8	2.9
With onfarm storage	10.2	19.0	46.7	17.0
Using collaborative marketing	1.5	5.0	7.6	3.2
With production contracts	#0.2	1.9	13.2	2.2
Purchasing crop insurance	6.1	18.4	59.0	15.8
With forward cont. for 2009 crops	0.8	*1.9	16.0	2.9
That bought fuel beyond nearest town	17.4	23.5	30.9	20.7
That bought fertilizer and chemicals beyond nearest town	18.6	26.1	29.2	22.0
That bought feed and seed beyond nearest town	21.7	31.1	30.1	25.3
That bought machinery and equipment beyond nearest town	29.5	38.4	47.9	34.1
That obtained credit beyond nearest town	8.1	12.4	29.1	11.8

Coefficient of Variation = (Standard Error/Estimate)*100. * indicates that CV is greater than 25 and less than or equal to 50.

indicates that CV is greater than 50 and less than or equal to 75.

Source: USDA, Agricultural Resource Management Survey, NASS and ERS

financial position, stage of life, and business development, and household dependence on farming for income, wealth, and financial well-being.

Focusing on farm businesses (intermediate and commercial farms), commercial farms more frequently incorporated input procurement and marketing practices into their business activities than intermediate size farms, even though both groups of farmers report farming to be their primary occupation. Regardless of input procurement and marketing practice asked about in 2008, commercial farms were significantly more likely to report use than intermediate farms. Information can be obscured by a broad classification such as intermediate or commercial farms. To more closely examine use of management practices by farm size, results were examined by economic size of farm as measured by sales. These data demonstrate a break in frequency of reported use of input acquisition and marketing practices for farms of less than \$100,000 in sales, between \$100,000 and \$249,000, and above \$250,000 (see fig. 8.1). The most common use of most of the practices asked about in the 2008 ARMS was for farms in the \$500,000 to \$999,999 and the \$1 million to \$5 million size ranges for most input practices and marketing practices. This result could reflect use of practices by major row crop farms such as general cash grains, wheat, and corn farms (fig. 8.2). Among livestock farms, dairy producers more frequently reported use of input acquisition and marketing practices than other livestock type operations.

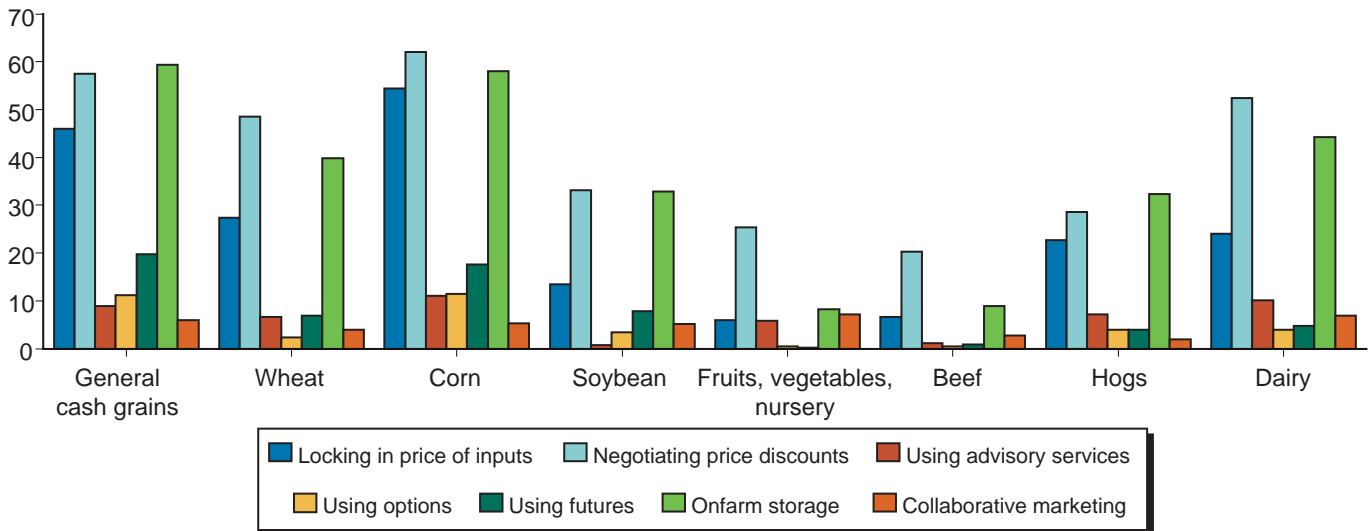
Results for 2008 indicate that farmers who utilized risk management and marketing strategies ran larger farm operations, as measured by gross cash income, sales, net income, assets, or farm liabilities. The smallest farms reported no use of input procurement or marketing practices; farms that used both input and marketing tools in their operations were the largest.

Standard financial performance measures—liquidity, solvency, profitability, repayment capacity, and financial efficiency—were produced for farms

Figure 8.2

Use of input procurement and marketing practices by type of farm operation, 2008

Percent of farms



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

through the ARMS. Farms then were classified by their use of management practices, to provide a perspective about how performance differed among farms where operators either did or did not incorporate such practices into their business operations (table 8.2). Results indicate that farms that incorporated both input procurement and marketing practices into their businesses, reported higher amounts of debt in relation to asset values. These farms also had higher returns, greater operating margins, and greater amounts of income for debt coverage. To further examine differences in use of input procurement, risk strategies, and marketing practices, farms were ordered by quartile from lowest fourth of farms to top fourth based on their economic costs to output ratios and their rates of return on assets (figs. 8.3 and 8.4). For both indicators of performance, a larger share of farms in the higher performing quartile of farms, interpreted as farms with lower costs relative to output and higher rates of return, made use of a variety of input procurement, risk management strategies, and marketing practices in their business operations.

Table 8.2

Major farm-operation financial measures, by management style, 2008

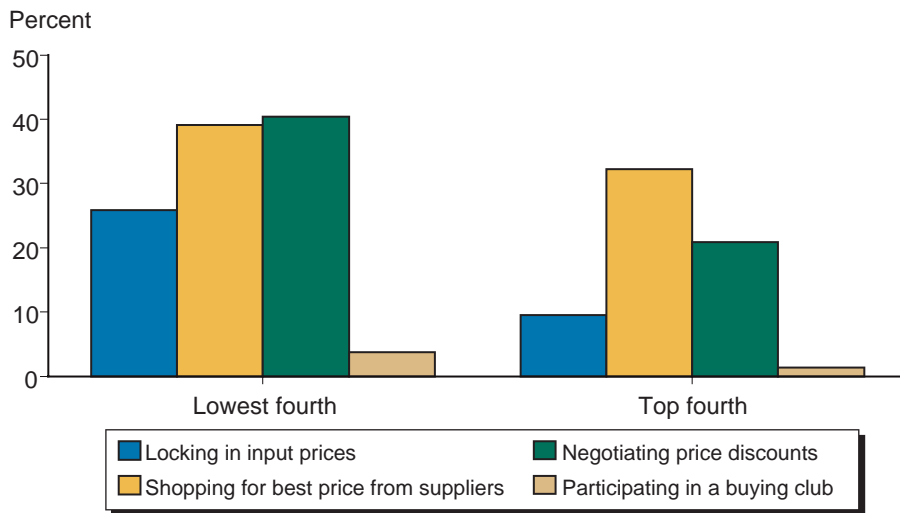
Item	Management style			48-State total	
	Used no tools	Implemented cost control tools	Implemented marketing tools		
Select financial ratios					
Liquidity:					
Current ratio	3.42	3.91	*3.93	3.12	3.34
Solvency:					
Debt/asset ratio (percent)	5.95	8.50	8.73	12.22	9.76
Profitability:					
Return on assets (percent)	#0.81	a-0.05	#1.25	4.08	2.37
Return on equity (percent)	a0.29	a-0.75	a0.57	3.57	1.77
Operating profit margin (percent)	#5.58	a-0.28	*6.33	15.31	10.94
Repayment capacity:					
Term debt coverage ratio	4.73	3.32	4.40	5.05	4.71
Financial efficiency:					
Asset turnover ratio	0.14	0.18	0.20	0.27	0.22
Operating expense ratio (percent)	78.34	83.39	77.03	74.78	76.52
Economic cost—output ratio (percent)	98.13	103.77	97.38	88.22	92.64

Coefficient of Variation = (Standard Error/Estimate)*100. * indicates that CV is greater than 25 and less than or equal to 50. # indicates that CV is greater than 50 and less than or equal to 75. a indicates that CV is above 75.

Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 8.3

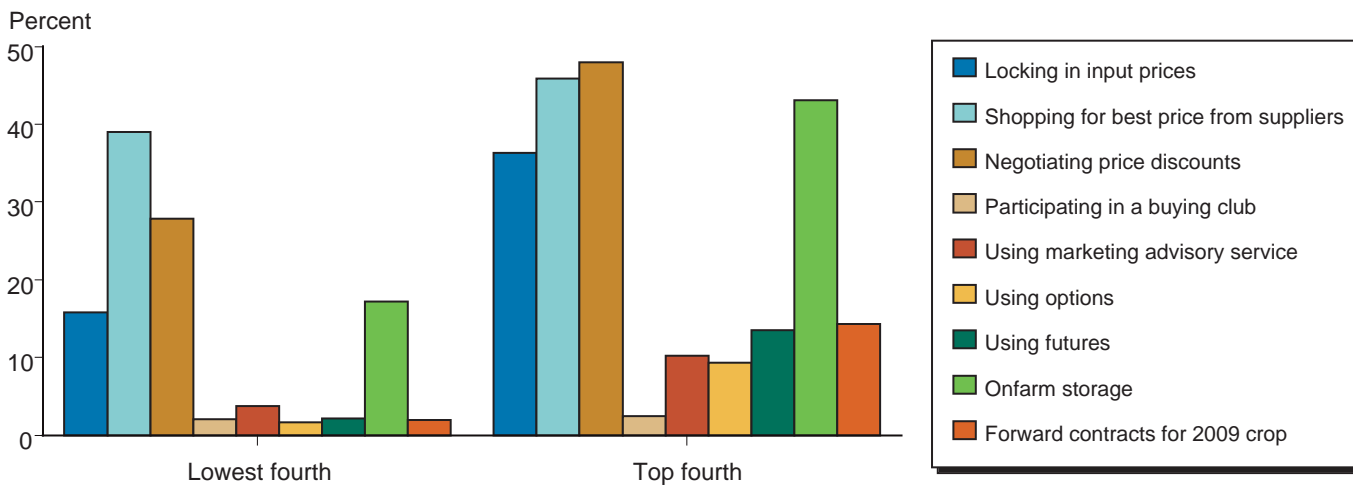
The lowest fourth (smallest ratio) and top fourth (highest ratio) of farm businesses as measured by economic cost to output ratio



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 8.4

The lowest fourth (smallest ratio) and top fourth (highest ratio) of farm businesses as measured by rates of return on assets



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Rural Economies and Employment

Vulnerable Farm Households and the Current Recession

The recent instability in national housing and credit markets, as well as rising unemployment, has increased the economic vulnerability of some farm families to income and asset loss. The primary sources of this potential loss are financial and housing equity investments, plus income loss due to the greater risk of joblessness among farm households with off-farm labor earnings. Because farm households have greater overall net worth than the population as a whole, most are able to absorb short-term decreases in earnings. But for the average farm household, 74 percent of assets are farm assets, mostly illiquid. The strong farm real estate market in recent years has provided a cushion to farm households; however, the value of farm real estate nationwide declined in 2008, the first time in more than two decades.

The official start of the current recession was December 2007. During 2007, farm households had high income from both farm and off-farm sources, on average, relative to the past and high average income relative to 2008 and the forecast for 2009. Their net worth declined from 2007 to 2008, as well. Because of the diversity in the farm sector, we know that averages have limitations when evaluating the well-being of farm households. This is especially true with the current recession, which has had significant negative impacts on some U.S. households and only minor impacts on the economic well-being of other households. Therefore, it is useful to consider indicators which provide information about the share of farm households that are the most economically vulnerable. We consider two—a joint income, wealth indicator and the share of farm persons without health insurance.

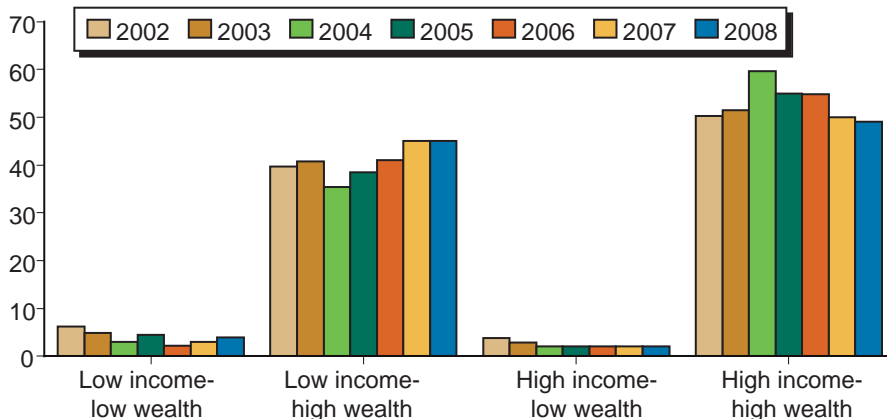
Although farm operator households have higher incomes and net worth, on average, there is also a large share of farm households that have low incomes in any given year. Most of these households have high net worth, providing a cushion against temporary drops in income. Consequently, to jointly consider both income and net worth, we divide farm households into four groups, separated into low and high levels of income, and low and high levels of net worth, with the median levels of U.S. household income or net worth as the dividing lines between low and high. Median income (or net worth) is the level at which 50 percent of households have greater income (net worth) and 50 percent have less. In 2007, when the farm and the general economy were relatively robust, 5 percent of all farm households—in contrast to 50 percent of all U.S. households—had net worth less than the U.S. median household level (fig. 9.1). In 2008, there was a slight increase (to 6 percent) in the share of farm households with low net worth.

Only 4 percent of all farm households had both low net worth and low income in 2008. This is a much smaller share than for the general U.S. population, but represents an increase in farm households classified in this most vulnerable group since 2005. Nearly half of the persons in households classified as the most vulnerable not only had incomes below the U.S. median but

Figure 9.1

Distribution of farm households by measures of economic well-being, 2002-08

Percent



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

they had incomes below the official poverty level. These households tend to operate smaller farms and are less likely to participate in government farm programs. They are slightly more likely to be located in the South than in the other regions. The principal operators in these vulnerable farm households are more likely to be younger and less likely to have graduated from high school than the typical operator.

Another important indicator of economic vulnerability is the lack of health insurance coverage. In 2007, the share of persons in farm operator households without health insurance coverage was 12.6 percent (compared to 15.3 percent of the U.S. population). That percent increased in 2008 for farm household members to 17.7 percent (compared to 15.4 percent of the U.S.). About half of farm household members had health insurance coverage from an employment-based plan. For households where both the principal operator and spouse worked off-farm, nearly three-quarters of household members were covered by employment-based plans. In households where neither the principal operator nor the spouse worked at an off-farm job or business, household members had significantly more coverage under private-direct purchase plans, which are generally more expensive.

One major reason that a farmer or rancher would work solely on the farm and not have access to employer-sponsored insurance through an off-farm job is the intensive time commitment for some commodity specializations. An obvious example of this is in dairy production. Farming is the major occupation for 95 percent of those that specialize in dairy production—significantly more than the 43 percent across specialties. Compared to the 60 percent of all farm persons who receive insurance from employer-sponsored plans, only 30 percent of persons in dairy households do. In 2008, 47.5 percent of persons in dairy households did not have any health insurance coverage (fig. 9.2). In 2007, the comparable share was 34.7 percent. This increase is reflective of the deteriorating financial conditions for dairy producers from 2007 to 2008. (Average dairy family farm income declined by 23 percent, with further declines in farm income expected for 2009.)

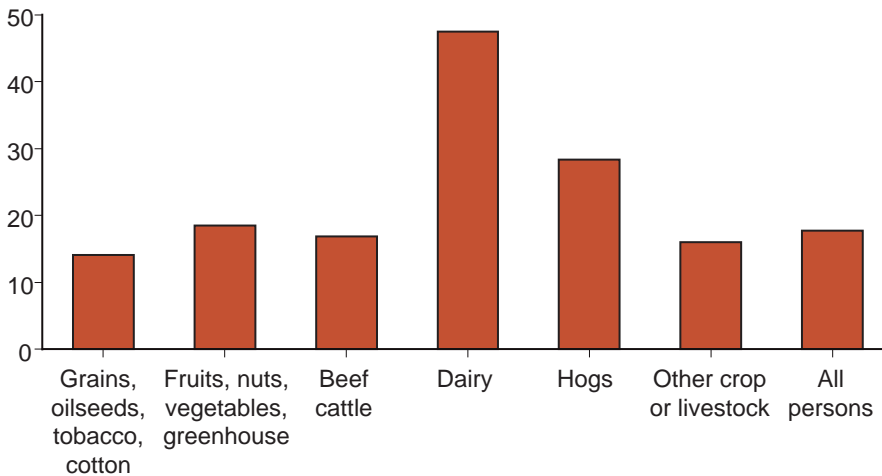
One distinguishing feature of family farms is that the farm family commonly provides most, if not all, of the on-farm labor requirements. More than two-thirds of the farm labor hours used on family farms is provided by operators, their spouses, or unpaid family members. In fact, more than half of all farm hours worked in 2008 on family farms were provided by the 2.1 million principal operators. A major difference between family farms (97 percent of all farms) and the 3 percent of farms classified as nonfamily farms is the source of on-farm labor. On nonfamily farms, more than three-quarters of all hours worked are provided by hired labor (fig. 9.3).

While family farm household members contribute most of the labor to their farms, they rely heavily on their off-farm work for their household income. In 2008, 89 percent of the average farm household income was from

Figure 9.2

Share of farm persons uninsured, by commodity specialization, 2008

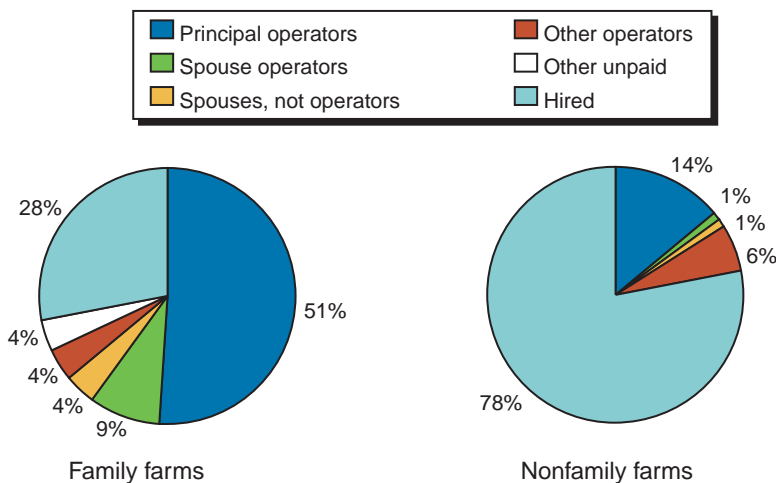
Percent



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 9.3

Hours of farm labor, by source, family and nonfamily farms, 2008



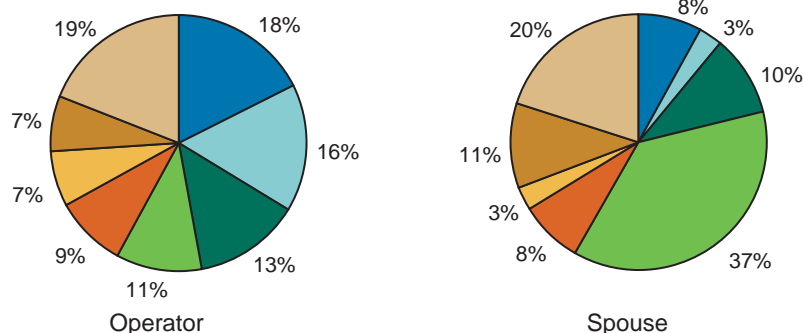
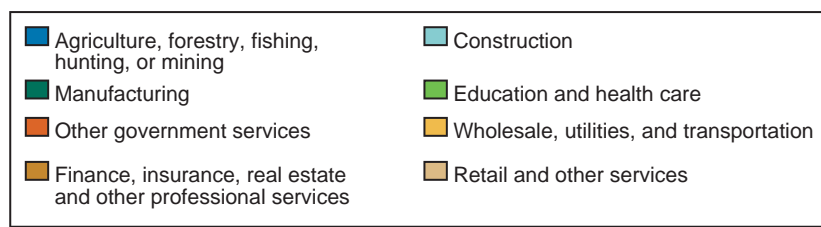
Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

off-farm sources. Therefore, farm households are vulnerable to downturns in local labor markets. When they work off the farm, farm operators and their spouses work in a variety of business types. The most common industries for operators with a wage and salary job in 2008 were agricultural or natural resource based industries. However, construction and retail and other services were also common industries for operators' wage and salary jobs and these are likely to be among the most significantly impacted by an economic downturn (fig. 9.4). The off-farm industries in which spouses were employed in 2008 were much less diverse—nearly 40 percent worked in the education and health services area. These industries are less likely to be adversely affected by the current economic downturn. Operators and spouses who manage their own nonfarm businesses, as well as manage their farms, are also likely to face challenges in the current economy. Operators and spouses with nonfarm businesses are concentrated in retail and other services, but construction is also an important industry for operators with nonfarm businesses (fig. 9.5).

The current farm legislation established or modified several USDA farm programs that are designed to increase the participation of potentially vulnerable family farmers. These include beginning farmers or ranchers, women and minority principal operators (so-called, socially disadvantaged farmers), and limited-resource farmers (based on their low farm sales and household income). In 2008, 43 percent of all family farms were classified as one or more of these targeted farm groups (fig. 9.6). As a group, they are less likely to participate in government farm payment programs than other farm households and they receive a small share of the total payments relative to their numbers. However, the share of payments they receive is more than their share of the total value of agricultural products.

Figure 9.4

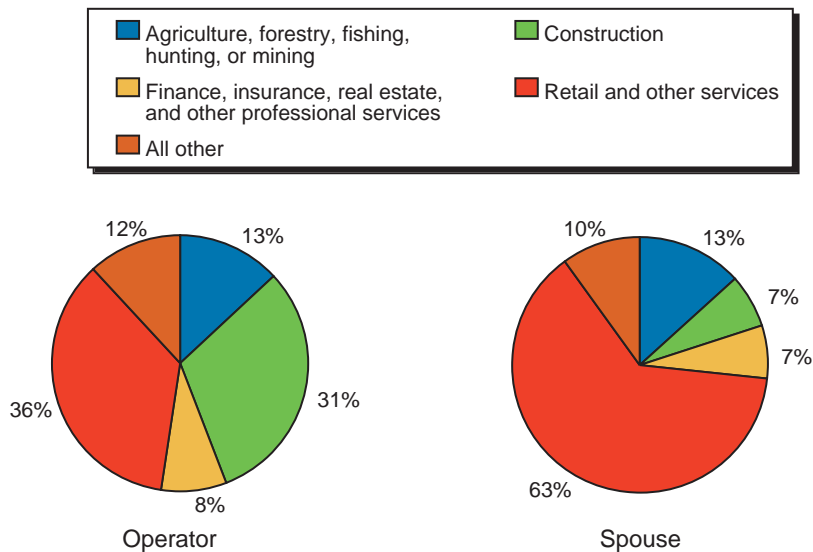
Industry of wage and salary jobs, farm operator and spouse, 2008



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 9.5

Industry of nonfarm businesses, farm operator and spouse, 2008

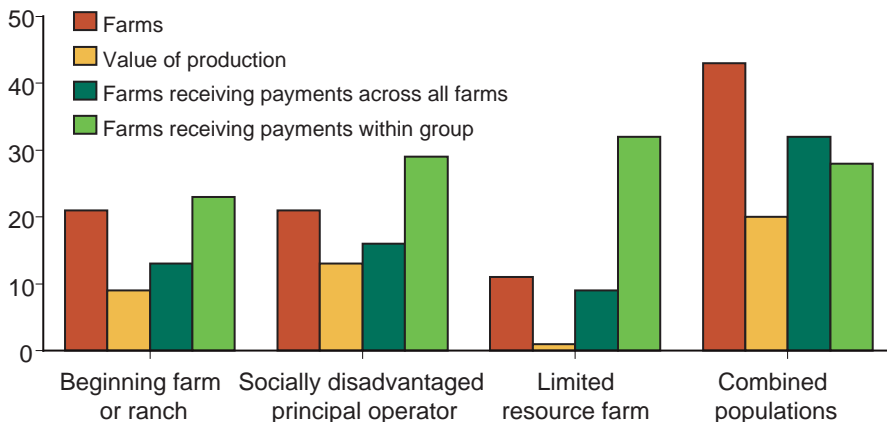


Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

Figure 9.6

Farm populations targeted by USDA farm programs, 2008

Percent



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

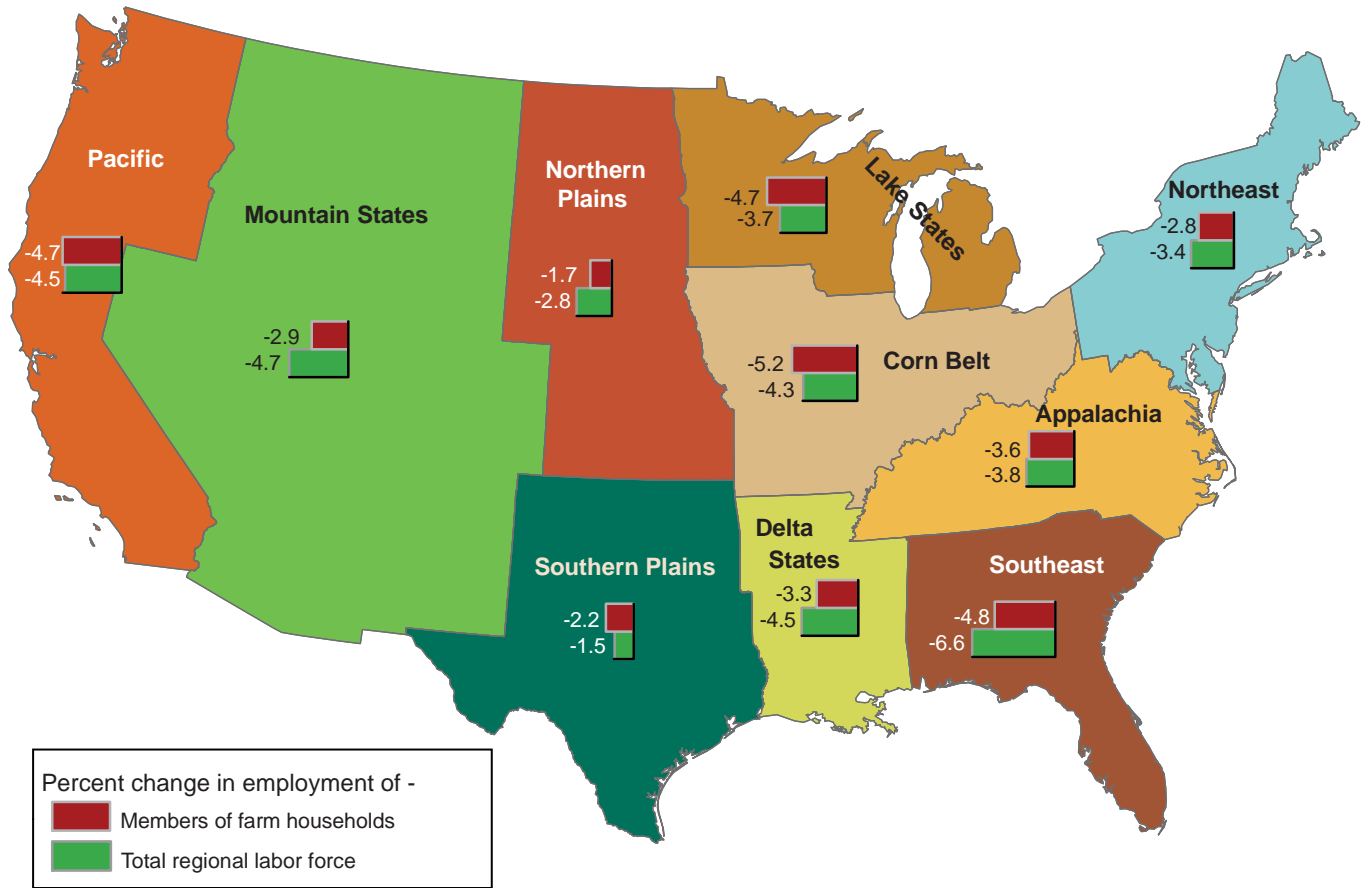
Recessionary Impact on Farm Families' Nonfarm Employment

Farm families' exposure to the recessionary downturns in the labor market depends on whether one or both spouses work in off-farm jobs. Across the nation, employment dropped dramatically in the 12-month period from September 2008 to September 2009. However, declines in employment levels varied by region. The Southern Plains experienced the smallest decline in employment (1.5 percent) followed by the Northern Plains with a 2.8-percent decline in employment (fig. 9.7).⁵ Buffeted by the fall in the housing sector, the Southeast experienced the largest decline in employment (6.6 percent) followed by the Pacific and Delta States with 4.5-percent declines. If the

⁵The percentage changes in the levels of employment reported in figure 9.7 are percentage changes in the year-to-year levels of employment only. They should not be viewed as unemployment rates per se.

Figure 9.7

**Potential changes in farm family and regional nonfarm employment in ERS production regions—
3rd quarter 2008 to 3rd quarter 2009**



Source: USDA, Agricultural Resource Management Survey, NASS and ERS; U.S. Department of Labor, Bureau of Labor Statistics, Current Population Survey.

employment experience of farm families matched that of the regional industries in which they were employed, then we would anticipate a decline in employment less than the regional averages in seven of the ERS regions, most notably in the Southeast, Mountain States, and the Delta States. In these States, rural areas benefited less from the booms in urban housing markets and suffered less from their collapse.

Only in the Corn Belt and Lake States did farm families experience significantly higher rates of job loss than their respective regions as a whole. Two factors contributed to these employment losses. First, manufacturing and construction have a disproportionate presence in these regions relative to the nation as a whole, employing 36 percent of the farm operators working off-farm. These sectors experienced a contraction in these regions predating the recession. Second, due to ongoing fiscal problems predating the recession, employment in education, and State and local government declined in these two regions. Since almost half of operators' spouses work in health, education, and other government service sectors, they were affected by State and local cutbacks.

These regional percentage changes in employment paint a broad brush on the initial impact of the recession experienced by members of farm families. How farm families are adapting to current labor market conditions depends on the levels of education and work history of operators and their spouses, as well as the local availability of employment opportunities.

Farm Input Purchases and Rural Town Linkages

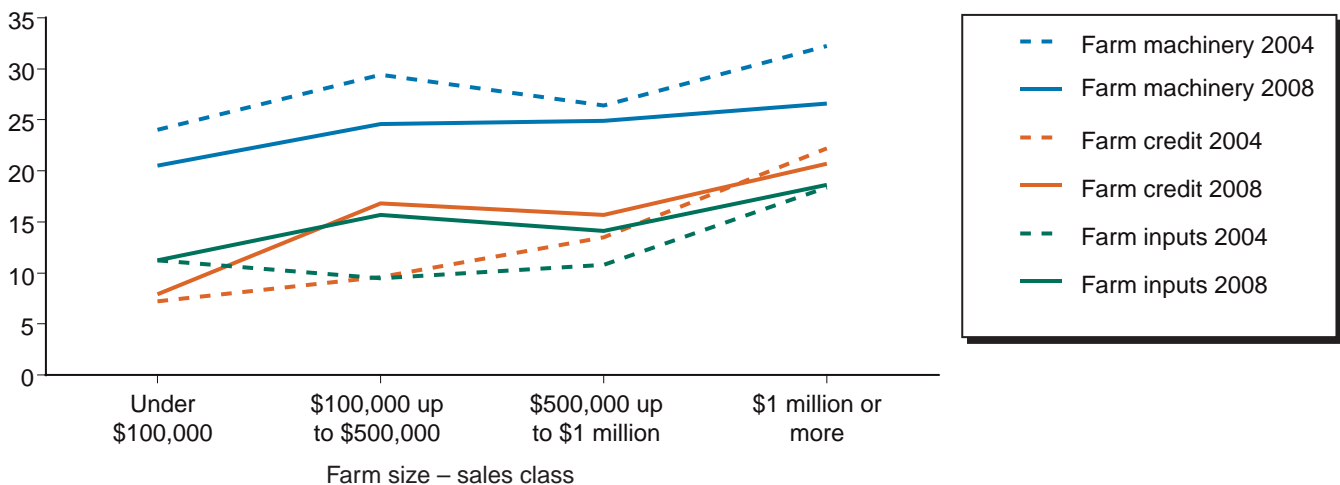
Input linkages to the nonfarm economy arise from farm expenditures on farm operating inputs, farm equipment purchases, and acquisition of farm credit. Farm inputs include purchases of seed, feed, and fertilizer. Data from the 2004 and 2008 ARMS is used to contrast the distances that farm operators drive to purchase most of their inputs relative to the nearest major town of 10,000 or more. These purchasing relationships are influenced by the ability of local suppliers to meet the needs of farm operators and the extent to which local economies are integrated into modern information and transportation infrastructures.

Most farm operators purchase farm operating inputs and equipment, and acquire credit within the market reach of the nearest major town. Figure 9.8 contrasts the willingness of operators to bypass the nearest town of 10,000 or more in 2004 and 2008. During this period, depending on the type of input and the size and complexity of the farm operation, between 7 percent and 32 percent of farm operators were willing to bypass their local economy to purchase inputs. For all types of inputs in 2004 and 2008, as farm size increased, operators were more likely to bypass the nearest major town to make their purchases. Farm machinery purchases rank first among respondents in bypassing the nearest major town, followed by farm credit and farm input purchases. That fewer operators bypassed the nearest major town to purchase farm machinery in 2008 than in 2004 suggests that local suppliers

Figure 9.8

Percent of operators bypassing nearest town of 10,000 or more to purchase farm inputs in 2004 (---) and in 2008 (—)

Percent of respondents



Source: USDA, Agricultural Resource Management Survey, NASS and ERS.

became more competitive, perhaps by improving availability, price, or supplier services.

With respect to farm credit and farm input purchases, a different pattern emerges. Contrasting 2004 with 2008, the willingness to bypass the operators' nearest major town to make farm credit and farm input purchases remained unchanged for the smallest and the largest farms. However for farms with gross farm sales between \$100,000 and \$500,000, operators' willingness to bypass the nearest major town to purchase inputs or acquire credit doubled between 2004 and 2008.

For operators that bypassed the nearest town of 10,000 or more to make purchases in 2008, three important reasons for doing so emerged. Input unavailability ranked first as the primary reason operators bypassed the nearest major town for farm machinery purchases (53 percent) and credit (40 percent). For operators purchasing feed/seed, fertilizer/chemicals, and fuel, price competition was the primary reason. Another 30 percent of these operators listed input unavailability as their primary reason. Supplier services/information and other support services were the primary reason for 12 to 17 percent of the respondents.

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Information Contacts

Mitch Morehart
Financial Performance of Farm Businesses
(202) 694-5581
morehart@ers.usda.gov

Roger Strickland
Farm Income Outlook
(202) 694-5592
rogers@ers.usda.gov

J. Michael Harris, Coordinator
Financial Performance of Farm Sector; Farm Debt
(202) 694-5344
jharris@ers.usda.gov

Kenneth Erickson, Coordinator
Financial Performance of Farm Sector; Farm Assets, farm equity
(202) 694-5565
erickson@ers.usda.gov

Mary Ahearn
Farm Household Well-Being and Interaction
with Local and Regional Economies
(202) 694-5583
mahearn@ers.usda.gov

Robert Williams
Farm Debt
(202) 694-5053
williams@ers.usda.gov

Robert Dubman
Farm Debt
(202) 694-5506
bdubman@es.usda.gov

Stephen Vogel
Government Payments
(202) 694-5368
svogel@ers.usda.gov