

Farm Income and Financial Performance

Figure 6 (top panel) tracks the long-term trend in gross cash farm income (GCFI) using two alternative price deflators: the GDP chain-type price index and the farm Producer Price Index (PPI).¹⁰ The GDP deflator measures the general level of prices in the economy, while the farm PPI measures the level of farm prices. Deflating with the GDP price index shows how the purchasing power of GCFI changes relative to the rest of the economy. Deflating with the farm PPI shows the real changing quantities of agricultural output underlying GCFI, independent of changes in general price levels.

Using the GDP deflator, the real value of GCFI (in 2003 dollars) increased when the prices of farm products rose relative to the prices of nonfarm products (Gardner, 2002, p. 252), especially during World War II and the export boom of the early 1970s. Much of the time, however, agricultural prices fell relative to other prices, leading to prolonged periods of declining purchasing power for farm households.

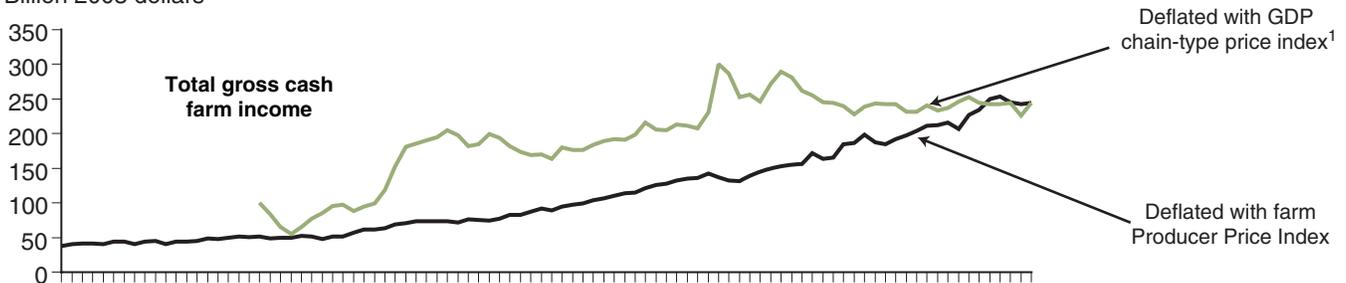
¹⁰For a discussion of adjusting farm income for price changes, see Gardner (2002, pp. 251-252, 280-281).

Figure 6

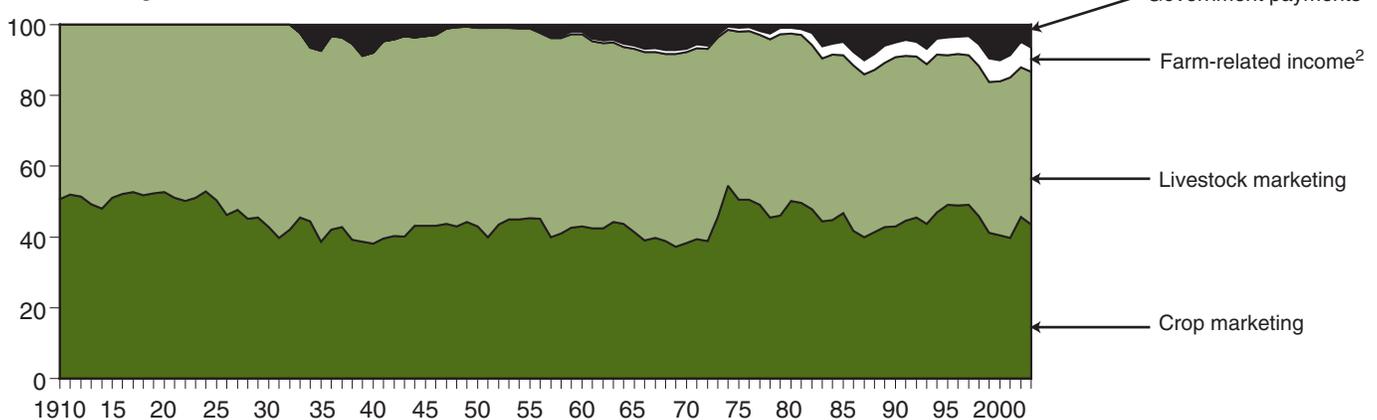
Gross cash farm income and its components, 1910-2003

Marketing of crops and livestock makes up most of gross cash farm income

Billion 2003 dollars



Percent of gross cash farm income



¹This price index is available only from 1929 forward.

²Income from custom labor, machine hire, recreational activities, forest product sales, and other farm sources.

Source: USDA, Economic Research Service, U.S. and State Farm Income Data.

Deflating with the PPI, on the other hand, shows that the real value of production has trended upward since the late 1930s or early 1940s, despite declining farm numbers and relatively stable farmland acreage shown in figure 2. Increasing GCFI, by this measure, reflects a relatively steady long-term increase in farm productivity that began in 1937 (Cochrane, 1993, pp. 362-363).

Crop and Livestock Marketing

Sales of crops and livestock are the largest sources of farm income, making up at least four-fifths of total GCFI in any given year (fig. 6, bottom panel). The shares of GCFI from crops or livestock have changed over time (Harrington et al., 1998, p 48). For example, receipts from livestock marketing were consistently greater than those from crops from the late 1920s through the early 1970s. Between 1972 and 1974, by contrast, the crop share of GCFI grew from 39 percent to 55 percent, while the livestock share declined from 54 percent to 44 percent. This reversal resulted from surging crop prices due to growing export demand for grains (Cochrane 1993, p. 155). Since 1974, crop and livestock shares of GCFI income have not differed by more than 6 or 7 percentage points.

Government payments and “other farm-related income,” the other sources of GCFI, are relatively small. The share of GCFI from government payments has ranged between 1 percent and 10 percent since they were first implemented in 1933. Note, however, that about three-fifths of U.S. farms receive no government payments at all. (Government payments are discussed in greater detail in a later section.) Other farm-related income increased gradually over time, reaching 7 percent of GCFI in recent years. This increase mostly reflects improvements in the data, because income sources were added to the category as additional data became available (Harrington et al., 1998, p. 49).

Farm Business Financial Performance

The farm sector income data presented in figure 6 are useful in understanding the changes in the level and sources of GCFI over time. But these data measure GCFI for the entire farm sector, which includes family and nonfamily farms, cooperatives engaged in farming, and contractors and share landlords who are not farmers (Harrington et al., 1998, p. 46). To focus more on farm businesses themselves and the households who operate them, data from ARMS are used.

Farm profits. Farm profits are strongly associated with farm size. Average operating profit margins increase with sales and are negative until sales reach \$175,000 (fig. 7). The same pattern holds in profitability measures for the various types of farms (table 6). The average operating profit margin and average rates of return on assets and equity are negative for small farms, but positive for large, very large, and nonfamily farms. These ratios are higher for very large farms than for large farms, reflecting very large farms’ higher level of sales.

Average profit measures obscure the wide variation in financial performance among farms. Many small farms are in fact profitable: between 15 percent

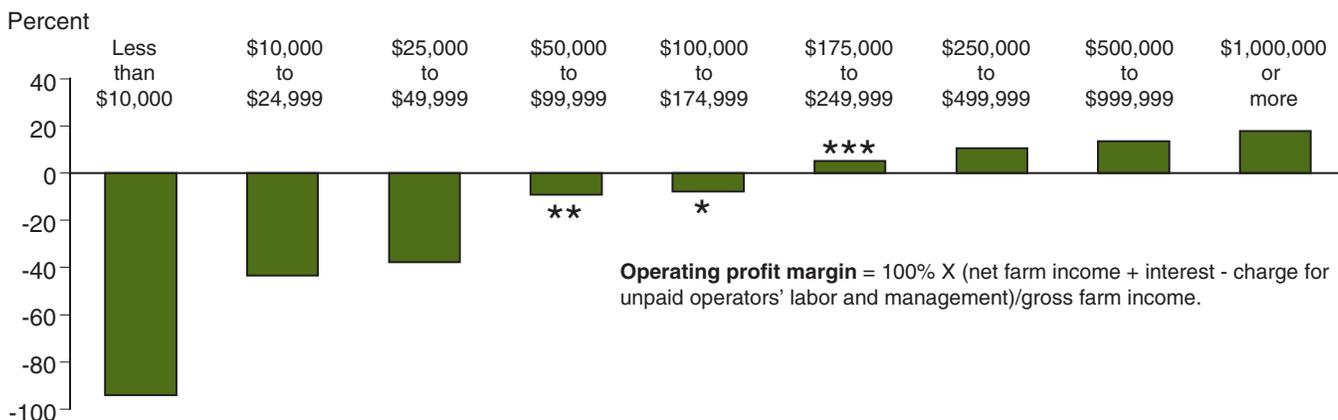
and 37 percent of farms in each small-farm type had an operating profit margin of at least 10 percent in 2003. In addition, most farms in each small-farm type generated a positive net farm income, although average net farm income was low compared with larger farms. For more information about small farms that perform well financially, see the *2004 Family Farm Report* (Hoppe et al., 2005).

Financial ratios. On average, limited-resource and residential/lifestyle farms had an operating expense ratio greater than 100 percent in 2003. In other words, operating expenses exceeded their gross cash farm income. The remaining small farms—retirement, low-sales, and medium-sales—generated enough income to cover expenses, although costs amounted to about 90 percent of gross cash farm income for retirement and low-sales farms. Farms with sales of at least \$100,000—medium-sales small farms and large-scale farms—had similar operating expense ratios, between 70 percent and 75 percent. A ratio at this level provided a larger margin between expenses and income than that experienced by retirement and low-sales small farms.

Farms with annual sales of at least \$100,000 have a higher debt-asset ratio than smaller family farms. As a result they are also more likely to be marginally solvent (positive net farm income, but with a debt-asset ratio above 40 percent).¹¹ In contrast, limited-resource, retirement, residential, and low-sales small farms were more likely to fall in the marginal-income category (negative net farm income, but with a debt-asset level of no more than 40 percent). This reflects their higher operating expense ratios, which means they are more likely to generate negative net income. Vulnerable farms, with negative net income and a debt asset-ratio more than 40 percent, are relatively rare in all farm types. In fact, most farms have a favorable financial position, regardless of farm type.

¹¹In the late 1980s, ERS developed a measure of financial position that considered both income and solvency. Under this classification system, farms were classified as having a favorable, marginal-income, marginal-solvency, or vulnerable financial position. For definitions of the four categories, see footnote 6 in table 6.

Figure 7
Operating profit margin by sales class, 2003
Operating profit margin increases with sales



*Standard error is between 25 percent and 50 percent of the estimate.

**Standard error is between 51 and 100 percent of the estimate.

***Standard error is between 126 and 150 percent of the estimate.

Source: USDA, Economic Research Service, 2003 Agricultural Resource Management Survey, Phase III.

Table 6

Selected financial ratios, by farm type, 2003

Item	Small family farms					Large-scale farms			
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation		Large	Very large	Nonfamily farms	All farms
Low-sales				Medium-sales					
<i>Number</i>									
Total farms	235,030	308,832	892,602	363,812	134,833	84,294	66,656	35,048	2,121,107
Profitability measures:									
Rate of return on assets ¹	-4.7	-1.3	*-2.6	-2.4	***-0.2	2.5	7.0	**5.1	***-0.1
Rate of return on equity ²	-5.3	-1.5	*-3.6	-3.2	*-1.2	1.7	6.9	**4.7	-1.0
Operating profit margin ³	-95.4	-29.3	-49.8	-28.1	***-1.1	10.6	16.4	*15.3	***-0.9
Farms with operating profit margin \geq 10%	15.4	26.4	24.3	20.5	36.7	52.4	59.3	49.0	26.4
<i>Dollars per farm</i>									
Income measure:									
Net farm income	d	5,705	***1,122	10,154	41,486	84,721	246,070	**98,018	18,303
<i>Percent</i>									
Farms with negative net farm income	40.1	28.3	42.3	35.3	20.6	19.6	18.3	43.7	35.8
Financial efficiency measure:									
Operating expense ratio ⁴	140.9	92.2	125.5	86.9	74.4	71.5	74.4	83.3	81.0
Solvency measure:									
Debt-asset ratio ⁵	4.2	2.4	9.0	7.9	11.5	15.0	19.0	***13.2	10.2
Solvency & income measure:									
Financial position: ⁶									
Favorable	58.7	71.4	54.4	61.8	72.3	71.7	66.1	52.0	60.8
Marginal-income	34.7	27.4	36.5	31.4	17.2	15.4	13.4	32.6	31.2
Marginal-solvency	d	d	3.3	2.9	7.1	8.7	15.5	*4.4	3.4
Vulnerable	d	d	5.8	3.9	3.4	4.2	4.9	**11.1	4.6

d = Data suppressed due to insufficient observations or because the standard error was greater than 175 percent of the estimate.

* = Standard error is between 25 percent and 50 percent of the estimate.

** = Standard error is between 51 percent and 75 percent of the estimate.

*** = Standard error is between 76 percent and 175 percent of the estimate.

¹Return on assets = (net farm income + interest - charge for unpaid operators' labor and management) / total assets.

²Return on equity = (net farm income - charge for unpaid operators' labor and management) / net worth.

³Operating profit margin = (net farm income + interest - charge for unpaid operators' labor and management) / gross farm income.

⁴Operating expense ratio = total cash operating expenses / gross cash farm income.

⁵Debt-asset ratio = Total liabilities/total assets.

⁶Financial performance classification based on farm income and debt-asset ratio:

- Favorable: positive net farm income and debt-asset ratio no more than 40 percent.
- Marginal-income: negative net farm income and debt-asset ratio no more than 40 percent
- Marginal-solvency: positive net farm income and debt-asset ratio greater than 40 percent.
- Vulnerable: negative net farm income and debt-asset ratio greater than 40 percent.

Source: USDA, Economic Research Service, 2003 Agricultural Resource Management Survey, Phase III.