

Farm Income in Iowa

Dave Swenson, Department of Economics, Iowa State University

May, 2020

Introduction

Iowa farmers have endured distressingly low farm incomes in recent years. Reduced returns to operating agricultural enterprises have consequences for not just rural Iowa, but for the state as a whole. This report looks at trends, characteristics, and dynamics of farm income in Iowa.

The broad categorical aggregations used for this analysis will certainly mask some of the variability among types of farm operations. Similarly, long term trends for the ag sector as a whole may obscure how particular segments fared at different times. For example, periods of high returns for grain operations due to robust corn prices may have coincided with significantly lower returns for those primarily engaged in animal feeding. Nonetheless, the aggregations and trends tell us quite a bit about how Iowa agriculture is doing.

The data for this analysis come from the U.S. Bureau of Economic Analysis (BEA) and from USDA current survey estimates featuring Iowa operations. All analysis or transformations of the source data were done by the author.

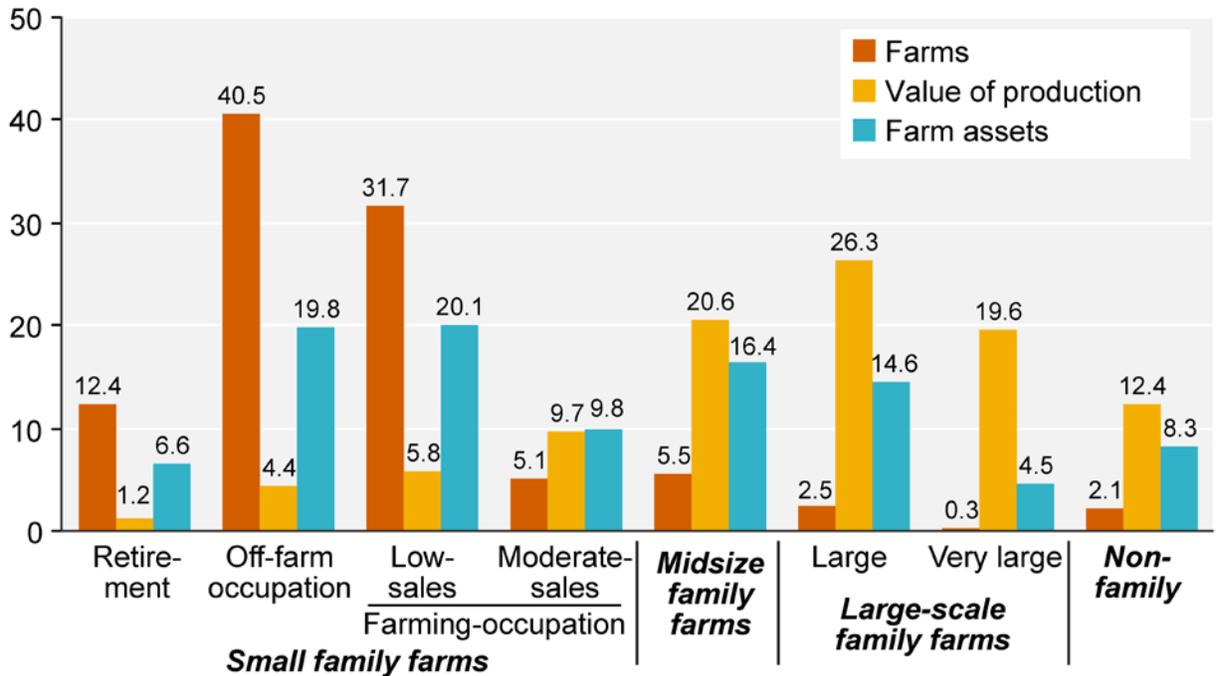
What is Farm Income?

The beginning point for determining farm income is with identifying what is and is not farming. A farm, according to the USDA is a physical place where \$1,000 of agricultural products were produced or sold, or “normally would have been sold,” over the course of an operating year.* Most agricultural production, however, originates from larger operations. When we look at all farms across the U.S., midsized-to-large farms (those with more than \$350,000 in gross cash incomes) were 10.4 percent of all farms 2018, but accounted for 78.9 percent of all production value. Flipped, the remaining 89.6 percent of U.S. farms accounted for just 12 percent of crop, livestock, and other farm sales (see Figure 1).

* See the USDA Glossary: <https://www.ers.usda.gov/topics/farm-economy/farm-household-well-being/glossary.aspx#farm>. Further, farmers need not own agricultural land to be farmers. Conversely, many people own farmland, but are not actively engaged in farming. It is occasionally important to not automatically equate land ownership with farming as either an occupation or an industrial activity. In Iowa, more than half of the ag land is rented, for example.

Distribution of farms, value of production, and farm assets, 2018

Percent of U.S. farms, value of production, or assets



Note: Details may not add up to 100 percent due to rounding. Small family farms have annual gross cash farm income (GCFI) less than \$350,000, measured before deducting expenses. Midsize family farms have GCFI of \$350,000-\$999,999. Large-scale family farms have GCFI of \$1,000,000 or more. Source: USDA, Economic Research Service and National Agricultural Statistics Service, 2018 Agricultural Resource Management Survey (data as of December 2019).

FIGURE 1

The USDA categorizes farms by sales levels ranging from less than \$100,000 to greater than \$1 million, and by farm typology. Categorizing farms by sales amounts is intuitively clear, the farm typology measure, however, requires more description.

Farm Typology:

- Residence Farms. These farms have fewer than \$350,000 in gross farm income. The principal operators of these farms are retired or they have a nonfarm primary occupation
- Intermediate Farms. These have also have fewer than \$350,000 in gross farm income, but the principal operator's primary occupation is farming.
- Commercial Farms. These have \$350,000 or more gross cash income. These farms are primarily family farms, but there are also non-family farms included.

In Figure 1 the "small family farms" encompasses all of the subgroups of a residence farm. Nationally, nearly 53 percent of these farms are operated by a retired person or someone whose primary job is not farming. The low-sales and moderate-sales farms are considered small family farms, but are also typed

as intermediate farms. Commercial farms are composed of all mid-sized family farms, large-scale family farms, and nonfamily farms. The farm typology measure, therefore, encompasses both the occupational circumstances of the principal operator and the income-generating characteristics of the farm operation.

Data from the USDA Agricultural Resource Management Survey (ARMS) provide both economic class and farm typology summaries for Iowa. Table 1 indicates that Iowa had 86,001 farm operations in 2018. A full 60 percent of those operations had fewer than \$100,000 in sales with an average gross cash income of \$32,964.* At the other extreme are farms with more than \$1 million in gross income. These very large operations were 7.4 percent of all farms, but their average gross cash income per farm was \$1.74 million. Average gross cash income for all Iowa farms was \$273,897.

TABLE 1

Iowa Per Farm Gross Cash Income by Economic Level, 2018

	Farm Economic Level					
	All	Under \$100,000	\$100,000 to \$249,999	\$250,000 to \$499,999	\$500,000 to \$999,999	\$1 Million or more
Number of Farms	86,001	51,623	11,075	8,898	8,001	6,403
Gross Cash Income Per Farm	\$273,897	\$32,964	\$181,816	\$377,220	\$667,415	\$1,740,224
Farms as a Percent of Total	100.0%	60.0%	12.9%	10.3%	9.3%	7.4%
Gross Cash Income Per Farm as a Percent of the State Average	100.0%	12.0%	66.4%	137.7%	243.7%	635.4%

Clearly, the bulk of returns to agriculture are concentrated among the largest operations. In Figure 2 it is shown that Iowa farm operations with fewer than \$250,000 in gross receipts made up 73 percent of all farms but only commanded 13.7 percent of gross cash income. At the other extreme, 16.7 percent of all farms had \$500,000 in sales or more, but those farms had 70 percent of all gross cash income in Iowa that year.

This barbell-like situation where the bulk of farmers are clustered at one end of the continuum and the bulk of sales are clustered at the other end will be a recurring revelation in this analysis. Stated clearly, the vast majority of farmers in the U.S. and in Iowa do not generate sufficient incomes solely from farming to maintain their households.

* Gross cash income is the cash value of all sales and other qualifying farm activities. One must subtract all farm expenses and other adjustments like inventory changes and depreciation to arrive at net farm income for farm proprietors.

Distribution of Iowa Farms and Total Farm Gross Cash Income by Farm Economic Class, 2018

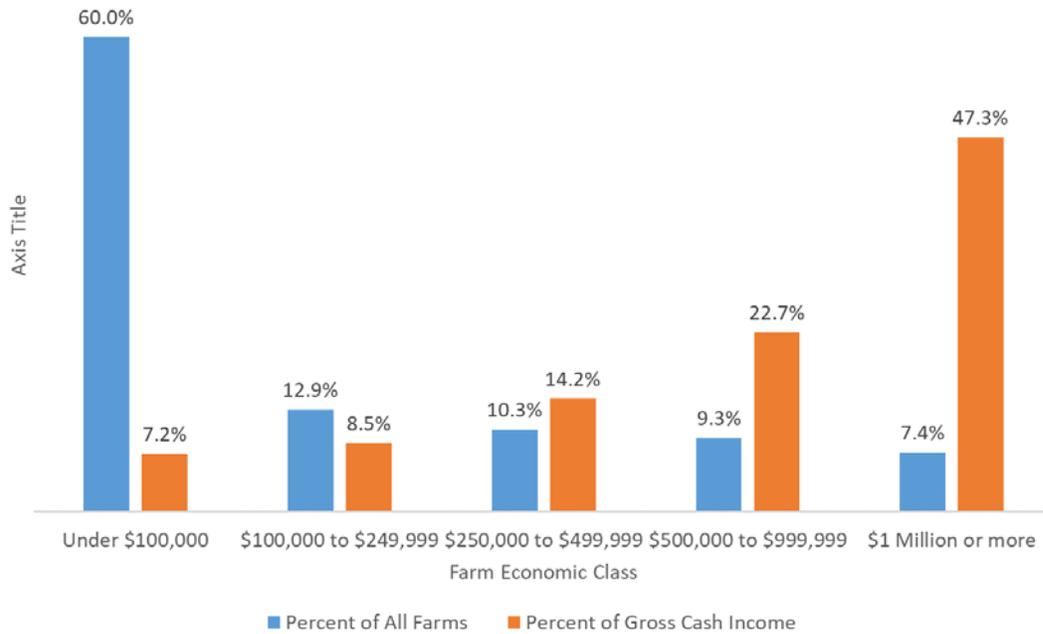


FIGURE 2

Turning to the farm typology measure (Table 2), the polar distribution of farm numbers as compared to gross cash income from farm sales is again clearly evident. Residence farms numbered 36,808 and had \$47,592 average sales per operation. There were 19,378 commercial farms averaging \$975,104 in gross cash receipts.

All residence farms were nearly 43 percent of the total (Figure 3), but had just 7.4 percent of cash receipts. Commercial farms, those with at least \$350,000 in annual sales were 22.5 percent of the farms and had just over 80 percent of the cash receipts. Stated differently, four out of five dollars in agriculture receipts were generated by a little more than a fifth of Iowa's farmers.

TABLE 2

Iowa Per Farm Gross Cash Income by Farm Typology, 2018

	Farm Typology			
	All	Residence Farms	Intermediate Farms	Commercial Farms
Number of Farms	86,001	36,808	29,815	19,378
Gross Cash Income Per Farm	\$273,897	\$47,592	\$97,533	\$975,104
Farms as a Percent of Total	100.0%	42.8%	34.7%	22.5%
Gross Cash Income Per Farm as a Percent of the State Average	100.0%	7.4%	12.3%	80.2%

This extreme skewing of farm by economic size or typology versus farm sales in either Figure 2 or Figure 3 raises important points about the functional salience of the farm definition. If, when ordered by economic class, nearly two-thirds of all Iowa farms only account for 15.7 percent of all sales (the first two economic classes), or, when ordered by farm typology, about 43 percent of all farms (the residence farms) contribute just 7.4 percent of all sales, then how economically important are these operations in terms of policy development and general support? As farmers and stakeholders their numbers are substantial. Their economic contributions, however, relative to their numbers are small.

Distribution of Iowa Farms and Total Farm Gross Cash Income by Farm Typology, 2018

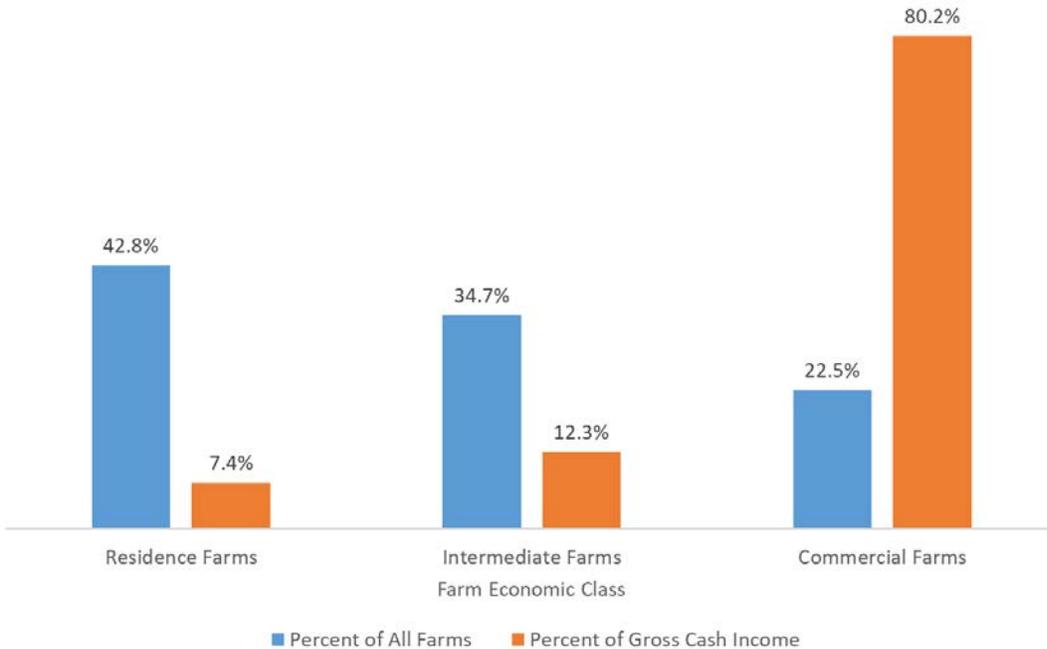


FIGURE 3

Farm Household Income: Farm and Nonfarm

When analyzing farms, we distinguish between farm households, the household within which a farm operation's principal operator lives, and other farms, mostly corporate, where there is not a principal operator household associated with the farm. Of the 86,001 farms in Iowa in 2018, 84,396 (98.1 percent) were operated by a farm household. Fewer than 2 percent of Iowa farms are non-household farms. The following two tables show by economic class and farm typology, the average dependence of farm households on farm income.

Table 3 breaks out average farm and nonfarm incomes for farm households by economic class. For those with fewer than \$100,000 in sales, farm household income averaged just \$6,777 while their average nonfarm income was more than 12 times greater at \$82,890. The next larger group in the sales category was able to garner about 35 percent of their household income from farming. The fraction of total household income from farming continues to grow through the economic categories. The largest farms generated nearly 82 percent of their household incomes from farming. The average percentage for all Iowa farmers was 39 percent from farming. The average farm household in 2018 had \$126,321 in income. The mean household income for all Iowa households in 2018 was \$77,173, according to the American Community Survey. Average household incomes for every farm economic category exceeded the statewide household income average, and the average farm household in Iowa exceeded the state all households average by 64 percent.

TABLE 3

Iowa Farm Household Income from Farm and Nonfarm Sources by Economic Level, 2018

	All	Farm Economic Level				
		Under \$100,000	\$100,000 to \$249,999	\$250,000 to \$499,999	\$500,000 to \$999,999	\$1 Million or more
Number of Farms	84,396	50,678	11,051	8,851	8,001	5,815
Total operator household income from farming activities	\$48,702	\$6,777	\$34,267	\$76,292	\$141,937	\$271,250
Total operator household income from off-farm sources	\$77,619	\$82,890	\$64,322	\$72,586	\$80,092	\$61,201
Total household income	\$126,321	\$89,667	\$98,589	\$148,878	\$222,029	\$332,451

Table 4 breaks out farm and nonfarm incomes by farm typology. Remembering that residence farms included persons who were retired or who listed a nonfarm occupation as their principal occupation, we again find that their nonfarm income is nearly 10 times greater than their farm income per household. Unlike the progression above, however, we find that the intermediate farms had the lowest total household incomes. These farms are nearly 35 percent of all farms in Iowa and their operators list farming as their primary occupation. Their average total household income was \$65,650 in 2018, and they still made less than a quarter of their household income from farming. When using economic class as the breakdown (above), we find no real evidence of potential economic distress considering total

household incomes. Here, though, the intermediate farm household incomes averaged just 85 percent of the statewide average for all households and just 52 percent of the average for all Iowa farmers. These farms are nearly 35 percent of all farms. Commercial farmers, 22.5 percent of all farmers generated 73 percent of their average total household income of \$252,008 from farming.

Distinguishing farm characteristics by economic class and farm typology paints a different picture of farm householders' wellbeing. Under the economic class breakdown, average farm household incomes from all sources exceeded the state average. Under the farm typology method, a substantial fraction of Iowa farm households, the intermediate farmers, had average incomes from all sources that were less than the state average for all households.

TABLE 4

Iowa Farm Household Income from Farm and Nonfarm Sources by Farm Typology, 2018

	All	Farm Typology		
		Residence Farms	Intermediate Farms	Commercial Farms
Number of Farms	84,396	36,808	29,815	17,773
Total operator household income from farming activities	\$48,702	\$10,481	\$15,264	\$183,952
Total operator household income from off-farm sources	\$77,619	\$104,295	\$50,386	\$68,056
Total household income	\$126,321	\$114,776	\$65,650	\$252,008

Iowa Farm Proprietor Income Trends

The following data reflect longer term trends in farm proprietor income in Iowa and as Iowa compares with the nation.* All of the data for this analysis come from the U.S. Bureau of Economic analysis. Figure 4 shows real (inflation-adjusted) farm proprietor income for Iowa over the past two decades. Adjusting for inflation allows for a realistic measure of comparative purchasing power from farm operations. Using a four-quarter moving average allows for the determination of how farmers are doing on an annualized basis over the course of a year.

This measurement period is characterized by sharp rises and falls in real farm income. The real long term annual farm earnings average was \$4.2 billion per year. Farm proprietors realized early income

* Farm proprietors' incomes consists of the net income received by the sole proprietorships and the partnerships that operate farms. It excludes the income that is received by corporate farms. It is a component of all proprietor incomes in the state, and all proprietor income is a component of the total personal income realized by Iowans as workers, proprietors, investors, and as recipients of transfer payments (like Social Security payments to the elderly).

peaks in 2004 and 2008. Much more substantial spikes in farmer incomes occurred from the last quarter of 2011 through the last quarter of 2013 where real farm earnings climbed to \$8.5 billion. Owing mainly to sharply falling grain and oilseed prices, however, Iowa farm proprietors realized precipitous declines thereafter. By the end of 2016, their incomes had declined to half of the long term average and fell to their lowest level in this long series. Incomes began improving in the fourth quarter of 2018 and continued to improve through the last quarter of 2019. Annual farm proprietor income at the end of 2019 was 16 percent higher than the real long term annual average.

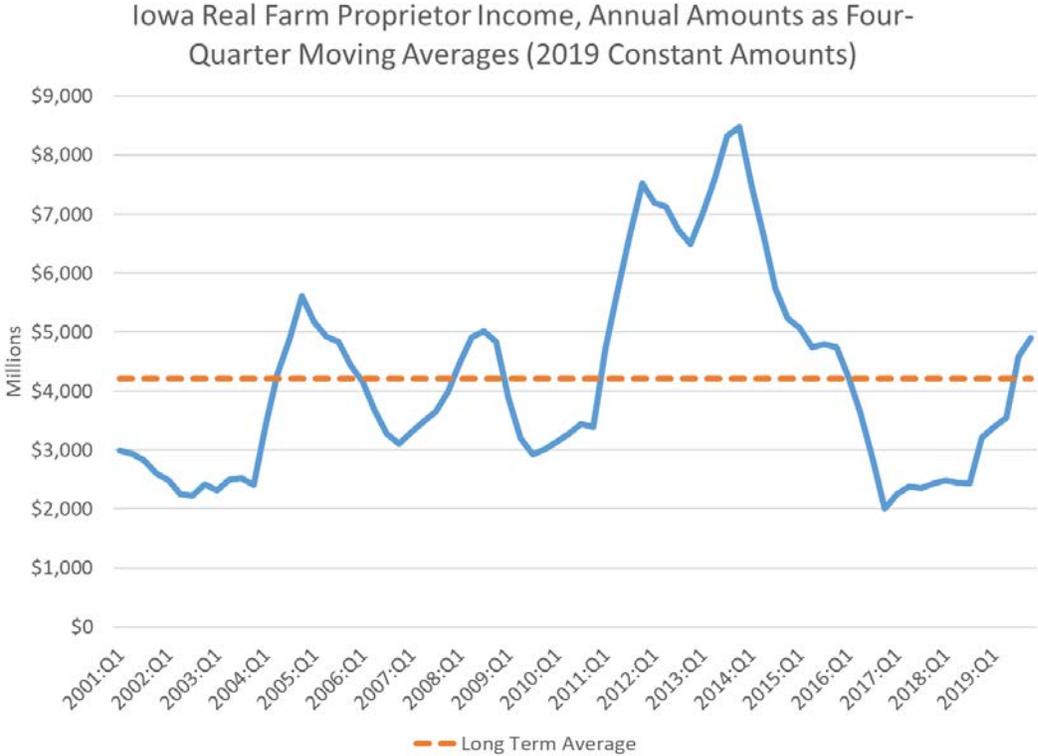


FIGURE 4

Improvement in Iowa farm proprietors’ incomes was driven significantly from U.S.D.A. Market Facilitation Program payments. These payments were made to farmers and ranchers whose export markets were lost due to the trade war between, primarily, China and the U.S. For 2018 and 2019, total U.S. payments were \$19 billion. Total payments to Iowa farmers were an estimated \$1.022 billion in 2019, which would equal about 25 percent of the incomes Iowa farmers realized that year.*

Farmers’ incomes as percentages of total personal income in the state have also varied strongly over time (see Figure 5). Over the two decades on this series, farm incomes averaged 3.1 percent of Iowa total personal income. In the early 2000s it sank to around 2 percent. It rose above the long term

* China and MFP Tranche 3, Market Intel, American Farm Bureau Federation, 9 January 2020. Last accessed 7 May 2020 at <https://www.fb.org/market-intel/china-and-mfp-tranche-3>.

average in 2004 and 2008, and it climbed sharply in the early part of this decade topping out at 5.8 percent in the last quarter of 2013. It sank sharply to a low of 1.3 percent at the end of 2016 before recovering to just under the long term average by the end of 2019. Whether measured in real terms or as a share of personal income, and irrespective of the pronounced peaks and valleys, the statistical trend in farm proprietor income over a two decade period has been nearly flat.

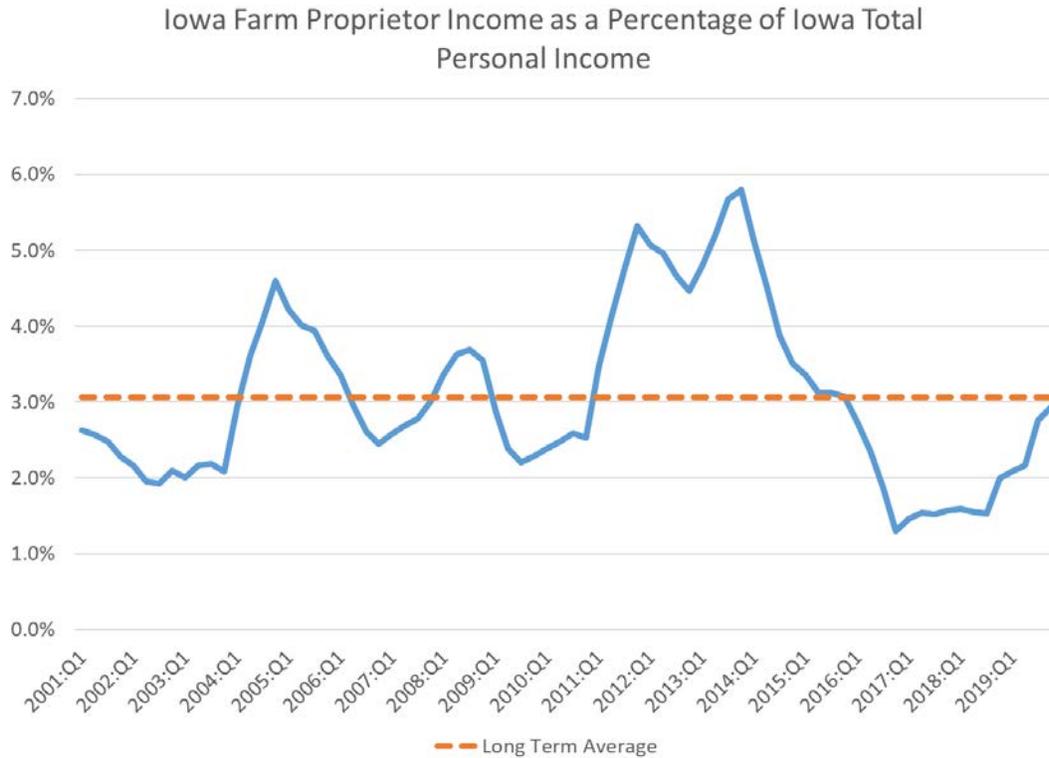


FIGURE 5

The last data series compares Iowa’s overall performance to all other farmers in the U.S. over the past 20 years. In Figure 6 it is apparent that the long term trend of Iowa’s shares has been upward. In all, over two decades, Iowa has gained in shares more than it has lost. Its lowest point was at the end of 2004 at 4.6 percent. The state showed national prominence both at the end of 2008 and at the end of 2011 at nearly 9.5 percent of the U.S. totals. Iowa’s peak income year coincided with the nation’s peak year and Iowa’s overall shares actually declined by the end of 2013. Even though Iowa’s total income has only climbed back to its long term average level (see Figure 4) of late, Iowa’s national farm income prominence actually peaked at the end of 2019 at 10.5 percent. Again, Iowa’s recent boost in national shares was clearly driven by robust market facilitation payments to Iowa producers. Further, this chart underscores the broad weakness in the overall national farm economy in recent quarters if Iowa climbing back to its historical average in real farm proprietor income results in its highest share of national farm proprietor income.

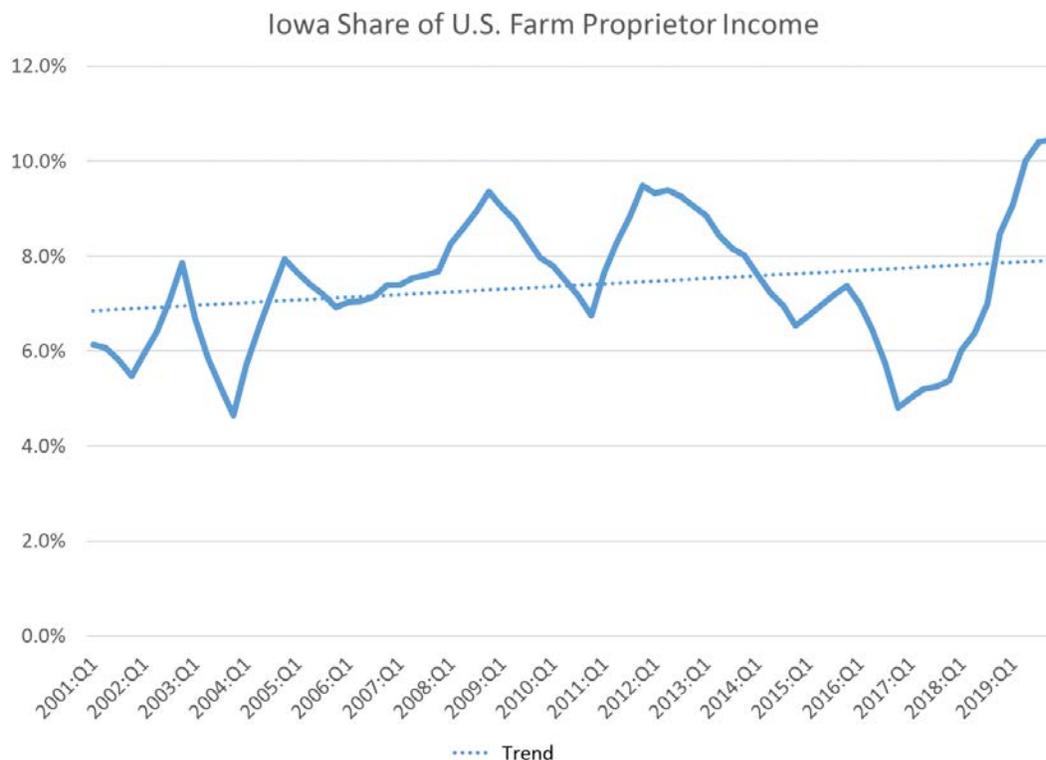


FIGURE 6

Conclusion

Farm proprietor or farm household incomes in Iowa are frequent concerns of policy makers, ag stakeholders, and most especially, rural communities where those incomes are mostly spent. The financial situation of farm proprietors has been erratic over the past decade yielding both historic highs and historic lows. Volatility has been the most striking feature of Iowa agricultural sector performance.

Looking at broad averages, whether by economic class or by farm typology, the typical Iowa farm household realizes more income per unit than the state average for all households. The average Iowa farm household's income is 64 percent more than the average Iowa household's. Farms with less than \$100,000 in annual sales posted total household incomes that were 16 percent more. Farms with more than \$1 million in sales household incomes averaged 331 percent more. But when farm typology is considered, Iowa's intermediate farmers had lower average household incomes than the overall Iowa household average.

This report tells us nothing about farm balance sheets or the distribution of circumstances within each economic level or farm typology category. It does, however, inform us about the general characteristics of Iowa's farm households and the degrees to which they depend on farming or outside sources to maintain their households and their farming operations.

Appendix: Farm and Farm Household Income and Other Financial Characteristics Resources and Contacts

Readers interested in learning more about farm income, farm expenses, farm balance sheets, and other financial characteristics of farming in Iowa or the U.S. can use the following selected resources:

1. Current (or relatively recent) data on national as well as state level farm income and wealth characteristics can be accessed from this [USDA ERS](#) site. This site also has state rankings across a wide range of indicators.
2. The [2017 Census of Agriculture](#) is conducted every five years. Readers can review existing tables for the nation or the individual states and their counties or access query tools that allow for specialized tables.
3. The [Agricultural Resource and Management Survey](#) (ARMS) of the USDA allows for detailed table building to look at farm operation and farm household dynamics. There are state data for 15 of the larger ag states in the U.S. (Iowa included). Note: this site does not like the Chrome web browser.
4. The [Bureau of Economic Analysis](#) (BEA) contains a multitude of data farm proprietor incomes as well as all farm earnings over time. In addition, analysts can access farm income and expenses data for states and counties over time by drilling down either at their Annual Personal Income and Employment by State (or by County) options.
5. Iowa State University Extension and Outreach resources:
 - Broadly, [Ag Decision Maker](#) is a key portal to a wide range of tools to help understand individual farming practices as well as overall farm characteristics.
 - Periodic surveys of [ag land values](#) and of [farm ownership and tenure](#) provide insights into the structure of farming and its primary asset base.
6. Iowa State University Extension and Outreach professors and scientists:
 - [Chad Hart, Professor](#)
 - [Lee Schulz, Associate Professor](#)
 - [Keri Jacobs, Associate Professor](#)
 - [Wendong Zhang, Associate Professor](#)
 - [Alejandro Plastina, Assistant Professor](#)
 - [Dave Swenson, Associate Scientist](#)