



The Farm Price-Cost Squeeze and U.S. Farm Policy

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Summary

When farm commodity prices fall and costs of production rise, farmers can get caught in a “farm price-cost squeeze.” The potential for such a financial bind dates to the first half of the 20th century when farmers began purchasing more of their farm inputs such as fertilizers, improved seeds, and feed concentrates. Since the 1930s, U.S. agriculture has been supported through the ups and downs of the market by federal farm policy, most recently set under the 2008 farm bill.

In 2009, some farmers find themselves in difficult financial circumstances, following high farm prices and relatively prosperous times in 2007 and 2008. Currently, livestock, dairy, and poultry producers are facing particularly low or negative returns based in part on input prices, primarily for feedstuffs, that have not fallen as fast as output prices. In order to survive, many farmers are drawing on equity built up in recent years. Meanwhile, producers of crops, both federally supported ones such as grain and cotton as well as non-program crops such as fruits and vegetables, continue to deal with volatile costs of energy and fertilizer, which are affecting their returns. In some instances, Members of Congress and policymakers in the U.S. Department of Agriculture (USDA) are being asked by farm groups to consider additional support.

The cyclical nature of agricultural markets plays a large role in the farm price-cost squeeze. When prices rise and remain elevated, following poor weather or strong demand, for instance, periods of profitability typically ensue, eventually encouraging producers to add more acreage or increase inputs such as fertilizer. Once additional supplies enter the marketplace, prices tend to retreat. Similar economic reasoning applies once the cycle turns down. In this case, as profitability declines or goes negative, farmers no longer have the economic incentive to produce as much, so they cut back on the volume or quality of inputs or, if financial conditions are bad enough, go out of business all together. As economists, commodity marketers, and farmers alike have generally found, prices eventually turn higher, profitability returns, and the cycle repeats.

The most basic way to measure the farm price-cost squeeze is to directly compare prices received by farmers with prices they pay for inputs in the form of price ratios. These ratios provide a relatively current indication of economic conditions, and concerned policymakers can monitor them on a monthly basis as USDA releases the data. Across agriculture in 2009, the price-cost squeeze is currently most evident in the livestock sector, particularly dairy.

When farm prices fail to keep pace with the cost of inputs, the collective decision by farmers to reduce output translates into a sector-wide supply response which, because of substantial lags in the production cycles for both crops and livestock, plays a large part in prices that farmers receive in future months. U.S. agriculture is also governed in part by federal policies that affect the markets and farmers’ production decisions. Finally, farmers often depend on off-farm income to help insulate their household from financial difficulties.

Most public support for agricultural subsidies stems from the public’s desire to help “family farmers.” Historically, public support for farm programs has benefited from the country’s agrarian roots and generally favorable perception of farmers. As Congress developed farm programs to support the farm sector, technological gains over time have generally led to farm production in excess of market demand, creating a farm price-cost squeeze on a periodic basis. To survive, farms often seek lower per-unit costs by expanding the size of their operation. As large farms produce an increasing share of U.S. agricultural production, some critics have questioned whether current farm policy is reinforcing or accelerating this process.

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Introduction

When farm commodity prices fall and costs of production rise, farmers can get caught in a “farm price-cost squeeze.” The potential for such a financial bind dates to the first half of the 20th century when farmers began purchasing more of their farm inputs such as fertilizers, improved seeds, and feed concentrates. Since the 1930s, U.S. agriculture has been supported through the ups and downs of the market by federal farm policy, most recently set under the 2008 farm bill.

In 2009, some farmers find themselves in difficult financial circumstances, following high farm prices and relatively prosperous times in 2007 and 2008.¹ Currently, livestock, dairy, and poultry producers are facing particularly low or negative returns based in part on input prices, primarily for feedstuffs, that have not fallen as fast as output prices.² In order to survive, many farmers are drawing on equity built up in recent years. Meanwhile, producers of crops, both federally supported ones such as grain, oilseeds, and cotton as well as non-program crops such as fruits and vegetables, continue to deal with volatile costs of energy and fertilizer, which are affecting their returns. In some instances, Members of Congress and policymakers in the U.S. Department of Agriculture are being asked by farm groups to consider additional support to farmers.

This report discusses the current farm price-cost squeeze, how it varies across commodities, and the factors behind the current situation. The report also considers the cyclical nature of agricultural markets, effects on producers, and the government’s role in addressing the situation.³

Cyclical Agricultural Markets

The cyclical nature of agricultural markets plays a large role in the farm price-cost squeeze. The cause of short-term cycles is often weather. Periods of good weather can result in large crop yields that drive down prices. Conversely, widespread drought can create shortages that drive up farm prices.

When prices rise and remain elevated, following poor weather or strong demand, for instance, periods of profitability typically ensue, eventually encouraging producers to add more acreage, increase inputs such as fertilizer, or buy additional cows to produce more milk. Once additional supplies enter the marketplace, prices tend to retreat. These cyclical price movements are captured in the commodity marketing adage that states “the cure for high prices is high prices.” The saying makes the economic argument that the circumstance of high prices will eventually change once high prices attract additional production resources.

Similar economic reasoning applies once the cycle turns down. In this case, as profitability declines or goes negative, farmers no longer have the economic incentive to produce as much, so they cut back on the volume or quality of inputs or, if financial conditions are bad enough, go out

¹ See CRS Report R40152, *U.S. Farm Income*, by Randy Schnepf.

² Feed prices are driven primarily by corn prices, which have increased in recent years as demand for corn used for ethanol has expanded under U.S. biofuels policy. See CRS Report R40488, *Ethanol: Economic and Policy Issues*, by Tom Capehart.

³ A different farm price issue is the farm-to-retail price spread, and how farm and retail price movements are correlated. This issue is discussed in CRS Report R40621, *Farm-to-Food Price Dynamics*, by Randy Schnepf.

of business all together. As economists, commodity marketers, and farmers alike have generally found, prices eventually turn higher, profitability returns, and the cycle repeats. Over the long run, farmers find ways to stay in business, sometimes by taking another job so they can continue to operate their farm enterprises even at a loss. Others, less willing or unable to find ways to survive unprofitable situations, will exit the industry.

The farmers' role in the cyclical nature of commodity markets was noted more than 50 years ago by Agriculture Secretary Ezra T. Benson. After declaring that farmers were in a "serious price-cost squeeze," he said that farmers could work their way out of the situation by making production and marketing decisions that would solve the current surplus and low price problems.⁴ The role of government policy and farm commodity subsidies is also debated and advocated to respond to cycles in agricultural markets. Some say it preserves farms that otherwise would fail at the low point of a cycle; other say it disproportionately helps large farms to the detriment of small farms. These policy issues are addressed later in this report.

Rising Productivity and Downward Price Trends

Rising productivity has also contributed to the cyclical nature of agricultural markets. Over the decades, the adoption of new technology—both mechanical (e.g., better farm equipment) and biological (e.g., improved seed varieties)—and management approaches have resulted in farmers producing more commodities with relatively fewer inputs. As additional product arrives on the market, prices fall until consumer demand catches up with advances in supply. Along the way, weather can create short-term market disruptions and price volatility.

In general, large economies of scale in U.S. agriculture encourage producers to expand their operations in order to spread fixed costs over more acreage, take advantage of technology, and reduce per-unit input costs through bulk purchasing. This boosts output and reduces profit margins (a phenomenon seen in many other industries as well). These technology-driven economies of scale put tremendous economic pressure on small operators who are unable to take advantage of them.

Over time, the end result of continued advancements in farm productivity is declining farm prices, when adjusted for inflation. Consequently, farm profits are difficult to sustain.⁵ Under this repeated market volatility, farmers who are not able to reduce their costs struggle to remain viable as a business operation, causing some to go out of business.

Factors Affecting Farm Profitability

Farm sector performance, right down to the individual producer, depends to a large extent on supply and demand factors. Together these factors establish overall price levels, for commodities which farmers sell and for inputs they buy.

⁴ Associated Press, "Benson Says Farmers Work Out of Price-Cost Squeeze," *Ellensburg Daily Record*, Ellensburg, WA, November 28, 1955, p. 1, <http://news.google.com/newspapers?nid=860&dat=19551128&id=wXANAAAIBAJ&sjid=M0sDAAAIBAJ&pg=4543,3218668>.

⁵ This concept was first described as the "agricultural treadmill." See Willard W. Cochrane, *Farm Prices, Myth and Reality* (Minneapolis: University of Minnesota Press, 1958).

Changes in agricultural supply and demand stem from many sources. Because U.S. agriculture is a major net exporter of agricultural products, developments in the international market help determine prices farmers receive for most products. Domestic market changes are also key, such as increased consumer demand for certain fruits and vegetables (e.g., avocados, berries, and peppers), income growth that affects demand for meat, or the demographics of an aging population.

On the farm input side, energy costs, primarily for fuel and fertilizer, are determined largely in the global oil market.⁶ Prevailing wages can also dramatically affect costs for farms using large amounts of manual labor (e.g., fruits and vegetables). Finally, all farms likely incur costs, either directly or indirectly, associated with environmental compliance requirements.

Overall price levels and other factors—such as technology, government policy, transportation, and marketing issues—together affect a farmer’s decision to increase or decrease investments in his or her operation. Importantly, in the most difficult times, farm program payments and other support from the government, as well as off-farm income for the farm household, may prove decisive for farm profitability when business survival is at stake.

Farm profitability is specific to a farm’s cost structure and marketing ability. A small farm, for example, may have relatively high per-unit costs because overhead, such as buildings and maintenance, is spread over fewer units of output. Or, considering marketing skills, some farmers may be more adept than others at maximizing prices received from the market. When considering both the revenue and cost sides of a farm business, the range of per-unit costs and prices received can vary considerably by producer. Further complicating the assessment of financial prospects for an individual farm is its commodity mix, preferences for risk, and levels of equity and debt, among other financial variables.

Measuring the Price-Cost Squeeze

Because of the potential for differences across farms, a simplified measure is often needed by policymakers and analysts as a rough gauge of the farm price-cost squeeze, especially when market conditions are changing rapidly. The most basic way to measure the farm price-cost squeeze is to directly compare prices received by farmers with prices they pay for inputs. By ignoring the volume of a farm’s sales and input purchases, the comparison only considers how current prices for each relate to one another, which can be particularly insightful for policymakers over a short period (e.g., less than three years) when financial fortunes reverse. Over longer periods of time, however, technology changes and efficiency gains make such comparisons less relevant.

Determining whether or not a sector is actually encountering a price-cost squeeze can sometimes be a matter of opinion. Instead, knowing how much worse (or better) conditions are relative to the recent past can be helpful when policymakers are trying to get a sense of how particular groups of farmers are faring financially.

⁶ See CRS Report RL32677, *Energy Use in Agriculture: Background and Issues*, by Randy Schnepf.

Output Prices Compared with Input Prices

Measuring the price-cost squeeze is simply a comparison of the price of the output (for example, a crop, animal, or animal product such as milk sold by a farmer) and the price of inputs used to grow the crop or raise the livestock. The comparison is often expressed as a ratio of the output price divided by the input price. Conceptually, the ratio describes how much input—measured in pounds or other unit of measure—can be purchased with a single pound of output. A higher number corresponds with a more favorable (profitable) relationship for farmers.

For example, assume the farm price of milk is \$0.12/lb. and the price of feed is \$0.06/lb. The milk-feed price ratio is then 2 (\$0.12/lb. divided by \$0.06/lb.). The resultant number of 2 means that each pound of milk has the same value as 2 pounds of feed. Or stated another way, 2 pounds of feed can be purchased with 1 pound of milk. As a rule of thumb in the dairy industry, a ratio close to 3 is sufficient for profitability to encourage herd expansion. A ratio near or below 2 indicates low or negative profitability and hence a greater likelihood of herd liquidation and industry contraction.⁷

For livestock production, feed is often a leading and highly variable contributor to overall costs, making it the most relevant variable when considering farm financial prospects over the short run. Other charges are important as well, such as overhead costs, including buildings and equipment, but these costs are spread over a number of years and typically do not change rapidly from year to year. For the crop sector, no one single input dominates financial prospects as feed costs do for livestock production. As an alternative, a ratio of price indices can be used.

Using Ratios of Price Indices

Another way to measure the price-cost squeeze is to compare (1) an index of prices received (i.e., the current farm price divided by the farm price received in an earlier base period), and (2) an index of input prices paid by farmers. A comparison is made by dividing the first index by the second.

Movements in this ratio (i.e., an index of prices received divided by index of prices paid) essentially measure output prices relative to input prices over a particular period. If a ratio increases over a certain period, farm prices are rising faster than the cost of inputs such as fuel and fertilizer. In the short run (e.g., less than three years), a declining ratio indicates a financially unfavorable circumstance for farmers. Over the long run, the ratio typically declines as improved yields (or other technological advances) result in greater output per unit of input and lower farm prices.

Depending on how returns are changing for other crops a farmer produces, acreage for a particular crop may decline if returns are not as attractive as the previous year. A host of other factors, such as crop rotation for managing soil productivity, equipment availability, and management expertise, also play into farm profitability as well as a farmer's decision of what to plant.

⁷ It is important to note that the absolute level of a ratio varies from commodity to commodity depending in part on how many pounds of feed are required to produce a pound of product that is being measured and the units of measure used in the calculation.

Data Sources

Output and input prices are captured in indices published each month by USDA's National Agricultural Statistics Service (NASS).⁸ For major livestock species, prices of livestock (or products such as milk and eggs) are reported relative to feed prices. These include the "milk-feed" price ratio (see above), as well as similar indices for broilers, eggs, hogs, steers and heifers, and turkeys.⁹ For some of the ratios, the price of feed is a composite price of several crops weighted by shares of a typical ration that add to 100% (e.g., for milk-feed price ratio, it is corn, 51%; soybeans, 8%; and alfalfa, 41%). For others, the livestock price is relative to the price of corn alone.

For crops, output price indices for major categories published by NASS include food grains (primarily wheat and rice), feed grains (primarily corn and sorghum) and hay, cotton, oil-bearing crops, fruits and nuts, commercial vegetables, and potatoes and dry beans. An "other crop" category is also published. NASS constructs the published indices from the agency's estimates of farm prices, which are based on surveys of farmers and points of first sale. On the cost side, USDA publishes a "crop sector" index that represents the average cost of inputs purchased by farmers. Conceptually, USDA says the average price multiplied by the quantity purchased should equal total producer expenditures for the sector.

The drawback with using these indices is that, as with all sector-wide measures, they represent industry averages that combine the actions of various production and marketing activities into a single number. As a result, some producers may be much better off or much worse off than the numbers would indicate. Also, some output categories are too aggregated for specific analysis (e.g., food grains instead of wheat or, even more specifically, hard red winter wheat). Similarly, the prices paid index for the crop sector covers all reported crops on an aggregated basis. Because the mix of inputs varies considerably across crops, such as a high labor share for vegetables compared with crops such as feed grains, the index reflects overall input prices without crop-specific adjustments.¹⁰ As a result, the crop-related ratios calculated in this report can be used only as a general indicator of the price-cost squeeze in the crop sector, while the livestock price-feed ratios more closely correspond with changes in economic prospects for producers. More detailed analyses, particularly for livestock, could be done at the state level using available data.

While these ratios are clearly an overly simplified approach to gauging economic conditions in the farm sector, the measures do provide a quick snapshot of current economic conditions. In contrast, national farm income statistics and financial indicators such as the debt-to-equity ratio, also published by USDA, are updated only a few times per year and provide only an agricultural sector-wide view that can hide commodity-specific conditions.¹¹

⁸ See *Agricultural Prices* at <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1002>.

⁹ Indices of prices received are also reported by USDA for several livestock categories, including meat animals, dairy products, poultry and eggs, and an overall "livestock and products" category. These are not used in this report.

¹⁰ Additional analysis using other USDA-published data could be used to generate more specific indices that reflect prices of certain crops and/or attempt to account for differences in the mix of inputs.

¹¹ For more information on farm income forecasts, see CRS Report R40152, *U.S. Farm Income*, by Randy Schnepf.

The Current Price-Cost Squeeze

Concerned policymakers can monitor the economic situation of U.S. farmers on a monthly basis by observing the farm price-feed ratios and the prices received and prices paid indices. Across agriculture in 2009, the price-cost squeeze is most evident in the livestock sector, particularly dairy.

Livestock, Dairy, and Poultry

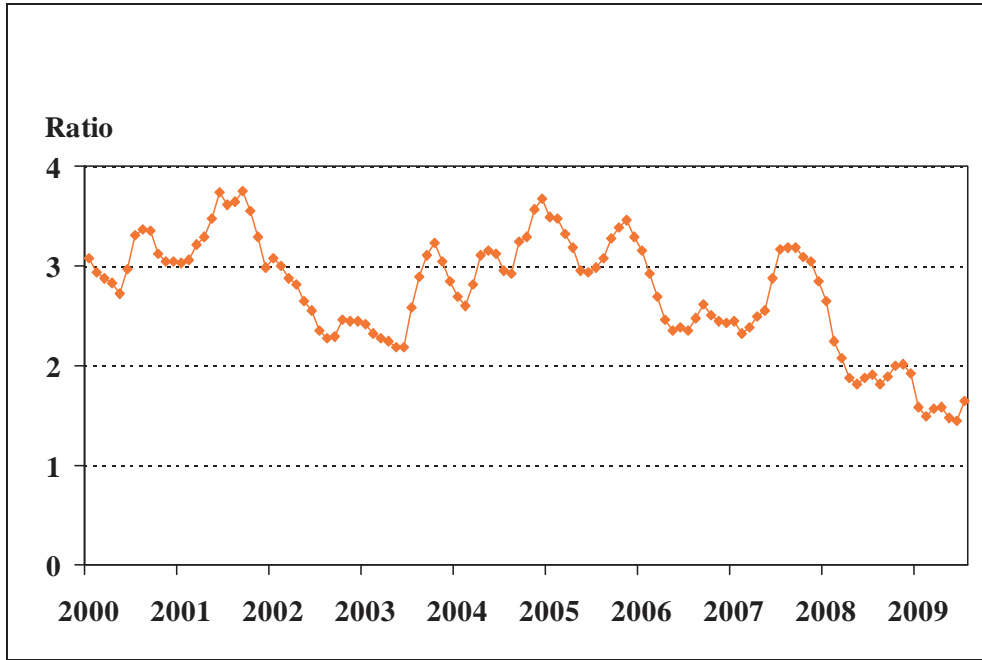
Since 2007, the livestock sector has seen dramatic changes in its farm prices relative to input costs, in part because producer prices have fallen from record levels in late 2007 (milk) and mid-2008 (beef cattle and eggs), but also because feed costs which also hit record highs in 2008 have been slower to recede. Prices in the feed complex, led by corn and soybeans, have risen since 2005 following sharp increases in demand for corn used for ethanol under the U.S. biofuels policy. Other factors have supported foreign demand for grains and oilseeds, including growth in global incomes (prior to being interrupted last fall following the economic crisis) and a weaker U.S. dollar exchange rate. Overall, farm prices of livestock, poultry, and milk generally have not kept pace with grain and feed prices during this time.

Dairy is a prime example of the recent boom and bust of an agricultural market. Record milk prices in late 2007, stemming from high export demand, more than offset higher feed costs during that year. The milk-feed price ratio rose during 2007 and remained elevated for several months (**Figure 1**). Once feed costs climbed in late 2007 and even higher in 2008, the ratio plummeted from 3.0 to below 2.0. In late 2008, as demand for U.S. dairy products weakened and milk prices fell, the ratio plunged further. It has remained at low levels in 2009 as milk production is greater than demand, creating significant financial stress for dairy farmers.¹²

Recent movements in the farm price-cost ratios for hogs, poultry, and cattle have been similar (**Figure 2, Figure 3, Figure 4**). However, the declines started earlier (2005). The broiler-feed index has seen some recovery after broiler prices adjusted upward following the sector's production pullback from sharply higher feed prices. Compared with cattle and hog production, changes in the poultry sector occur more quickly because the poultry production cycle is shorter than for cattle and hogs.

¹² CRS Report R40205, *Dairy Market and Policy Issues*, by Dennis A. Shields.

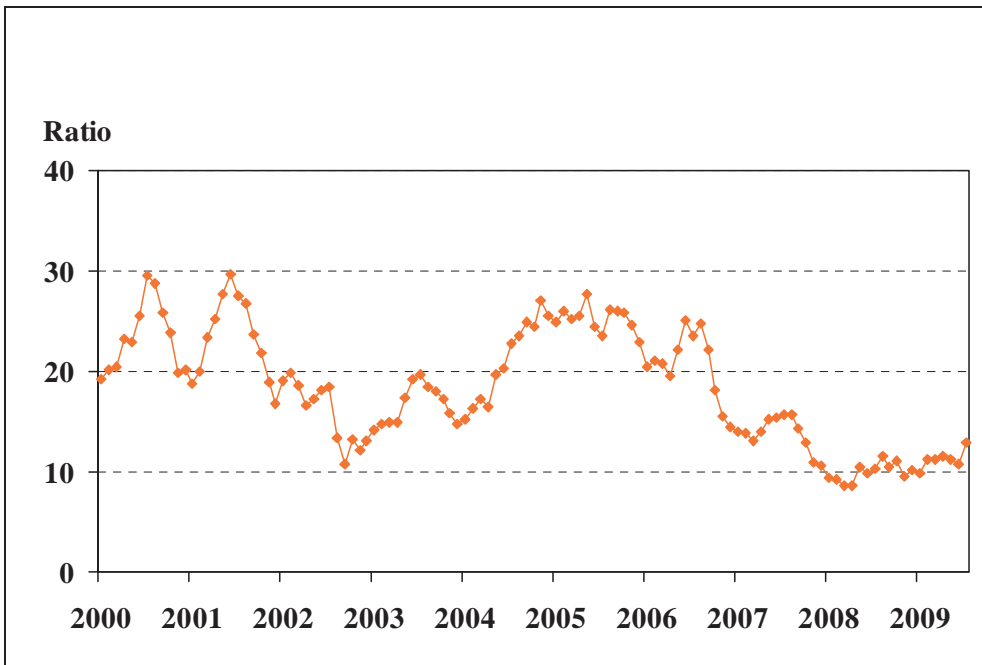
Figure 1. Monthly Milk—Feed Price Ratio



Source: U.S. Department of Agriculture.

Notes: Ratio is the farm price of milk (\$/lb.) divided by the feed price (\$/lb.). A ratio close to 3 is generally regarded as sufficient for profitability to encourage herd expansion. A ratio near or below 2 indicates low or negative profitability.

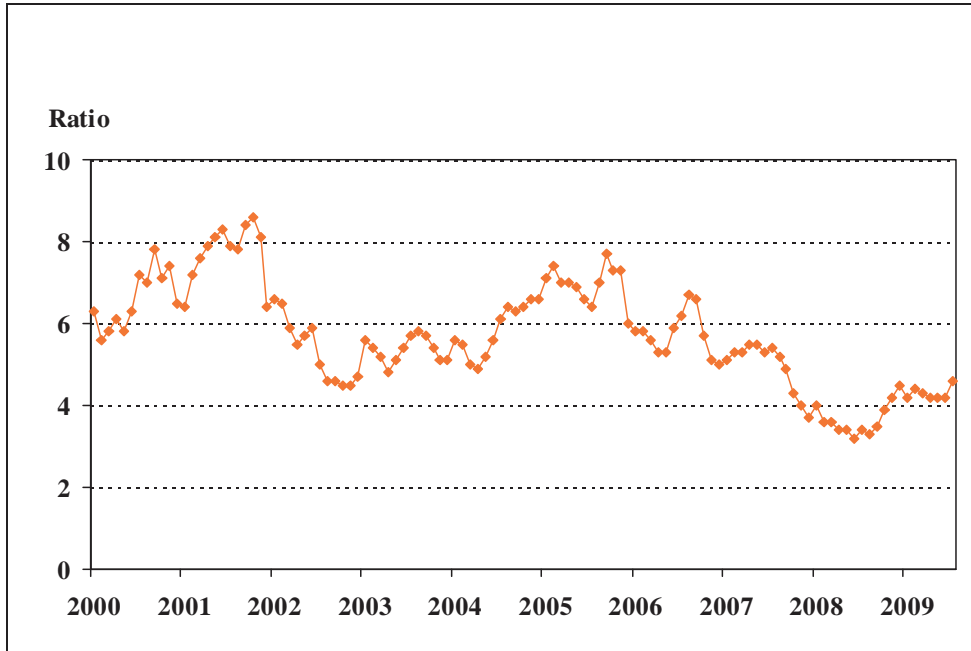
Figure 2. Monthly Hog—Corn Price Ratio



Source: U.S. Department of Agriculture.

Notes: Ratio is the farm price of hogs (\$/cwt.) divided by the corn price (\$/bushel). In general, a ratio of 18 or below signals herd liquidation. A higher ratio signals potential for herd building.

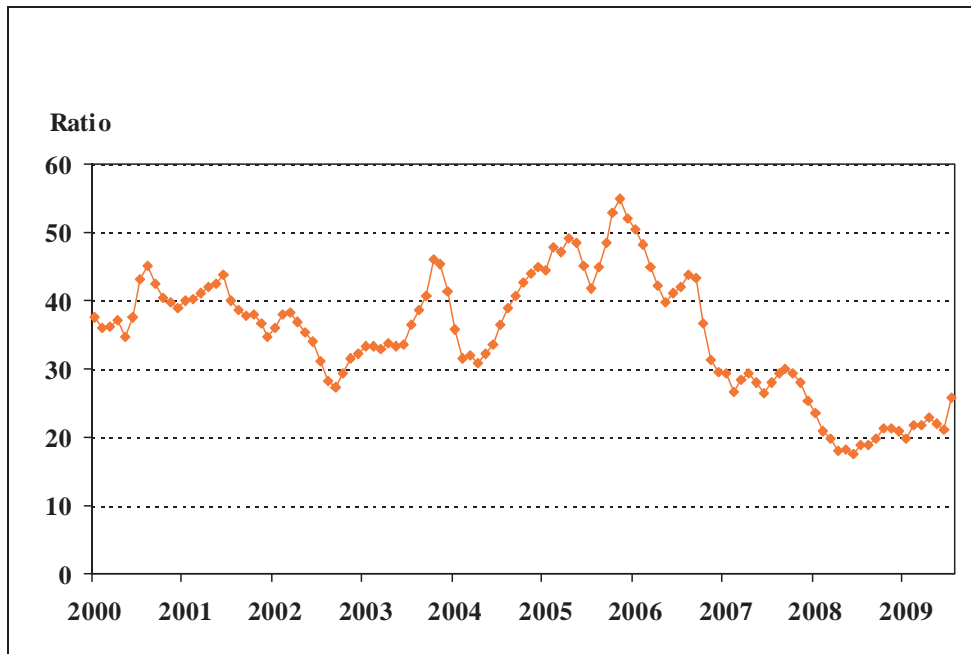
Figure 3. Monthly Broiler—Feed Price Ratio



Source: U.S. Department of Agriculture.

Notes: Ratio is the farm price of broilers (\$/lb.) divided by the feed price (\$/lb.).

Figure 4. Steer and Heifer—Corn Price Ratio



Source: U.S. Department of Agriculture.

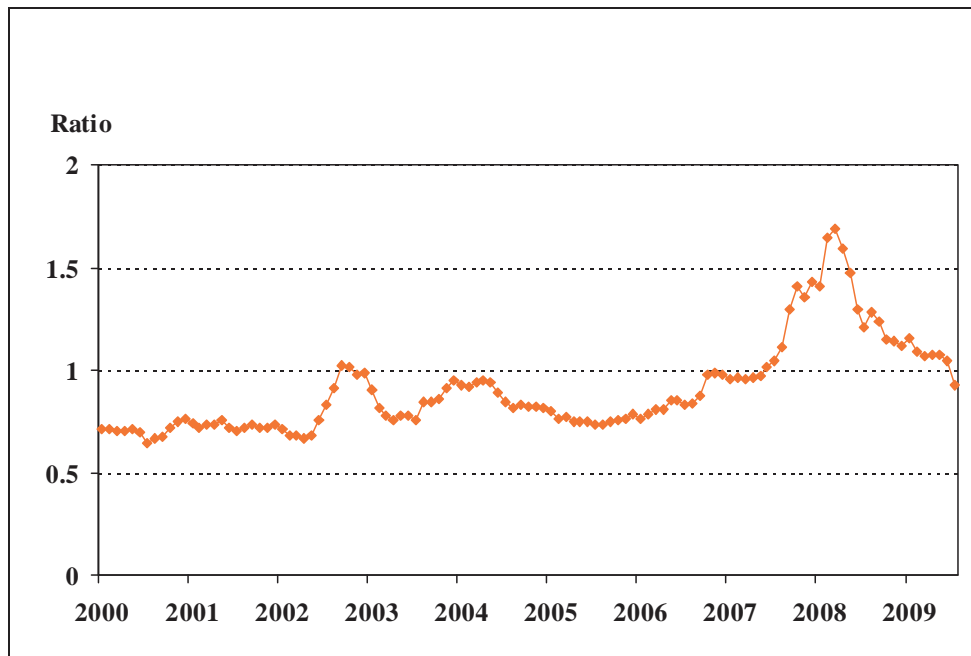
Notes: Ratio is the farm price of steers and heifers (\$/cwt.) divided by the corn price (\$/bushel). A ratio below 30 usually suggests industry losses.

Crops

The crop story differs from livestock. In general, farm prices for crops relative to costs have been either steady or rising in recent years, not falling. For most crop categories covered under federal farm programs, prices received by farmers in 2009 relative to prices paid are near levels seen in 2007. Farm prices relative to costs were even higher during the price spike of mid-2008. The crop categories include food grains (e.g., wheat and rice) (**Figure 5**), feed grains (e.g., corn and sorghum) and hay (**Figure 6**), and oil-bearing crops (**Figure 7**). The only exception for field crops is cotton (**Figure 8**), which has seen a long-term decline in domestic mill use.

Price index data for fruits and nuts (**Figure 9**) and for commercial vegetables (**Figure 10**) are also compiled by NASS. Farm prices relative to costs have held within historical ranges (since 2000), although the fruit and nut category has seen a downward trend since 2007 as costs climbed.¹³ Costs rose sharply in 2008 following a run-up in prices for fertilizer, fuel, and seeds.¹³

Figure 5. Food Grains Prices Received—Price Paid Ratio

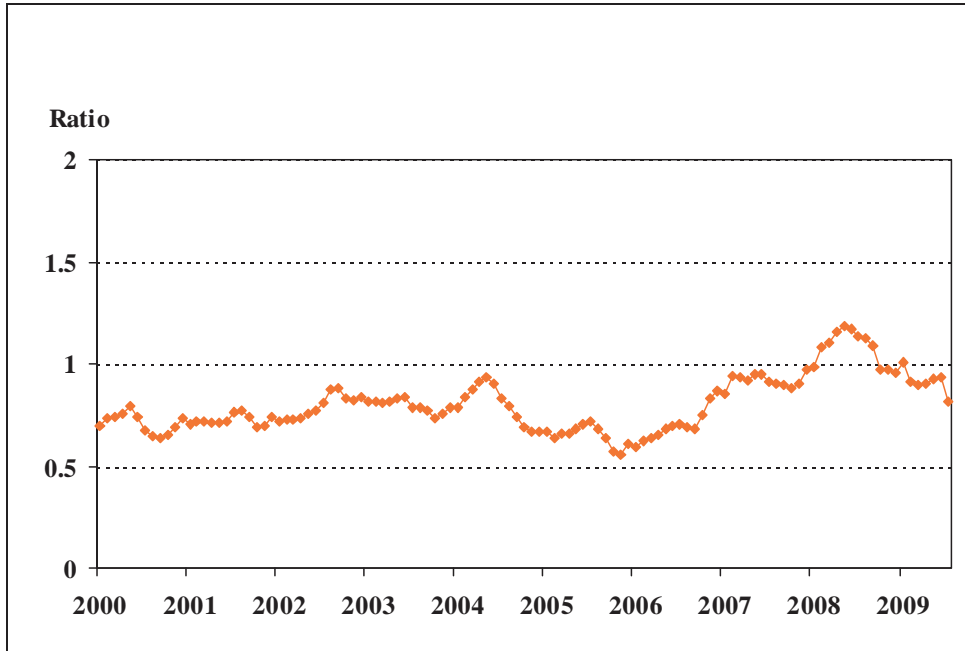


Source: U.S. Department of Agriculture.

Notes: Ratio is index of food grains prices received divided by index of crop sector prices paid.

¹³ Gary Lucier, Rachael L. Dettmann, and Michelle Da Pra, *Vegetables and Melons Outlook*, U.S. Department of Agriculture, Washington, DC, June 25, 2009, p. 6, <http://www.ers.usda.gov/Publications/VGS/2009/06Jun/VGS333.pdf>.

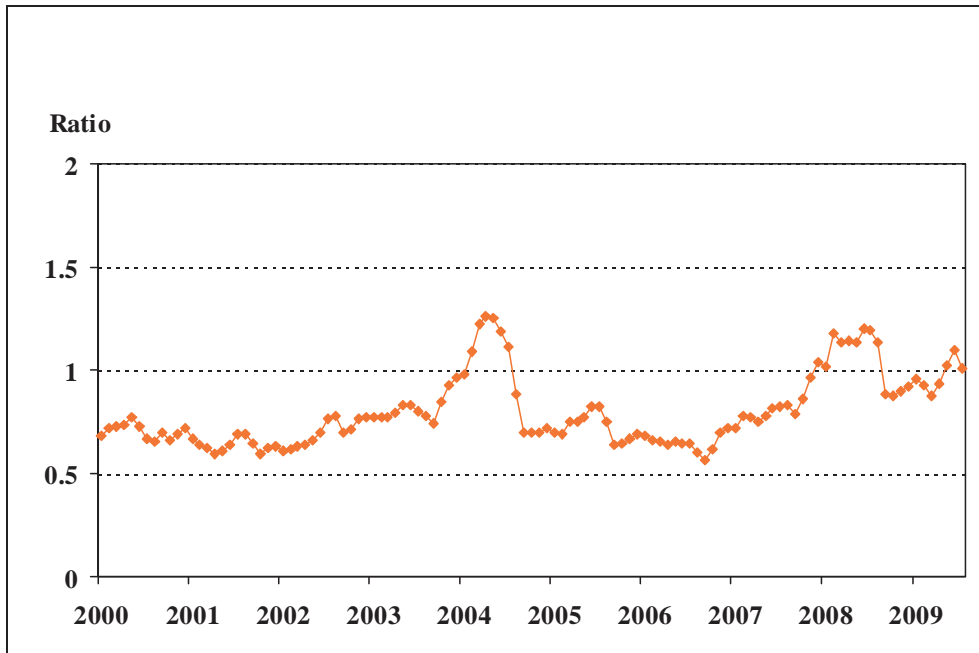
Figure 6. Feed Grains and Hay Prices Received—Price Paid Ratio



Source: U.S. Department of Agriculture.

Notes: Ratio is index of feed grains and hay prices received divided by index of crop sector prices paid.

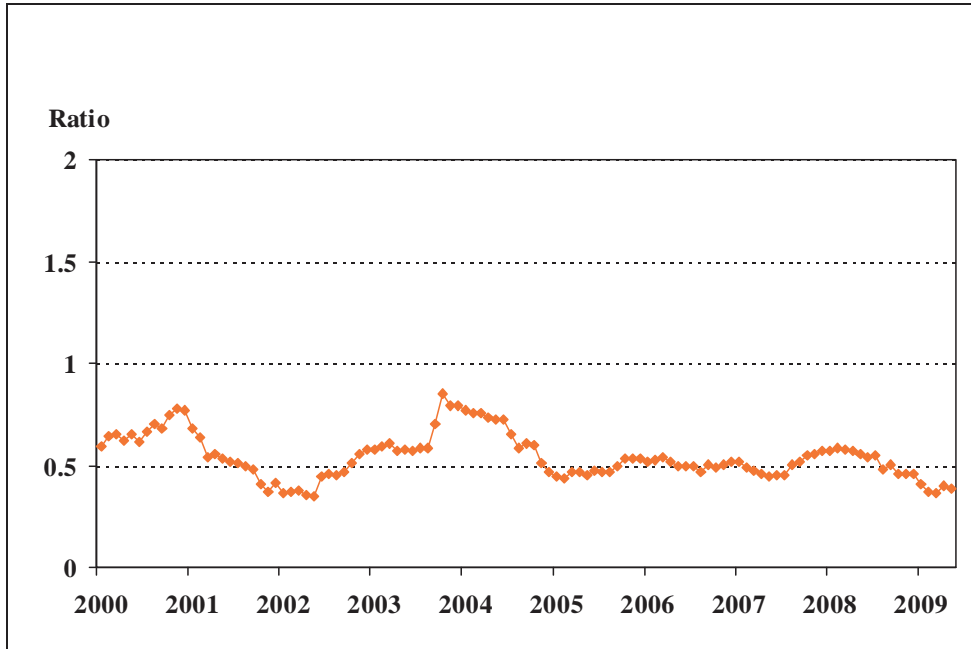
Figure 7. Oil-bearing Crops Prices Received—Price Paid Ratio



Source: U.S. Department of Agriculture.

Notes: Ratio is index of oil-bearing crop prices received divided by index of crop sector prices paid.

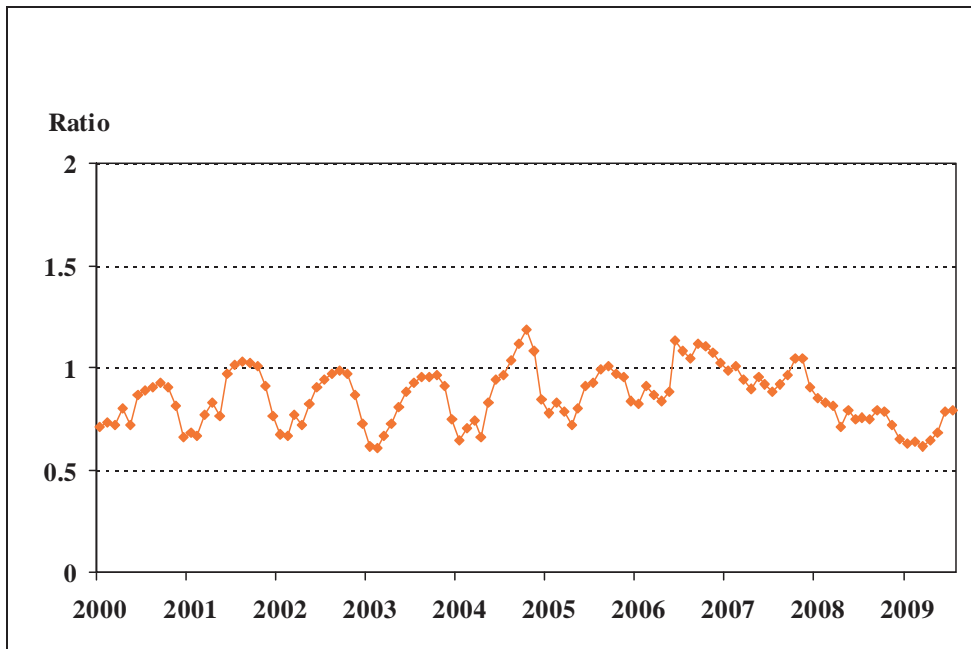
Figure 8. Cotton Prices Received—Price Paid Ratio



Source: U.S. Department of Agriculture.

Notes: Ratio is index of cotton prices received divided by index of crop sector prices paid.

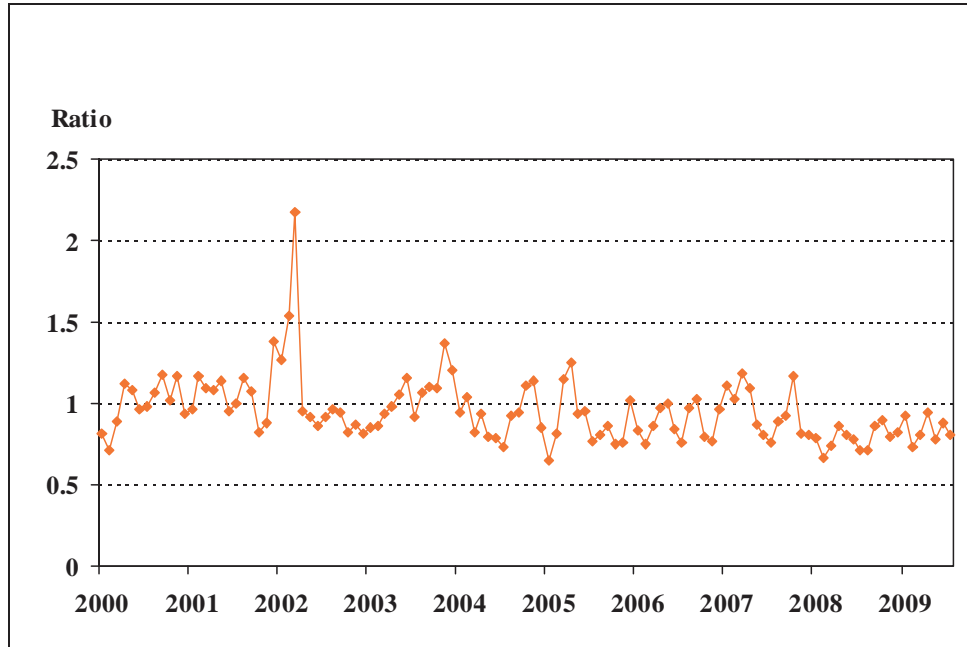
Figure 9. Fruit and Nut Crops Prices Received—Price Paid Ratio



Source: U.S. Department of Agriculture.

Notes: Ratio is index of fruit and nut crop prices received divided by index of crop sector prices paid.

Figure 10. Commercial Vegetable Prices Received—Price Paid Ratio



Source: U.S. Department of Agriculture.

Notes: Ratio is index of commercial vegetable prices received divided by index of crop sector prices paid. Prices surged in early 2002 following cold weather that adversely affected production in California and Arizona.

When Farm Prices Fail to Keep Pace with Costs

When farm prices fail to keep pace with the cost of inputs, individual farmers begin making business decisions that affect the farm’s output. The collective decision by farmers translates into a sector-wide supply response which, because of substantial lags in the production cycle for both crops and livestock, plays a large part in prices that farmers receive in future months. U.S. agriculture is also governed in part by federal policies that affect the markets and farmers’ production decisions. Finally, farmers often depend on off-farm income to help insulate their household from financial difficulties their farms may encounter.

Farm Management

As with any business, farmers focus on both the revenue and cost sides of their operations when faced with declining returns. Because farmers are generally price takers, that is, commodity markets determine the price at which they can sell, farmers often focus on selling their products in ways that avoid seasonal lows and/or maximize potential revenue. This can be accomplished through forward pricing with a buyer who is willing to pay a small premium to secure future needs. A plethora of marketing options is also available through brokers and marketing companies who monitor the market, establish marketing plans with producers, and execute them with the

intention of obtaining a higher per-unit price than if a farmer simply sells the crop at harvest time.¹⁴

Farmers also seek cost changes to improve their bottom lines. Cutting back on inputs (e.g., fertilizer for crops or high quality hay for dairy cows) is one option. Delaying equipment upgrades or other investments is another. Selling less productive assets, such as older beef or dairy cows, is yet another. All three actions save the farmer money, but from a farm management perspective, the farmer is attempting to reduce costs proportionately more than revenue and needs to pay attention to efficiency ratios when making these choices. Farmers may also draw on equity or savings built up in previous periods or generate more off-farm income (see section below).

Supply Adjustments

Once negative market signals are sufficient to encourage farmers to change their production plans, the collective action of farmers eventually manifests itself in lower sector-wide supplies. For crops, it may mean pulling out old grapefruit trees after a string of unprofitable years or shifting from cotton to soybean plantings in recent years as domestic cotton mill use and farm prices decline. For most crops, the positive price impact of reduced supplies shows up in the market as soon as traders sense that supplies will in fact decline. Sometimes this takes up to a year to unfold because planting and harvest generally occur once a year (or for an extended period during a year in the case of citrus, for example). Weather and other factors help determine the final level of supply and prices.

On the livestock side, producers will either send animals to slaughter or feed less expensive rations. The former action, at least in the case of dairy operations, has an immediate impact on production because the cows are no longer producing milk. For other livestock markets, such as beef cattle or hogs, herd liquidation temporarily *increases* meat supplies, further driving prices down. But once the market works through the initial supply surge, prices tend to rise because those animals no longer generate product for the market. This is especially true when breeding animals are sent to slaughter because they will no longer produce offspring that would add to meat or dairy supplies in future months or years. Feeding less expensive (and hence less nutritious) rations can also reduce production because animals convert lower quality feed into meat and milk less efficiently.

Federal Policies Assisting Farmers

The federal government provides a number of programs to help farmers. Most of these, however, focus on specific crops that have a long history of federal support. Farmers who plant wheat, corn, cotton, rice, and a number of other “program crops” receive payments and other forms of support through programs under the 2008 farm bill, which has roots in farm legislation from the 1930s and 1940s. The support comes primarily in the form of program payments to agricultural landowners who have elected to participate, plus additional payments that depend in part on current levels of farm prices.¹⁵ Total price and income support payments to agriculture averaged

¹⁴ According to some marketing specialists, federal milk pricing policies (i.e., Federal Milk Marketing Orders) can complicate the use of forward pricing strategies commonly used by grain farmers because the milk price an individual dairy farmer receives is not readily observable and is instead based on prices of various dairy products.

¹⁵ For more information, see CRS Report RL34594, *Farm Commodity Programs in the 2008 Farm Bill*, by Jim Monke.

\$12.9 billion per year in FY2000-FY2008.¹⁶ The sugar industry is supported primarily through domestic supply control and import barriers.¹⁷

In contrast to program crops, federal program support for fruits, vegetables, and horticulture crops is generally limited to crop insurance, disaster assistance, and funding for research, marketing, and promotion projects. Similarly, in the livestock sector, the only extensive federal policy is for dairy, with price supports, direct payments to producers, and milk pricing regulations under federal milk marketing orders.¹⁸ However, policy analysts and observers have commented that crop subsidies over the years have encouraged grain production, thereby benefiting livestock producers through lower feed prices, although increases in crop prices and feed costs in recent years may raise doubts among livestock producers about prospective “pass through” benefits from crop subsidies.

Concerning the impact of federal policies on agricultural production, some analysts suggest that government efforts can be counterproductive when federal policies attempt to stabilize markets by providing support to producers. Altering or overriding market signals, they say, can distort production incentives that originate from consumers. The result is a disconnect between what consumers want and what farmers produce, which can lead to surplus production and low prices.¹⁹ In addition, critics say that government programs likely keep inefficient resources in the sector and work against the underlying natural forces motivated by technology and economies of scale that are inherent in most of production agriculture. Further government intervention might be needed that is otherwise contrary to economic rationale, such as paying for surplus commodity storage, giving away commodities the market does not want, or subsidizing exports to move product out of the domestic market (in the case of dairy).

The counterpoint to limited or no government intervention is that markets are, at times, too volatile and can unnecessarily destroy farms that otherwise benefit society. Supporters of government intervention in agriculture, particularly for small- and medium-sized farms, argue that these operations that tend to have higher costs, and thus are more susceptible to financial losses, are better suited to carry out conservation and other environmental measures because those operators have greater concern for the long-term productivity of their land.

Off-Farm Income

Off-farm income can be key to farm survival during a farm price-cost squeeze. As technological advancements have reduced labor requirements on farms, farmers and/or their spouses have sought part-time or full-time jobs off the farm in an effort to make productive use of the available labor time and supplement household income.

The overall level of off-farm income received by U.S. farmers is quite high, and it has been for a long time. At the national level, off-farm income as a share of total household income has been at

¹⁶ U.S. Department of Agriculture, Economic Research Service, *Agricultural Outlook: Statistical Indicators*, Washington, DC, May 2009, <http://www.ers.usda.gov/publications/Agoutlook/AOTables/>.

¹⁷ See CRS Report RL34103, *Sugar Policy and the 2008 Farm Bill*, by Remy Jurenas.

¹⁸ See CRS Report R40205, *Dairy Market and Policy Issues*, by Dennis A. Shields.

¹⁹ Elements of this argument as related to dairy policy were discussed at hearings held in July 2009 by the Subcommittee on Livestock, Dairy, and Poultry of the House Committee on Agriculture. See statements available at <http://agriculture.house.gov/hearings/index.html>.

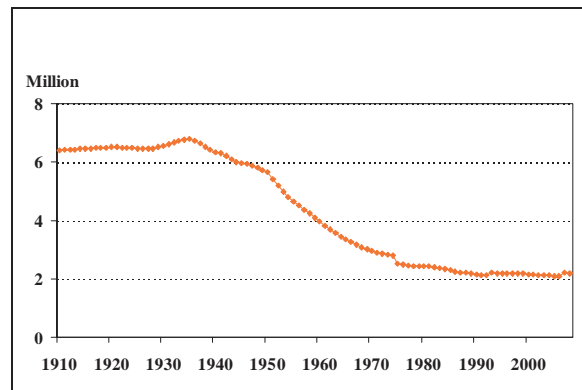
least 80%, on average, for the past 20 years. In some years, it exceeds 90%.²⁰ For commercial farms (sales of \$250,000 or more), farm income accounts for about 75% of household income. For other farms, farm income as a share of household income is often in the single digits or negative.²¹ Given these statistics, farming activities, in many cases, assume the role of a “hobby” rather than an income-generating activity, and farming can be considered a lifestyle choice rather than a business.

Some farming enterprises lend themselves well to farmers adding an off-farm job to supplement household income. The seasonal nature of crop production, for example, can leave winter months available for a farmer to work “in town.” In contrast, livestock producers often need to tend animals daily, leaving only part-time work as an option. Farmers on diversified operations or those without labor contributions from family members may need to focus nearly all of their efforts on the farm.

Changes in Farm Numbers

U.S. farm numbers declined from more than 6 million farms in the early 20th century to just 2 million in recent decades (**Figure 11**). The transition was most apparent in the 1950s. Farm numbers dropped sharply as mechanization continued to reduce the need for farm labor, efficiency gains from large farm size increased dramatically, and off-farm employment became more available and relatively more attractive. As policymakers developed farm programs to support the farm sector, technological gains over time have resulted in farm production in excess of market demand, leading to a farm price-cost squeeze and a decline in farm numbers. Some would say the price-cost squeeze is essentially due to keeping the same amount of land in production, but with yield-enhancing technology boosting production. Economics would dictate that resources (e.g., people) need to exit the sector if supply is out of balance. The evidence would suggest that this has occurred.

Figure 11. U.S. Farm Numbers



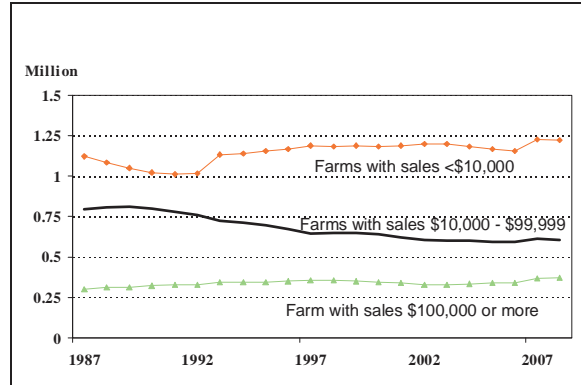
Source: U.S. Department of Agriculture, National Agricultural Statistics Service,

²⁰ USDA’s Economic Research reports farm and off-farm income since 1960 at <http://www.ers.usda.gov/Briefing/WellBeing/Gallery/historic.htm>

²¹ J. Michael Harris et al., *Agricultural Income and Finance Outlook*, U.S. Department of Agriculture, Washington, DC, December 2008, pp. 34-35, <http://usda.mannlib.cornell.edu/usda/current/AIS/AIS-12-10-2008.pdf>.

While overall U.S. farm numbers have stabilized since the late 1980s, there has been a shift away from the medium-sized farms considered to be modest family operations (sales between \$10,000 and \$99,999) (**Figure 12**). Offsetting this decline is growth in the numbers of larger farms (sales at least \$100,000), which can push their costs even lower from gains in economies of scale, and small operations with sales less than \$10,000—referred to as “hobby” or “lifestyle” farms—that are not as dependent on farm income because ample off-farm income supports their farm lifestyle.

Figure 12. Farm Numbers by Sales Class



Source: U.S. Department of Agriculture, National Agricultural Statistics Service,

Today, relatively large, economically efficient farms provide the bulk of U.S. production. In 2007, according to the Census of Agriculture’s definition of a farm (any place from which \$1,000 or more of agricultural products were produced and sold), the total number of farms was 2.2 million, while less than half a million farms had sales of \$50,000 or greater.

The trend has been a declining number of commercial farms driven by economies of scale and technology. In 2007, only about 125,000 of the largest farms (5.7% of total farms) accounted for 75% of the nation’s farm sales.²² Just five years earlier, in 2002, 144,000 farms accounted for 75% of farm sales. In 1992, more than 232,000 farms accounted for 75% of farm sales (**Table 1**).

Table 1. Number of U.S. Farms

While total farm count is relatively stable, fewer farms account for 75% of U.S. farm sales.

Year	All farms	Fewest number of farms accounting for:			
		10% of sales	25% of sales	50% of sales	75% of sales
1992	1,925,300	418	6,147	61,673	232,605
1997	1,911,859	466	5,062	46,068	180,867
2002	2,128,982	389	3,590	34,085	143,547
2007	2,204,792	449	4,009	32,886	125,478

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, *Census of Agriculture*, various issues, <http://www.agcensus.usda.gov/Publications/2007/index.asp>.

²² U.S. Department of Agriculture, National Agricultural Statistics Service, *2007 Census of Agriculture*, Washington, DC, February 2009, http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/farm_numbers.pdf; and *1992 Census of Agriculture*, <http://www.agcensus.usda.gov/Publications/1992/v1-tbl45.pdf>.

Policy Questions

Since the Great Depression, federal farm policy has attempted to help farmers weather financial difficulties inherent in the industry. More than 75 years ago, when the federal government started addressing low returns in farming, the political thrust was to enact legislation that would offset some of the volatility of agricultural markets and prop up income for a rural population that was highly dependent on the farm economy. In general, the goal has been to help farmers survive market downturns. All the while, farmers have adopted technology that has resulted in a sector-wide transition from a large number of producers, some being high-cost, to a smaller number of lower-cost producers.

Most public support for agricultural subsidies stems from the public's desire to help "family farmers."²³ Historically, public support for farm programs has benefited from the country's agrarian roots and generally favorable perception of farmers as being hard workers, honest, and subject to market forces and weather that are beyond their control. However, recent farm bill debates, which occur roughly every five years, have seen heated discussions over levels of payments and eligibility. As for public opinion, a poll by Program on International Policy Attitudes at the University of Maryland indicates that while the public would oppose eliminating farm subsidies in general, the desired scope of subsidies is more narrow than provided under current policy, with a preference for payments to small farmers rather than large farmers.²⁴

While there are exceptions, government programs for farmers, as currently designed, generally benefit farmers in proportion to their production. Some large operations continue to receive payments even though they may not necessarily need them for economic survival. This in turn creates an economic incentive for a farm to either become a larger commercial operation in order to survive, or contract in size to one that is more manageable, with household income possibly supplemented by off-farm income so the farm can remain in operation regardless of its financial circumstances. Simultaneously, there are general economic and technological pressures—separate from government intervention—that encourage farms to consolidate or become larger, as discussed earlier in this report.

When farmers are caught in farm price-cost squeeze, the question for policymakers has been couched, perhaps incorrectly, critics say, in terms of preserving the nation's ability to produce food. This assumes that poor economic returns will result in less overall food production. While some portions of agriculture undoubtedly decline during these times, or would contract substantially if government policy would no longer be protecting it, a wholesale departure from current food production levels is not necessarily at risk, according to agricultural economists.²⁵

²³ Definitions of "family farm" vary. USDA's Economic Research Service (ERS) defines a family farm as any farm where the operator, and individuals related to the operator by blood, marriage, or adoption, own more than 50% of the business. In 2006, ERS identified 97% of farms in the U.S. as family farms. For more information see Erik J. O'Donoghue et al., *Exploring Alternative Farm Definitions*, U.S. Department of Agriculture, Economic Research Service, Economic Information Bulletin No. (EIB-49), Washington, DC, March 2009, <http://www.ers.usda.gov/publications/eib49/>.

²⁴ International Policy Attitudes at the University of Maryland, *U.S. Public At Odds With Government Policy on Farm Subsidies*, January 15, 2004, <http://www.worldpublicopinion.org/pipa/articles/btglobalizationtradera/83.php?nid=&id=&pnt=83&lb=btgl>.

²⁵ Don Paarlberg, "The Scarcity Syndrome," *American Journal of Agricultural Economics*, vol. 64, no. 1 (February 1982), pp. 110-114.

Instead, most resources in agriculture—land, labor, and capital—generally remain in the sector because these resources are relatively abundant in the United States (with the exception of labor, to a certain degree) and do not have a better alternative use. Unless these resources are diminished, say by soil erosion, the nation’s capacity for producing food remains intact. Resources continue to shift, though, among the subsectors as well as in and out of the sector as economics and government policies allow. Importantly, gains in productivity mean resources can leave the sector without resulting in an overall reduction in food output.

Another concern—and major farm policy question—is one of industry structure. Should federal policy address the long-term trend of large farms producing an increasing share of U.S. agricultural production? More pointedly, who will or *should* farm? Should the United States government let family farmers fail financially, or should the federal government support them in a way that slows the transition to farms that may be more economically efficient? Shaping this issue is a belief, at least historically, that agriculture is a special segment of the U.S. economy, elevated by its rich history, dedicated people, and role in rural communities. In contrast, others recognize that commercial farming is a business like any other, and federal policy should treat it accordingly.

Farm programs fit into a larger policy context that has changed since farm policy was first developed. In the early- and mid-20th century, farm policy *was* rural policy because of the importance of agriculture in the rural economy. Now, growth in other rural industries has reduced farming’s relative importance in the rural economy.²⁶ That leaves the larger policy question for both critics and advocates of current farm policy: how does farm policy complement or contradict the goals policymakers have with respect to rural communities and life in what has historically been important agricultural areas?

Some critics have questioned whether current farm policy is reinforcing or accelerating trends in U.S. farm structure, intensifying the farm price-cost squeeze that some farmers are experiencing. Others say government assistance is critical in supporting agriculture so that farms can continue operating even when economic conditions are poor and before market prices turn higher.

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²⁶ Fred Gale, “Farming’s Role in the Rural Economy,” U.S. Department of Agriculture, Economic Research Service, *Agricultural Outlook*, Washington, DC, June 2000, pp. 19-22, <http://www.ers.usda.gov/Publications/AgOutlook/jun2000/ao272h.pdf>.