Dairy Pricing Issues

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Summary

A dramatic collapse in farm milk prices late in 2008, which resulted in severe financial stress for many dairy farmers, has generated congressional concerns about "dairy pricing" and the adverse effects of milk price volatility on farmers. Dairy pricing refers to the process of establishing the farm value of milk. The federal government plays a prominent role in that process.

Among the dairy pricing issues are how milk producers receive price signals under existing policy and how that affects their production decisions. Some market participants say that the system does not transmit price signals to milk producers quickly enough, which can delay the response of producers needed to correct market imbalances. Another issue is farm milk price variability and managing price risks, given declines in dairy price supports and increased dependence on exports over the years, which have contributed to greater price volatility. Finally, some observers are concerned about the farm share of retail prices for dairy products and whether retail prices track changes in the farm milk price. The difference between farm and retail prices has declined in recent months after increasing in late 2008.

Dairy pricing in the United States is a unique combination of market-based and administered (through public dairy programs) prices. Each influences the other to determine the overall price level and price movements to some extent. Two characteristics—perishability and production on a daily basis—create challenges for pricing and marketing milk (and the products made from it).

Market-based pricing for milk and dairy products is similar to many other agricultural commodities, in that primary mechanisms for price discovery like cash and futures markets, such as those located at the Chicago Mercantile Exchange (CME), play key roles. Wholesale cash prices for dairy products (cheese, butter, and nonfat dry milk) are determined daily at the CME. The prices written into contracts nationwide between dairy manufacturers and wholesale or retail buyers of basic dairy products often reflect CME prices. Some producers have raised concerns about limited trading volumes and the potential for price manipulation at the CME.

Administered farm milk prices are derived from two government policies that originated more than 50 years ago: the dairy product price support program (DPPSP) and federal milk marketing orders (FMMOs). The two policies operate independently until market prices decline to support levels. The DPPSP simply provides price support for dairy farmers through government purchases of butter, American cheese, and nonfat dry milk from dairy processors at legislated prices. In contrast, the FMMO system generally does not support prices but is designed to stabilize market conditions, which had been chaotic in the 1920s and early 1930s, through monthly, market-based minimum prices that processors must pay for farm milk. FMMO prices are based on current wholesale product prices, which are determined largely by prices established on the CME. FMMOs also provide for sharing farm revenue across producers in certain geographic areas and for balancing marketing power between milk handlers, who reportedly held an advantage prior to FMMO development, and farmers.

Current policy is set for DPPSP until 2012 under the 2008 farm bill, and FMMOs are permanently authorized. As Congress, the Administration, and the dairy industry consider how to revise the dairy pricing system, two schools of thought appear to be emerging. One is to reduce price volatility through some means of supply control while raising farm prices. The other is to allow the market to fluctuate and help farmers manage the resulting price risk through hedging strategies used by farmers in other parts of the agriculture sector.

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Introduction

A dramatic collapse in farm milk prices late in 2008, which resulted in severe financial stress for many dairy farmers, led to efforts in 2009 by both Congress and the Administration to provide assistance for milk producers. The U.S. Department of Agriculture (USDA) reactivated dairy export subsidies in May and temporarily raised dairy product price supports in July, among other actions.[1] In October, Congress provided $350 million in the FY2010 Agriculture appropriations act (P.L. 111-80) to supplement the assistance provided under existing dairy programs.

Market dynamics in 2009 have also generated concerns about "dairy pricing" and the adverse effects of milk price volatility on farmers. Dairy pricing is shorthand for the process of establishing the farm value of milk. The federal government plays a prominent role in that process.

This report describes dairy pricing and examines several related issues. Among the related issues are (1) how milk producers receive price signals under existing policy and how that affects production decisions, (2) farm milk price variability and managing price risks, and (3) the farm share of retail prices for dairy products and whether retail prices track changes in the farm milk price. The report concludes with a discussion of alternative approaches that the dairy industry is proposing as a way to deal with dairy pricing.

Milk Price Movements and Risk Management

Price movements for milk and other commodities have several components. First, "trend" is the long-term movement in prices. For agricultural commodities, prices adjusted for inflation typically trend downward, primarily because improvements in agricultural productivity reduce costs and increase supplies. Second, a seasonal component is one that results in higher or lower prices during different periods of the year. For example, the supply of milk increases and prices tend to decline in the spring, when cows are highly productive.[2] Third, cyclical price movement refers to highs and lows established over any particular period with regularity. This is the type of price movement at the crux of today's concern for dairy farmers.

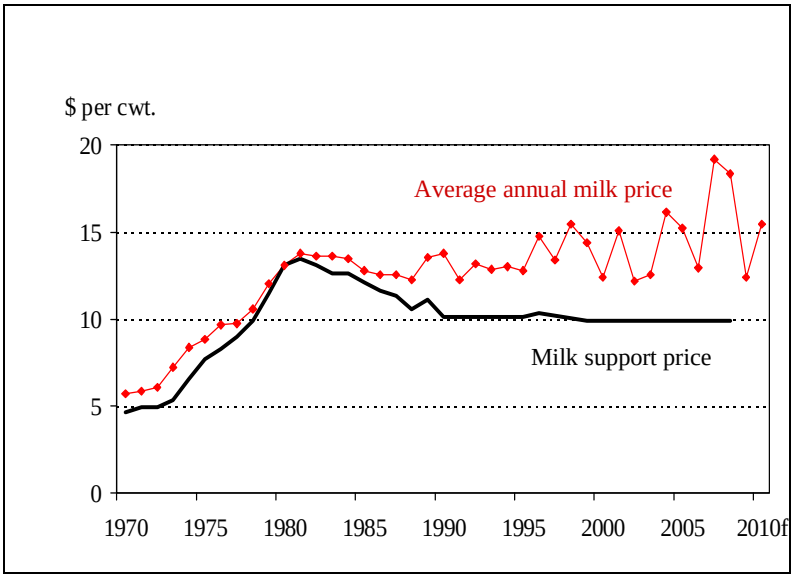
Dairy economists generally agree that the current cyclical price movement for dairy farmers was created by a mismatch in demand and supply. Simply put, milk output in late 2008 and 2009 was greater than milk demand, and prices adjusted downward in order for dairy products to sell or "clear the market" (**Figure 1**). The lower prices also provided a signal to producers that market needs had declined and they should cut milk production, either by culling cows or by reducing feed inputs. According to dairy forecasters, supply adjustments and a modest improvement in demand helped lift farm milk prices in fall 2009, and further (modest) gains are expected in 2010.

[1] For more information on federal dairy policy, the 2009 dairy crisis, and the federal response, see CRS Report R40205, *Dairy Market and Policy Issues*, by (name redacted).

[2] Daily milk production often does not match daily milk demand. In the past, this led at times to significant volatility and was part of the reason milk marketing orders were developed in the 1930s.

Figure 1. Average Annual Farm Price Received by Farmers v. Federal Support Price

(year-to-year price variability has increased since the mid-1990s)



Source: Annual price data from USDA; support prices from University of Wisconsin.

Notes: Beginning in 2008, support prices were established for dairy products (not shown) rather than milk. 2010 forecast by USDA.

The 2009 experience has been particularly painful for milk producers because prices had been at a record high in 2007-2008 and then fell sharply, with monthly average prices dropping nearly 25% below the long-term average. In the past, prior to reductions in the price support levels in the 1980s, farm milk prices were very stable, resting atop support prices and leaving little price uncertainty for producers. It was not until the late 1980s and into the 1990s that year-to-year prices began to fluctuate significantly. Over the last 10 years, as the dairy industry has become more dependent on export markets and world dairy prices have remained generally above U.S. support price levels, the volatility in farm milk prices has likely been enhanced by supply and demand changes in the world market.

Managing Market Risk for Dairy Farmers

Historically, dairy programs provided a significant amount of stability in farm milk prices, particularly during the 1970s and early 1980s. During this period, support prices for milk were ratcheted up to levels high enough to prevent farm prices from dropping significantly. With low year-to-year price volatility, dairy farmers had little need for managing price risk.

In the mid-1980s, to reduce costs associated with purchasing dairy products, Congress reduced price supports in periodic omnibus farm bills. In the years that followed, supply and demand factors generally took the price support program out of marketing order pricing equations, and year-to-year price variability increased (**Figure 1**). Subsequently, the dairy industry devoted more time and effort to developing export markets to handle a growing share of its output. Together, these two developments have opened the domestic market to transmissions of price volatility from the world market. Increasing volatility in dairy producer prices has led to a greater demand from dairy farmers for managing price and/or revenue risks.

Dairy farmers who are members of cooperatives benefit from risk management practices employed by their cooperatives through higher net milk prices or patronage dividends. Such risk management practices include shifting production between plants or product types in order to receive the highest return, integrating into the consumer and niche markets to diversify away from commodity market volatility, and forming partnerships with other firms to shift business risk.[3]

For a dairy farmer, the risk associated with the output (farm milk) is only part of his or her exposure to market risk. Feed prices are subject to constant change, and high feed costs contributed significantly to the 2008/2009 price-cost squeeze many milk producers faced. Managing the risks associated with changes in both output and input prices can be critical to survival of any firm, agricultural or otherwise.

Using Futures Markets

Producers across the agricultural sector can, and to varying degrees do, use futures markets to guard against financial losses when market prices change. A futures contract is an agreement to either buy or sell a given commodity at a specific price at a specific time in the future.[4] Futures contracts are available for many agricultural commodities, including major crops, crop products (like soybean meal), livestock, milk, and dairy products. A wide variety of other commodities (or financial instruments) are also traded on futures exchanges, including metals, lumber, and currencies.

Farmers who produce milk (or another commodity) can protect against the prospect of declining prices by selling a milk futures contract on the CME. If prices in the future in fact decline, the farmer will realize a profit on the trade when the original contract is eventually liquidated (i.e., when the farmer buys another contract of the same kind to offset the first contract). The farmer adds any profit generated from this set of transactions to the actual value of milk he or she sells. If prices in the futures market rise instead of fall, the farmer will realize a loss in the futures market, but these losses can be offset by gains in the value of milk the farmer is selling, because the cash market and futures market tend to move in the same direction. By using such a strategy (called "hedging"), farmers can "lock in" a predetermined price for milk they produce. A similar strategy can be employed to lock in favorable prices of key feed inputs, such as corn and soybean meal.[5]

Farmers—particularly large-scale operators with milk volumes that match the size of available futures contracts—may hedge directly on the exchanges. Some farmers also have opportunities to hedge their production through their cooperatives on a scale suitable to their operation.

[3] K. Charles Ling and Carolyn Betts Liebrand, *Dairy Cooperatives' Role in Managing Price Risks*, U.S. Department of Agriculture, Rural Business-Cooperative Service, RBS Research Report 152, Washington, DC, September 1996, http://www.rurdev.usda.gov/RBS/pub/rr152.pdf.

[4] CME Group, *An Introduction to Trading Dairy Futures and Options*, Chicago, IL, 2008, http://www.cmegroup.com/trading/commodities/files/AC-226_DairyProductBroch_final.pdf.

[5] "Options" on futures contracts are also available, which limit the financial exposure of participants because they do not require additional money (known as "margin calls") if the position becomes money-losing before it is liquidated. For examples of the futures and options markets, see Appendix A and Appendix B in CRS Report R40646, *Derivatives Regulation in the 111th Congress*, by (name redacted) and (name redacted).

A good hedge for a farmer depends on a somewhat predictable "basis," which is the difference between the futures market price and the local cash price. Without a reasonable basis pattern, a gain or loss in the futures market may not actually reduce a farmer's overall price risk. Volatility could be amplified if the loss in one market (futures or cash) is not offset by a gain in the other.

Observers have pointed out that hedging milk production is complicated by the nature of cash milk pricing. For a dairy farmer, the cash price is often the "mailbox price," which is an average price based on many factors, among them marketing order prices, utilization amounts, plant and marketing agency premiums and adjustments for quality, hauling costs, and volumes sold. As such, the cash price may or may not be connected directly to the available futures prices for milk (e.g., the Class III milk futures traded on the CME), making hedging potentially problematic for dairy farmers. Nevertheless, congressional testimony has indicated that some farmers who pursued milk hedging strategies have received net milk prices substantially above market lows in 2009.[6]

Forward Contracting

Some proprietary plants offer programs for farmers to lock in their selling price before delivery (called a "forward contract"). Prior to implementation of the 2008 farm bill (P.L. 110-246), handlers were required to pay at least the minimum prices established by the federal marketing orders each month, which dampened participation. Under the 2008 farm bill, dairy farmers can enter into forward contracts with handlers for milk purchased for manufacturing uses without following the minimum pricing rules.

USDA's Dairy "Margin" Insurance Policy

Another option dairy producers can use to manage price risk is the Livestock Gross Margin for Dairy Cattle insurance policy (LGM for Dairy Cattle), which provides protection against the loss in gross margin (market value of milk minus feed costs). At the end of an 11-month insurance period, producers receive an indemnity if the actual gross margin is less than the guarantee. The policy uses futures prices for corn, soybean meal, and milk to determine the actual and guaranteed margins (local milk prices are not used for the calculations). Producers are eligible in more than 35 states. LGM and a large array of crop insurance products are administered by USDA's Risk Management Agency (RMA). Farmers purchase LGM polices from private crop insurance agents.[7]

[6] See testimony by Phil Plourd, Blimling and Associates, Inc., at the hearing conducted by the House Committee on Agriculture, Subcommittee on Livestock, Dairy, and Poultry, *To Review Economic Conditions Facing the Dairy Industry, Part Two*, 111th Cong., 1st sess., July 21, 2009, http://agriculture.house.gov/testimony/111/h072109/Plourd.pdf. See also testimony by Ed Gallagher, Dairylea Cooperative Inc., at the hearing conducted by the Senate Committee on Agriculture, Nutrition, and Forestry, Subcommittee on Domestic and Foreign Marketing, Inspection, and Plant and Animal Health and Subcommittee on Production, Income Protection, and Price Support, *Responding to Low Dairy Prices: Exploring Avenues for Federal Action*, 111th Cong., 1st sess., October 27, 2009, electronic reference not yet available.

[7] U.S. Department of Agriculture, Risk Management Agency, *FAQ on Livestock Gross Margin—Dairy*, Washington, DC, April 23, 2009, http://www.rma.usda.gov/help/faq/lgmdairy.html. Additional materials are available from the University of Wisconsin at http://future.aae.wisc.edu/lgm_dairy.html#4, and from Pennsylvania State University at http://dairyoutlook.aers.psu.edu/reports/ComparisonoftheDairyLGMProgram.pdf.

LGM for Dairy Cattle became available in 2008. Producers are still learning how it works and how it might be useful for them, so participation remains low. Observers say another factor affecting participation is the cost of the policy. Unlike crop insurance products, the producer pays the full premium on the LGM policy. For crop policies, the federal government pays on average nearly 60% of the total cost of the premium. Producer subsidies on crop insurance products have been credited with helping greatly expand participation, with insured acreage as a share of total plantings ranging between 77% and 95% for major crops.[8]

Farm Share of the Retail Milk Dollar

A separate pricing issue concerns the relationship between farm and retail prices. As farm prices of milk and other agricultural commodities fell in late 2008, retail food price declines were slow to follow. This decreased the farm value share—the portion of the retail dollar that flows to the farmer—and caused some in Congress to question whether processors and retailers were contributing to economic stress in the agricultural sector, particularly for dairy farmers.

In recent decades, across the agricultural sector, several factors have led to a declining farm share of the retail food dollar, including gains in agricultural productivity, growth in demand for value-added products, and changes in food marketing. The farm share of the retail food dollar for all farm products (not just dairy) was 41% in 1950, a time when many food products were sold with much less value-added processing or packaging than today. In 2006, USDA estimated that the average farm-value share of all food products of U.S. farm origin consumed was 18.5%.[9] The remaining 81.5% was accounted for by a host of marketing factors, including labor (processing and retail sectors), packaging, profit, transportation, energy, and other business expenses. For dairy products, the farm share is approximately one-third of the retail dollar, which is greater than the all-food average, largely because other food categories such as cereals and bakery products have a higher overall degree of processing.

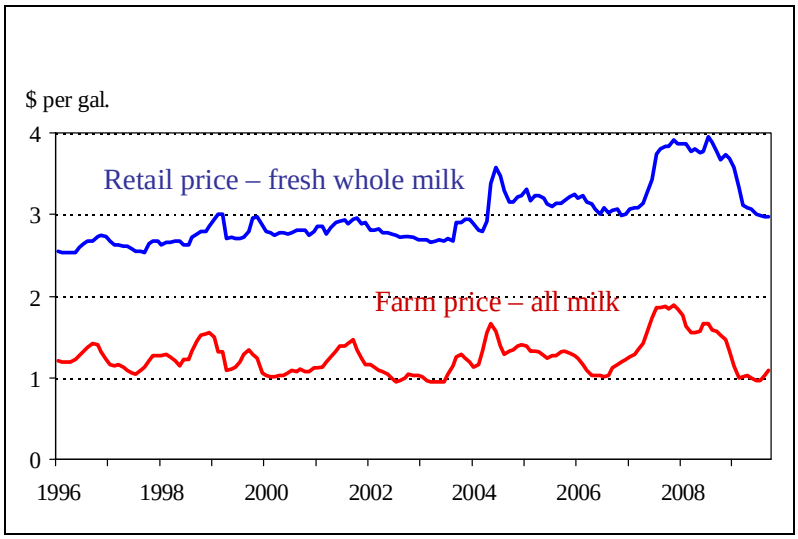
Examining changes in monthly farm and retail prices during 2008 and early 2009 indicates a decline in the farm-value share of retail product values and a widening of the marketing margin. Between July 2008 and December 2008, the farm price of milk reported by USDA fell by $0.33 per gallon (**Figure 2**). Meanwhile, the average retail milk price fell only $0.28, with the difference between the retail and farm price (i.e., the marketing margin) increasing to $2.35 per gallon. In January 2009, the difference between the average retail price of milk and the farm price of milk reached a record-high $2.43 per gallon (**Figure 3**). However, as retailers cut prices amid lower costs for farm milk and other inputs (e.g., energy and transportation), the difference between farm and retail prices declined in September 2009 to $1.89 per gallon, which is below the recent five-year average margin.[10] The decline in late summer/early fall means that producers are receiving a greater share of the retail dollar as retail prices retreat, although the farm share remains below year-ago levels.

[8] CRS Report R40532, *Federal Crop Insurance: Background and Issues*, by (name redacted).

[9] See CRS Report R40621, *Farm-to-Food Price Dynamics*, by (name redacted). The report examines in detail the linkage between farm and retail food prices, including the nature and extent of price transmissions such as time lags between changes in farm prices and retail prices.

[10] Data are from U.S. Department of Agriculture (farm prices) and Bureau of Labor Statistics (retail prices). The discussion of farm and retail prices in this section is simplified for illustration purposes. For a more detailed discussion on dairy prices, including important factors such as geography and quality, across marketing stages, see Andrew Novakovic and Esther Washburn, "Farm and Retail Milk Price Relationships in New York," Briefing Paper Number 08-01, July 2008, http://cpdmp.cornell.edu/CPDMP/Pages/Publications/Pubs/BP%2008-01.pdf.

Figure 2. Monthly Farm and Retail Milk Prices

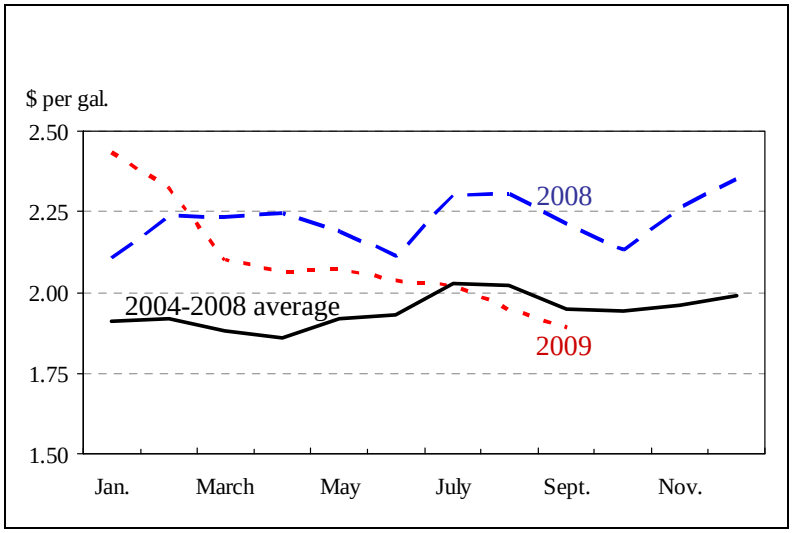


Sources: U.S. Department of Agriculture (farm prices) and Bureau of Labor Statistics (retail prices).

Notes: Farm price is converted from hundredweight to gallons using a factor of 8.6 lbs. per gallon.

Figure 3. Fluid Milk Price Margin

(average retail milk price minus farm milk price)

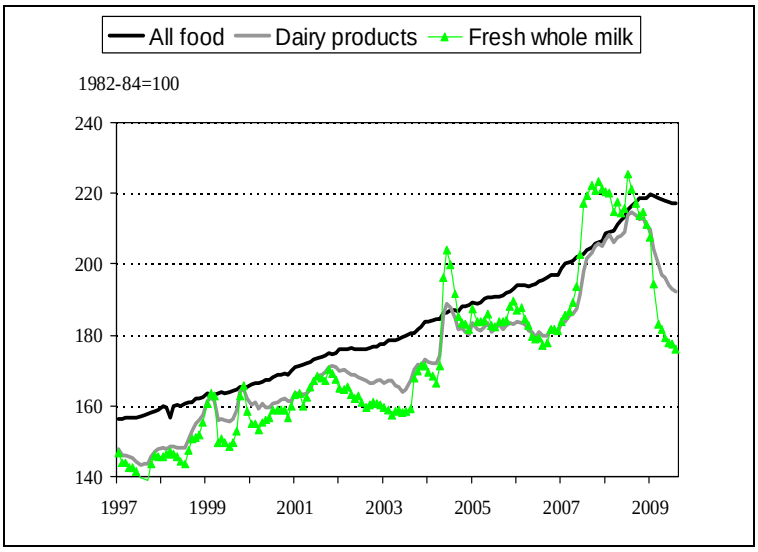


Source: CRS using data from U.S. Department of Agriculture (farm prices) and Bureau of Labor Statistics (retail prices).

Notes: Margin is retail price minus farm price, with farm price converted from hundredweight to gallons using factor of 8.6 lbs. per gallon.

Retail milk and dairy product prices have retreated significantly from dramatic highs in 2007 and 2008. In addition, they have declined more sharply than overall food prices, as measured by the Consumer Price Index (**Figure 4**).

Figure 4. Consumer Price Index



Source: Bureau of Labor Statistics, U.S. Department of Labor.

U.S. Dairy Pricing Mechanics

Dairy pricing in the United States is a unique combination of both market-based and administered (through public dairy policies or programs) prices. Each influences the other to determine the overall level of farm milk prices as well as price movements to some extent.

Two characteristics—perishability and production on a daily basis—create challenges for pricing and marketing milk (and the products made from it). As a result, in the short run, production in excess of demand in the fluid market must be either dumped (much like unharvested fresh fruit left in orchards) or manufactured into storable dairy products and sold later.

Market-Based Pricing

Market-based pricing for milk and dairy products is similar to that for many other agricultural commodities, in that primary mechanisms for price discovery like cash and futures markets, such as those located at the Chicago Mercantile Exchange (CME), play key roles. In general, current and future price levels for milk and dairy products are largely determined by buyers and sellers of milk and dairy products based on their perceptions of overall demand and supply conditions, along with expectations for changes in government policy (e.g., dairy product support prices).

Wholesale cash prices for dairy products (cheese, butter, and nonfat dry milk) are determined daily at the CME. The prices written into contracts nationwide between dairy manufacturers and wholesale or retail buyers of basic dairy products often reflect CME prices. Some dairy producers say that cash market pricing on the CME works to the detriment of producers (see "Potential for Price Manipulation," below). Separately, milk and dairy product futures contracts are also traded in Chicago. Individuals and firms that face financial risk from movements in dairy prices can use futures contracts to manage their risk and offset potential losses in the cash market for dairy products (see "Using Futures Markets," above).

Administered Pricing

Administered farm milk prices are derived from two government policies: the dairy product price support program (DPPSP) and federal milk marketing orders (FMMOs). The two policies originated at least 60 years ago and operate independently until market prices decline to support levels. The DPPSP simply provides price support for dairy farmers through government purchases of dairy products at legislated minimum prices. In contrast, the FMMO system generally does not support prices but is designed to stabilize market conditions, which had been chaotic in the 1920s and early 1930s, through monthly, market-based minimum prices that processors must pay for farm milk. FMMOs also provide a pricing system for sharing farm revenue across producers in certain geographic areas and for balancing marketing power between milk handlers, who reportedly held an advantage prior to FMMO development, and farmers.

The role of the federal government in milk pricing is greatest when overall prices for milk and dairy products are relatively low and the government purchases dairy products. In this way, the DPPSP undergirds minimum prices in the federal milk marketing order system.

Under the DPPSP, the federal government stands ready to purchase unlimited amounts of butter, American cheese, and nonfat dry milk from dairy processors at specified minimum prices. Purchases under the DPPSP, which occurred during FY2009, essentially prevent market prices for dairy products (and hence milk prices received by farmers) from dropping below support levels. In contrast, when the three product prices are above support levels, the DPPSP is not a factor in the market and farm milk prices reflect prevailing supply and demand conditions. Year-to-year changes in farm milk prices have increased since the mid-1990s because price support levels have been reduced below typical market-average prices.

FMMOs mandate minimum prices that processors in milk marketing areas must pay producers or their agents (like the dairy cooperatives) for delivered milk depending on its end use, regardless of whether market prices are high or low. Minimum milk prices are based on current wholesale dairy product prices collected by USDA's National Agricultural Statistics Service in a weekly survey of manufacturers, which are determined in large part by prices established on the CME. As such, FMMO minimum prices rise and fall each month with overall changes in the dairy product market. Under marketing orders, the price farmers receive for their milk is calculated based on these minimum prices and on how milk is utilized (fluid vs. manufacturing) in the marketing order, which collectively is called "classified pricing."[11] FMMOs also address how market proceeds are distributed among the producers delivering milk to federal marketing order areas—called "pooling"—whereby all farmers receive a "blend price" each month based on order-wide revenue.[12] The blend price is the weighted average price in a marketing order, with the weights being the volume of milk sold in each of the four classes.

Under FMMOs, the farm price of approximately two-thirds of the nation's fluid milk is regulated in 10 geographic marketing areas. Some states, California being the largest, have their own milk

[11] The classified pricing system requires handlers to pay a higher price for milk used for fluid consumption (Class I products) than for milk used in manufactured dairy products such as yogurt, ice cream, and sour cream (Class II), cheese (Class III), and butter and dry milk products (Class IV).

[12] For more information on marketing orders and other dairy programs, see CRS Report R40205, *Dairy Market and Policy Issues*, by (name redacted), and CRS Report RL34036, *Dairy Policy and the 2008 Farm Bill*, by (name red acted) and (name redacted).

marketing regulations instead of federal rules. Marketing orders were created in the 1930s to balance market power between farmers and milk handlers while reducing "destructive competition" between milk producers that can drive down prices to their mutual detriment.[13]

Milk prices at the farm level reflect the minimum prices paid by handlers under the marketing orders, plus any premiums generated from local supply/demand factors, such as a seasonal mismatch between supply and demand or special retail promotions, minus costs such as transport and marketing charges. In contrast, retail product prices are not regulated by the FMMO system. Instead, they reflect what retailers pay for dairy products from manufacturers and the level of competition among retailers in local markets.[14]

Role of Dairy Cooperatives

Cooperatives play an important role in dairy pricing. A cooperative is an enterprise owned by and operated for the benefit of those using its services. Farmer-owned dairy cooperatives often operate a complete milk distribution system, procuring raw milk from the farm, routing it where needed, managing or coordinating movements of processed or manufactured products, and managing surplus milk.[15] Cooperatives also bargain for prices with milk handlers and represent their members in the rulemaking processes for changing marketing orders. Dairy farmers typically sign one- to three-year contracts to market their entire production through the cooperative in exchange for marketing services. Besides guaranteeing members a market for their milk, some dairy cooperatives manage price risks by operating multi-product, multi-plant operations, using their flexibility to shift production from one product to another in an effort to obtain the highest return for the farmer-members.[16]

Price Signals Under Federal Milk Marketing Orders

When prices of agricultural (or other) commodities rise, producers tend to increase their output to increase profit. Alternatively, when prices are falling, they focus on trimming costs to save money, thereby reducing production. At some point, the price cycle (with prices either rising or falling) reverses course as supply becomes more aligned with demand. The points at which farmers see these price incentives and when they take action affects overall production levels and price movements going forward.

For most milk producers in the United States, the "mailbox price" is what farmers receive for their milk in a monthly check from the handler or their cooperative. It is the net price received after adjustments for quality, marketing costs (e.g., hauling charges, cooperative dues, producer

[13] See testimony by Andrew M. Novakovic, Cornell University, at the hearing conducted by the Senate Committee on Agriculture, Nutrition, and Forestry, *Legislative Responses to the Dairy Crisis: Reforming the Pricing Structure* , 111th Cong., 1st sess., August 27, 2009, http://ag.senate.gov/site/calendar.html.

[14] New York and Pennsylvania regulate wholesale or retail milk prices within their respective state boundaries.

[15] Alden C. Manchester and Don P. Blayney, "Milk Pricing in the United States," Economic Research Service, U.S. Department of Agriculture, Agriculture Information Bulletin No. 761, http://www.ers.usda.gov/publications/aib761/aib761.pdf.

[16] K. Charles Ling and Carolyn Betts Liebrand, *Dairy Cooperatives' Role in Managing Price Risks*, U.S. Department of Agriculture, Rural Business-Cooperative Service, RBS Research Report 152, Washington, DC, September 1996, http://www.rurdev.usda.gov/RBS/pub/rr152.pdf.

assessments), and over-order premiums that arise when market prices rise above the marketing order minimums.[17] Dairy farmers make production decisions—to buy or raise more cows or send some to the slaughterhouse—based in large part on their monthly revenue or expected revenue in the future. Feed and other input costs, including debt service, also play a large part in whether to expand or contract.

The biggest factors driving the changes in prices producers receive month-to-month are the minimum FMMO prices handlers must pay for milk. USDA calculates the FMMO prices using wholesale product prices as input into formulas that have been established through the regulatory process. For a more detailed description of the FMMO system, see CRS Report R40205, *Dairy Market and Policy Issues*.

Three pricing issues with respect to market signals for dairy farmers are timing, clarity, and the "make allowance," or margin afforded to dairy manufacturers in the federal order minimum prices.

Timing of Price Signals

FMMO prices are issued by USDA each month for each class of milk (depending on its use) as data on wholesale prices become available. For a specific FMMO month, minimum prices for fluid milk (Class I) are announced in advance (by the 23rd of the previous month). For other classes of milk, prices are announced after the close of the FMMO month. Shortly thereafter, mailbox prices are calculated once the marketing order pools close (i.e., monthly volumes and values are tabulated) and each of the 10 FMMO administrators determines the overall order "blend" price.

The process of establishing monthly prices dates to the beginning of the marketing order system in the 1930s. Previously, day-to-day or week-to-week price fluctuations created enormous price uncertainty for dairy farmers. A monthly price system, along with other features of milk marketing orders, helped create a more stable price environment. Farmers could better manage their business decisions when they knew with certainty the price they would receive.

A criticism of current FMMO pricing stems from this effort to stabilize the market. Some market participants, including dairy manufacturers and, on occasion, milk producers, claim that the system does not transmit price signals quickly enough, particularly in today's fast-changing market. For example, suppose domestic or foreign demand for milk or dairy products declines in April. The negative market signal could take until late June to reach milk producers, delaying the response of producers to begin slowing production to more closely align with demand. Conversely, when dairy product prices rise rapidly, the production response, now in the upward direction, can be delayed to the extent that farmers base their expansion on their mailbox price.

[17] U.S. Department of Agriculture, Agricultural Marketing Service, Dairy Programs, Mideast Marketing Area, *Mailbox Prices*, October 2009, http://www.fmmaclev.com/mailboxprices.htm.

Clarity of Price Signals

The pooling function in milk marketing orders is designed to reduce destructive competition and allow all producers to benefit from higher prices of fluid milk (relative to other uses).[18] At the same time, however, some in the industry suggest that pooling can have the unfortunate consequence of muting marketing signals. When revenues are pooled across the marketing region (both geographically and by how milk is utilized), critics argue, individual producers do not have a direct market signal of risks associated with production, a situation that can encourage excessive growth in production when prices are low.

Fixed "Make Allowances"

To calculate minimum milk prices in the FMMO system, USDA starts with survey data collected from dairy manufacturers. USDA's National Agricultural Statistics Service calculates average dairy product prices from these weekly data. Next, USDA's Agricultural Marketing Service subtracts a "make allowance"—an estimate of the manufacturer's cost of processing milk into dairy products—to arrive at the monthly minimum prices. USDA periodically revises make allowances, most recently in October 2008 to reflect higher energy costs for manufacturers, following a lengthy regulatory process involving all parties.

The make allowance mathematically reduces average product prices used to calculate minimum farm milk prices. Some producers feel that the make allowance unfairly reduces the minimum milk prices set under the FMMOs. Manufacturers say the make allowance is simply the cost of processing milk into dairy products, and calling it a cost to farmers misrepresents the economics of producing dairy products.

The controversy for some is that the make allowance for each dairy product is a fixed amount (at least until changed in the regulatory hearing process). It does not change when dairy product markets strengthen or weaken, leaving essentially a fixed margin for manufacturers, regardless of their relative efficiencies.[19] As a result of this inflexibility, changes in the market are reflected to a greater degree in farm prices or in the margins seen by firms that come downstream from the manufacturer (i.e., broker, wholesaler, or retailer). At times, this can be a detriment to farmers when prices are declining because manufacturers' margins may be held artificially wide, forcing down minimum prices below what they otherwise would be. Conversely, a fixed margin may benefit producers when manufacturers' actual margin (based on real-time costs such as energy) is greater than the make allowance. In this case, FMMO minimum prices would be above the level that would be calculated using actual costs.

[18] Andrew M. Novakovic, *Someone Wants It, Someone Else Makes It, Now What?—Moving Milk and Milk Products*, Cornell University, March 2005, http://www.cpdmp.cornell.edu/CPDMP/Pages/Workshops/Sacramento05/PDFs/Novakovic.pdf.

[19] *Milk Producers Council News Update*, October 9, 2009, p. 1, http://www.milkproducerscouncil.org/friday_updates.htm; and Jerry Kozak, "Foundation for the Future," National Milk Producers Federation, October 2009, http://www.nmpf.org/latest-news/ceo-corner/oct-2009/foundation-for-the-future.

Potential for Price Manipulation

The primary cash market for dairy products is located at the CME, where cheese, butter, and nonfat dry milk are traded. Actual quantities traded are quite small, but prices determined by buyers and sellers at this market are used to establish wholesale price contracts across the country, subject to premium and discounts for factors such as quality and transportation. Wholesale dairy product prices are then used to set monthly minimum prices under the federal orders.

Some dairy producer groups believe that the CME is an inadequate pricing mechanism because the market is too thinly traded, lacks transparency and sufficient oversight, and creates a highly volatile market that adversely affects producers. The U.S. Government Accountability Office concluded in a 2007 study that "certain market conditions at the CME spot cheese market, including a small number of trades and a small number of traders who make a majority of trades, continue to make this market particularly susceptible to manipulation."[20]

However, the report also noted that if price manipulation were to occur, some industry participants claim it would be short-lived because many large participants in the cheese and dairy industry with diverse interests monitor the market and are prepared to participate in it. Reportedly, they would begin trading once prices became disconnected from underlying supply and demand conditions, potentially counteracting any attempted price manipulation. Nevertheless, some industry participants want sales volume to increase on the CME, thereby reducing the possibility of price manipulation.

The Commodity Futures Trading Commission (CFTC) and the CME itself monitor activities of the spot market participants for signs of price manipulation. In December 2008, several dairy industry participants agreed to pay a civil monetary penalty for attempting to manipulate milk futures prices through purchases of cheese on the CME in 2004.[21]

Policy Considerations for Dairy Pricing

While dairy markets appear to be rebounding from low farm milk prices of summer 2009, the dairy industry and policymakers continue to consider how the dairy pricing system might be improved. The House and Senate have held hearings on dairy policy and pricing in 2009. The Administration is also collecting information through USDA's establishment of a Dairy Advisory Committee, which is to review issues of farm milk price volatility and suggest to the Secretary of Agriculture how USDA can best address these issues. The committee is to "develop changes to the dairy pricing system to avoid the boom and bust cycle facing dairy famers this year."[22]

[20] U.S. Government Accountability Office, *SPOT CHEESE MARKET—Market Oversight Has Increased, but Concerns Remain about Potential Manipulation*, GAO-07-707, Washington, DC, June 2007, p. 8, http://www.gao.gov/new.items/d07707.pdf.

[21] U.S. Commodity Futures Trading Commission, "Dairy Farmers of America (DFA) and Two Former Executives to Pay $12 Million Penalty to Settle CFTC Charges of Attempted Manipulation and Speculative Position Limit Violations," press release, December 8, 2008, http://www.cftc.gov/newsroom/enforcementpressreleases/2008/pr5584-08.html.

[22] U.S. Department of Agriculture, "Agriculture Secretary Vilsack Establishes Dairy Advisory Committee and Requests Nominations," press release, August 25, 2009, http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?contentidonly=true&contentid=2009/08/0399.xml. Note that a separate commission to review the federal milk marketing order system was authorized but not funded in the Food, Conservation, and Energy Act of 2008 (P.L. (continued...)

As Congress, the Administration, and the dairy industry consider how possibly to revise the dairy pricing system, two schools of thought appear to be emerging. One is to reduce price volatility through some means of supply control while raising farm prices. The other is to allow the market to fluctuate and help farmers manage the resulting price risk through hedging strategies used by farmers in other parts of the agriculture sector. A number of organizations are also examining potential changes to various aspects of the federal dairy programs.

Price Stabilization and Supply Control

Supply control is a way for government to influence the supply of farm products on the market with the intention of increasing or stabilizing farm prices. One dairy producer group, Holstein Association USA, has proposed a plan to stabilize farm milk prices with assessments on farmers who increase milk production over specified levels, as determined by USDA forecasts of demand for fluid milk and manufactured dairy products. Some of the program's objectives are to reduce the volatility of dairy product prices and producer milk prices while preventing severely depressed producer milk prices.[23] The National Farmers Union (NFU) is among the supporters.

Supply control is also affected by imports. Legislation has been introduced in both the House and the Senate in 2009 to apply import controls on specific dairy products. The Milk Import Tariff Equity Act (S. 1542 and H.R. 3674) would impose tariff-rate quotas on imports of casein (the main protein found in milk) and milk protein concentrates.[24]

Some believe a change in federal milk marketing orders also could be used to stabilize the milk market and boost dairy farm returns. One bill in the 111th Congress, the Federal Milk Marketing Improvement Act of 2009 (S. 1645, first introduced as S. 889), is designed to "help farmers get a fair price for their milk" and provide relief and assistance to dairy farmers by using the cost of milk production as the basis for pricing milk.[25] The bill contains provisions for USDA to administratively reduce prices received by farmers, in an effort to limit milk production, if the Secretary of Agriculture determines that an excess amount is being produced for the national domestic market.

Supporters of price stabilization and supply control say that incentives within the dairy industry to overproduce need to be offset by a program to control supplies in a more measured way. Critics contend that supply control could reduce the competitiveness of the U.S. dairy industry, limit its incentive to innovate, and raise consumer prices because, they argue, a pricing system based on supply control and/or cost of production potentially rewards inefficiency. Critics also argue that administratively matching supply and demand can be difficult because the process would require accurate forecasts of demand and supply factors that are notoriously fickle.

(...continued)

110-246, the 2008 farm bill).

[23] Holstein Association USA, Inc., *Dairy Price Stabilization Program*, September 2, 2009, http://holsteinusa.com/association/dpsp.html.

[24] For more information, see CRS Report R40839, *Proposed Import Restrictions on Milk Protein Concentrates (MPCs)*, by (name redacted) and (name redacted).

[25] Office of Senator Arlen Specter, "Specter, Casey Work to Help Dairy Farmers," press release, April 24, 2009, http://specter.senate.gov/public/index.cfm?FuseAction=NewsRoom.NewsReleases&ContentRecord_id=D92E3B27-A176-F0A0-E68C-40B249E3492E.

Market-Based Approach

Other industry groups, including the National Milk Producers Federation (NMPF), the largest trade association representing milk producer cooperatives, prefer a more market-based approach for addressing milk pricing issues, along with changes to existing dairy programs as part of an overall adjustment to federal dairy policy. The NMPF proposes a new dairy producer income insurance program that would make indemnity payments when operation losses occur (similar to a revenue insurance program) and reform of the federal milk marketing order system, specifically the provisions for calculating minimum farm milk prices and the existing price discovery mechanism. The organization also advocates discontinuing the dairy product price support program in order to speed up market adjustments.[26]

Promoters of a market-based approach, including dairy food manufacturers, say that price volatility will be a part of the dairy industry, as it is for other commodities. As such, they claim the best approach is to find ways for producers to manage price risks without limiting the industry's ability to capitalize on domestic and international demand opportunities. Detractors expect that incentives to overproduce will aggravate the financial woes of the dairy industry indefinitely, so controlling potential price variability with supply management is necessary for long-term financial health for producers. This concern for overproduction could and has been applied to commodities such as corn and wheat. But dairy generally is more susceptible to overproduction, some dairy producers say, because current policy encourages producers to maximize production and they tend to add cows even when prices are low to improve cash flow.

Outlook

Current policy is set for the dairy product price support program until 2012 under the 2008 farm bill, and federal milk marketing orders are permanently authorized. However, given the difficult economic situation dairy farmers experienced in 2009, Congress may continue to monitor the dairy pricing situation through hearings and oversight.

Efforts to address dairy pricing issues could be affected by the future direction of market prices. The current farm milk price cycle appears to have bottomed out in summer/early fall 2009, based on forecasts by USDA and others. If the forecasts hold, it may be difficult for policymakers and producers to support major policy changes while milk prices are climbing. In the view of some, any further intervention could disrupt an otherwise favorable price situation.[27] In any event, discussions and policy proposals on dairy pricing may continue to be a topic of discussion in the 111th Congress or in the next farm bill debate, which may begin as early as 2011.

[26] National Milk Producers Federation, "NMPF Board Member Tells Senate Ag Committee About Realities Of Dairy Economic Crisis, Outlines New Approach For Dairy Industry," press release, October 27, 2009, http://www.nmpf.org/latest-news/press-releases/oct-2009/nmpf-board-member-tells-senate-ag-committee-about-realities-of-d. Also see testimony at http://www.nmpf.org/files/file/Agriculture-Committee-Testimony-Doug-Nuttelman.pdf.

[27] IHS Global Insight, *U.S. Agricultural Executive Summary*, Eddystone, PA, October 2009, p. 7.

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