Testimony on Class III/Class IV Price Formulas

Presented at the

Federal Milk Marketing Order Hearing

Strongsville, OH
February 28,2007

By

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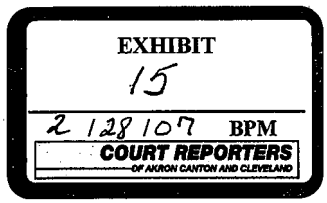

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My name is Kenneth Bailey and my address is 208c Armsby Building. The following analysis is given on my own personal knowledge and experience. I am an associate professor at The Pennsylvania State University. I specialize in dairy marketing and policy analysis and conduct research on dairy trade, policy analysis, and price analysis of dairy markets. Attached is an Abbreviated Curriculum Vitae which accurately summarizes my education and employment. My presence here today does not reflect the opinion or views of the Pennsylvania State University.

I used a Penn State monthly dairy industry model to evaluate proposed changes to federal milk marketing orders. The model starts with forecasts of commodity prices (block and barrel cheese and butter prices at the Chicago Mercantile Exchange (CME), and Western prices for nonfat *dry* milk and *dry* whey as reported by USDA, AMS) and forecasts NASS survey prices (2-week and 4-week prices) via estimated linkage equations. From there the model simulates component prices, federal order prices, and the all-milk price. The model also has equations that forecast the milk supply (cow numbers and yield) as well as federal order pools. While the model is dynamic on the supply side, at this point it does not have demand equations nor does it simultaneously simulate prices. Thus it is more appropriate for short term policy analysis and forecasting.

Model Analysis

The baseline used in this study was estimated for the period February 2007 to December 2008. The baseline assumed that make allowances per the Interim Final Rule published by USDA on December 26,2006 would be used starting in March 2007. The baseline uses a forecast for Western nonfat *dry* milk prices and then forecasts dry whey prices via a price linkage equation. Forecast prices for Grade AA butter and block cheese at the CME were forecasted based on CME futures contracts as of February 23,2006. Feed prices, particularly corn and soybean prices, were forecasted based on Chicago Board of Trade (CBOT) contract prices as of February 23,2007. This provides a timely forecast that employs all current information and assumes a proper relationship between milk and feed prices.

The method of analysis used in this study compares all changes to the baseline. Thus changes in federal orders are simulated over the period March 2007 through December 2008 and then compared to the baseline. The monthly difference, called the change from the baseline, would then be attributable to the change made in the federal orders.

Ten scenarios were analyzed in this report using scenarios A-J outlined in the USDA preliminary economic analysis (see Table 2 in the USDA report for a summary of the

scenarios). In this report all changes were computed relative to the baseline over the monthly period March 2007 through December 2008 and are presented in Tables 1-8.

Scenario A – make allowances were adjusted to reflect updated California manufacturing costs (see Table 4 of the USDA report). The make allowances used were as follows: cheese: $0.1711; nonfat dry milk: $0.1662; dry whey: $0.1956; and butter: $0.1216. With the exception of dry whey make allowances are expected to rise under this scenario. Analysis of scenario A indicates that protein and nonfat solids prices would fall by one cent per pound in both 2007 and 2008. That would result in a drop in federal order prices of one to eight cents per cwt relative to the baseline (Tables 3 and 4); Class II and IV prices change the most. Lower federal order prices reduced average uniform prices by four cents per cwt in both 2007 and 2008 (Tables 5 and 6) and reduced the value of all 10 federal order pools by $43 and $47 million dollars relative to the baseline in 2007 and 2008.

Scenario B – this proposal removed the barrel cheese price fiom the NASS cheese survey. USDA estimated this would reduce the NASS cheese price by an average $0.0087 per pound on average. This scenario was simulated by reducing the CME-NASS price linkage equation by $0.0087 per pound. The results indicate that protein prices would fall by two and three cents per pound in 2007 and 2008, respectively, relative to the baseline (Tables 1 and 2). This would reduce both the Class I mover and the Class III prices by five and seven cents per cwt in 2007 and nine and eight cents per cwt in 2008 relative to the baseline (Tables 3 and 4). Uniform federal order prices would drop roughly four and six cents per cwt, respectively, relative to the baseline in 2007 and 2008 (Tables 5 and 6). The value of all 10 federal orders would decline by $55 and $80 million in 2007 and 2008 relative to the baseline (Tables 7 and 8).

Scenario C – this scenario altered the protein price equation used in federal orders. The protein yield factor was changed fiom 1.383 to1.405, the butter yield factor in the protein price equation changed from 1.572 to 1.653, and the butterfat recovery factor was changed from 0.90 to 0.94. This scenario increased the protein price seven and eight cents per pound in 2007 and 2008, respectively, relative to the baseline (Tables 1 and 2). It increased the Class I mover and the Class III price by $0.16 and $0.20 per cwt in 2007 and $0.25 and $0.25 per cwt in 2008, respectively, relative to the baseline (Tables 3 and 4). This scenario increased the uniform blend price an average $0.13 and $0.18 per cwt in 2007 and 2008 relative to the baseline (Tables 5 and 6). These higher blend prices increased the pool values an additional $166 and $236 million in 2007 and 2008 relative to the baseline (Tables 7 and 8).

Scenario D – this scenario included all the changes in scenario C and added a few more changes: it increased the butterfat yield factor in the butterfat price equation from 1.20 to 1.22, and increased the nonfat solids yield factor from 0.99 to 1.02. The higher butterfat yield factor slightly reduced the protein price. That said, protein, butterfat and nonfat solids prices were two to six cents per pound higher in 2007 and 2008 relative to the baseline (Tables 1 and 2). As a result all class prices rose $0.20 to $0.36 per cwt in 2007 and 2008 relative to the baseline (Tables 3 and 4). Uniform prices were $0.25 and $0.28

per cwt higher in 2007 and 2008, respectively, relative to the baseline (Tables 5 and 6). Finally, all 10 pools rose in value by $301 and $359 million in 2007 and 2008, respectively, relative to the baseline (Tables 7 and 8).

Scenario E – this scenario raised the yield factor in the butterfat price formula from 1.2 to 1.211. This raised the butterfat price a penny a pound and lower the protein price a penny a pound in 2007 and 2008 relative to the baseline (Tables 1 and 2). This resulted in slightly higher class prices (Tables 3 and 4) of two to four cents per cwt in 2007 and zero to five cents per cwt in 2008. It also raised uniform prices by two cents per cwt in both 2007 and 2008 relative to the baseline, and increased pool values by $20 and $19 million relative to the baseline in 2007 and 2008.

Scenario F – Chicago Mercantile Exchange (CME) prices replaced NASS survey prices in this scenario for cheese, butter and nonfat dry milk; dry whey prices would remain unchanged. This analysis followed the USDA study and made the following changes in the price linkage equations: CME prices were higher on average by $0.0056 per pound for cheese, $0.0183 per pound for butter, and $0.0397 per pound for nonfat dry milk. We simply added these fixed differentials to the intercept term in our CME-NASS price linkage equations. The results indicate that the rise in butter prices offset the increase in cheese prices in the protein price equation. Thus butterfat prices rose two cents per pound in both 2007 and 2008, but protein prices were unchanged in 2007 and fell a penny a pound in 2008 relative to the baseline (Tables 1 and 2). Nonfat solids prices fell three and four cents per pound in 2007 and 2008 relative to the baseline. There were significant increases in all class prices, particularly Class II and IV prices (Tables 3 and 4). Uniform blend prices rose $0.19 and $0.16 per cwt in 2007 and 2008 relative to the baseline (Tables 5 and 6), and total pool values rose $217 and $206 million in 2007 and 2008 relative to the baseline (Tables 7 and 8).

Scenario G – this scenario replaced the manufacturing make allowances in the Interim order with the weighted average total costs presented in the Cornell study: $0.1108 for butter; $0.1410 for nonfat dry milk; $0.1638 for cheese; and $0.1498 for dry whey. These make allowances are lower than what is in the baseline. The results indicate that the lower make allowances would raise butter, other dairy solids, and nonfat solids component prices relative to the baseline by one to five cents per pound in 2007 and 2008 (Tables 1 and 2). Federal order prices rose $0.15 to $0.26 per cwt in 2007 and $0.17 to $0.32 per cwt in 2008 relative to the baseline. The average uniform price in 2007 and 2008 rose $0.22 and $0.27 per cwt, respectively, relative to the baseline (Tables 5 and 6). This added $269 and $348 million to federal order pools in 2007 and 2008, respectively (Tables 7 and 8).

Scenario I – this scenario eliminated the 3-cent barrel price adjustment in the NASS cheese price used in the protein price formula. USDA estimated this would lower the NASS cheese price by $0.0169 per pound. This change was added to the CME-NASS cheese price linkage equation in the model. Predictably this lowered the protein price five cents per pound (Tables 1 and 2) relative to the baseline, and lowered the Class I mover and the Class III prices relative to the baseline (Tables 3 and 4). Uniform blend

prices fell $0.08 and $0.12 per cwt relative to the baseline in 2007 and 2008 (Tables 5 and 6). Pool values fell $103 and $154 million relative to the baseline in 2007 and 2008 (Tables 7 and 8).

Scenario J – this scenario used the NMPF energy cost adjuster. The changes to the make allowances are contained in Table 13 of the USDA study. Only the changes for 2007 and 2008 were used. The results indicate that adoption of the energy adjuster would have had minimal impacts on component and class prices in 2007 and 2008. Overall uniform blend prices would have fallen four to five cents per cwt in 2007 and 2008 relative to the baseline, and federal order pool values would have declined just $54 and $66 million relative to the baseline in 2007 and 2008, respectively.

Scenario K – this scenario combined scenarios D (yield factor changes), F (CME prices), and G (make allowance changes) into one scenario K as outlined in Appendix B to the USDA study, "Effects of Combined Proposals from Dairy Producers of New Mexico: Class III and IV Price Formulas." This scenario raised component prices four to eight cents per pound in 2007 and five to nine cents per pound in 2008, all relative to the baseline. Class price changes were $0.52 - $0.83 per cwt in 2007 relative to the baseline with Class II and IV prices rising the most. Class price changes were $0.63 - $0.97 per cwt in 2008 with Class II and IV prices again rising the most relative to the baseline. Average uniform prices rose $0.66 per cwt in 2007 and $0.72 per cwt in 2008 relative to the baseline. Pool values rose $792 million in 2007 and $919 million in 2008.

Feed Cost Analysis

USDA provided an impact study of proposed changes in Class III and IV formulas as discussed earlier. That study, "Preliminary Economic Analysis Class III and IV Prices," used a USDA baseline and an econometric model of the U.S. dairy industry. The baseline, "USDA Agricultural Baseline Projections to 2015," was published by the World Agriculture Outlook Board on February 2006.

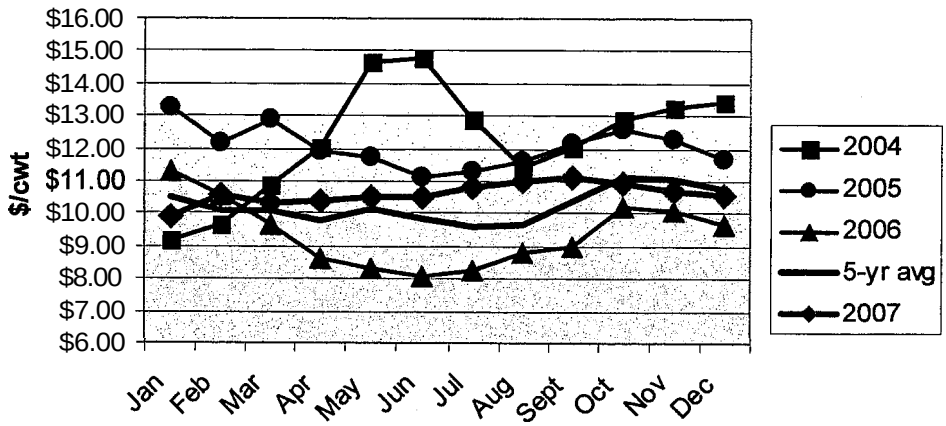
I will assert that USDA's baseline and study of Class III and IV formulas did not adequately account for the unprecedented rise in feed costs that is currently underway. One could argue that this should make little difference when analyzing policy changes over a five to ten year period of time. But it is an issue when one considers that USDA changes to pricing formulas could adversely affect hundreds of dairy farmers over a one or two year period of time. Thus accounting for the financial condition of dairy farms at the time of the policy change and assessing the impact of that policy change on dairy farms is extremely relevant when contemplating changes to pricing formulas.

The National Agricultural Statistics Service (NASS) reports monthly prices for corn and soybeans that are used in their calculation of the milk-feed price ratio. Corn and soybeans forms the basis for energy and protein in a dairy feed ration. It also determines prices for other concentrates since prices are linked through substitution. Since feed accounts for roughly half a dairy farms production costs, and concentrates are a

significant portion of those costs, corn and soybean prices are very important to dairy farmers.

An alternative to the USDA milk-feed price ratio is to construct a milk margin that compares the milk price to the cost of feed required to produce 100 pounds of milk. The Pennsylvania all-milk price was compared to the feed requirements of a cow producing an average 65 pounds of milk per day over the period January 2001 through January 2007. A static feed ration was developed by Penn State nutritionists that was composed of corn, soybean meal, haylage, and other concentrates. Penn State maintains a list of local feed costs. The difference between the milk price and the feed cost is the "milk margin." A forecast of this margin was done by using the milk futures at the CME and an estimated Pennsylvania basis in order to forecast the Pennsylvania all-milk price. The feed costs were forecasted by estimating corn and soybean prices in relation to these feed ingredient prices. The results of this historical comparison and the forecast are provided in Figure 1. The results indicate that 2006 was a bad year for cash flow since it was below the five year average (2002-2006). Milk and feed costs were forecasted for 2007 using the futures prices at the CME and CBOT. The outlook for 2007 is that dairy cash flow will improve given current milk and feed price projections from the futures markets, but will not be as good as margins in 2004 and 2005.

Figure 1. Pennsylvania Milk Margin: 65# Cows



Futures prices as of 2/26/07.

The average NASS price of corn and soybean between January 2000, when USDA began using make allowances in multiple component pricing formulas, and August 2006 was $2.10 and $5.61 per bushel, respectively. Corn prices then rose to $3.23 per bushel in January 2007, a 54 percent rise, and soybean prices rose to $6.42 per bushel, a 14 percent rise. The Chicago Board of Trade reported settlement prices for corn and soybean futures contracts as of February 23,2007 as follows: corn will rise to $4.52 per bushel by July and soybean prices will rise to $8.32 per bushel by November 2007. These prices and the forecasts used in this study illustrate the unprecedented rise in feed costs that dairy

farmers are now experiencing. I will argue that USDA's economic impact study of the Class III and IV formulas did not account for this record rise in feed prices and their resulting impact on the milk supply. This is a critical issue if USDA adopts a change in formulas that will reduce producer incomes. Any reduced income would come on top of poor cash flows fiom 2006 and higher make allowances recently adopted by USDA.

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ABBREVIATED
CURRICULUM VITAE

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