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No. 30

December 2002

Analysis of Two Related Milk Price Approaches to Address the Noncompetitive Pricing Problem in the Milk Industry: The 40-40 Consumer Approach and the Farmer and Consumer Fair Share Approach

by

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The authors reserve the right to revise this paper after receiving comments from interested parties, including firms in the industry.

I. Introduction

This paper explains how one can implement two alternative policies that provide a partial redress to noncompetitive milk pricing that is currently hurting consumers and farmers. First, we explain the 40-40 Consumer Approach. Then, we present the Farmer and Consumer Fair Share Approach. The first model provides no appreciable benefit to farmers. The Fair Share approach secures a price floor for fluid milk at \$17.00 per hundredweight for milk sold in supermarkets that is priced at the ceiling. Retailer and processor margins are limited if they would persist with noncompetitive pricing practices, however, wholesale and retail prices are not set by either of these laws. Moreover, if firm's price competitively, or even make an attempt to price nearer to the competitive level, their prices would be below the ceiling set by these two approaches during most of the milk price cycle.

II. The 40-40 Consumer Approach

The Wilbur, Willis, and Blumenthal (WEB) Bill proposes to limit the markups on at least one brand of milk, so that consumers receive lower prices than they currently pay. The basic rule is as follows. Processors must mark at least one brand of milk up no more than 40% over the raw fluid price. This low priced brand will usually, but not always, be private label milk. At the next stage of the market channel, the retailer cannot mark that milk's wholesale price up more than 40% when setting its retail price.

There will be a procedure to grant exemptions to this rule for high cost processing and distribution routes, and for farmer-operated processing and distribution operations.

We call this the 40-40 Consumer Approach. Here, we explain how this approach might be implemented and analyze its impact on farmers, processors, retailers, and consumers.

III. Step 1. Wholesale Pricing Rule: Processors can mark up the raw fluid milk price no more than 40% of what they pay for it when determining the wholesale price for their lowest priced brand.

We propose implementation of this rule in the following fashion. The lowest cost brand of milk, such as private label milk, that a processor bottles for a supermarket chain includes four different types: whole (3.25%), 2%, 1%, and skim milk. Processors know the announced federal minimum prices for all of these types of milk, as well as the level of premiums that they pay for milk quality or other reasons. Today, we will ignore service charges for balancing, i.e. tailored delivery by time of week; however, they can also be factored into this pricing program.

The processor will take a simple average of the four prices and use that average price to determine the dollar markup that it can add to the raw milk price for each type of milk. We suggest using the simple average because the cost of processing and transportation of the different types of milk are identical. Using the average produces the same dollar markup that can be applied to all types of milk. It allows us to determine the maximum wholesale price for each type of milk in the lowest product line or brand offered by the processor.

Below is an example using January 2003 announced Federal Class I prices, announced cooperative premiums, and assessments for processors located in Hartford, Connecticut:

Example 1: Wholesale Pricing Rule: January 2003

Announced Federal Class I Price with Announced Cooperative Premiums and Assessments: *

Whole	1.295
2%	1.179
1%	1.083
<u>Skim</u>	<u>0.998</u>
Average Raw Milk Price	1.139

One determines the wholesale dollar markup by multiplying the average price above times 40%:

$$0.4 (\$1.139) = \$0.456$$

Next, one adds the wholesale dollar markup to the raw fluid prices to determine wholesale prices:

Whole	1.751
2%	1.635
1%	1.539
<u>Skim</u>	<u>1.454</u>
Average Wholesale Price	1.595

* Assessments include the mandatory Milk PEP Processor Promotion Assessment and Market Administrator Administrative Assessment.

III. Step 2. Retail Pricing Rule: Retailers can mark up the wholesale price of the lowest priced brand no more than 40%.

Processors deliver milk to retail stores, so we suggest that the wholesale price includes the cost of transportation to the store, i.e. be FOB the retail store. Again, one applies the 40% markup rule to the average wholesale price because the in-store costs of selling the different types of milk are identical. For example, it takes the same amount of electricity to cool a gallon of skim and a gallon of whole milk.

Once one has computed the dollar markup, one adds it to each wholesale price to obtain the allowable retail price for each type of milk. Continuing our example, one has:

Example 1 continued: Retail Pricing Rule: January 2003

Wholesale Prices (from previous table):

Whole	1.751
2%	1.635
1%	1.539
<u>Skim</u>	<u>1.454</u>
Average Wholesale Price	1.595

One determines the retail dollar markup by multiplying the average price above times 40%:

$$0.4 (\$1.595) = \$0.638$$

Next, one adds the retail dollar markup to the wholesale prices to determine the retail price ceilings for each type of milk:

Whole	2.389
2%	2.273
1%	2.177
<u>Skim</u>	<u>2.092</u>
Average Retail Price	2.232

Under this approach, a retailer must offer at least one brand of milk at or below these prices.

Other brands can have higher prices, but competition in the store with the low priced brand will limit how much the retailer can charge (and pay at wholesale) for these brands.

III. Benefits to Consumers and Farmers:

With the proposed rule, the average price of the lowest priced milk cannot exceed \$2.23 at the retail level. This provides an immediate benefit to consumers who are now paying \$2.92, on average, for the lowest priced milk, as shown in the following table:

Lowest Priced Milk in Connecticut: November 2002 Retail Price Survey (Cotterill et al. 2002)

Lowest Priced Milk:

Whole	2.94
2%	2.88
1%	2.93
<u>Skim</u>	<u>2.92</u>
Average Lowest Retail Price	2.92

The difference between the maximum retail price of \$2.23 and the current price of \$2.92 is \$0.69, an immediate savings to consumers.

Under the 40-40 Consumer Approach, the farmer receives no direct benefits. An indirect benefit accrues from the increase in demand. Given the structure of the federal milk market

order, the benefit from increased demand in Connecticut, however, would be minimal. At best, farmers would receive an increase in the blend price of a few cents per hundredweight.

V. A Comprehensive Spreadsheet Analysis of the 40-40 Consumer Approach for Alternative Raw Milk Price Levels.

Table 1 introduces the details of how the 40-40 Consumer Approach operates. We have used actual milk prices for four recent months and January 2003, to illustrate how stakeholders are affected at different raw fluid price levels.

The first section of Table 1 provides the components that determine the announced raw fluid milk price for 3.5% butterfat milk that processors must pay. These prices are announced for each month and remain constant throughout the month. Note that we have ordered the months from the lowest class 1 price, \$14.93 in October 2002, to the highest \$18.94 in September 2001.

Section 2 in Table 1 uses the component skim and butterfat prices to compute the raw milk price for each type of milk. We also compute the average raw milk price that we use in Section 3 to compute the dollar wholesale markup. This dollar markup is then added to the raw milk prices to obtain the wholesale ceiling prices for each type of milk and the average wholesale price.

Section 4 of Table 1 computes the dollar retail markup using the 40% rule. This is added to the wholesale ceiling prices to obtain the retail ceiling prices. We compute the average retail ceiling prices so that we can compare these prices to actual retail prices that we collected in our recent price survey (Cotterill et al. 2002).

The current average price for the lowest price offered for the four types of milk in Connecticut is \$2.92 per gallon (Cotterill et al. p. 17). Consumer savings depends on how low

the raw fluid price is. In October 2002, when processors pay on average \$1.13 per gallon for raw milk, the average retail price ceiling under this approach would be \$2.22 per gallon and consumers would save 70 cents per gallon from current prices. In January 2003, raw fluid price increases a penny to \$1.14, and consumer savings drops a penny to 69 cents. If raw milk prices increase to \$1.18 (the June 2002 level), then the average retail price ceiling increases to \$2.32 and consumer savings, at current prices, drops to 60 cents. Clearly, as the raw fluid price goes up, the ceiling also goes up. If retailers keep their lowest priced brand prices at ceiling levels, consumer benefits drop. Competition would lead retailers to price below the ceiling and in line with costs. Recent pricing in the Connecticut market has, at \$2.92 per gallon, been anything but competitive. Moreover, we see no reason to expect that implementing this law will generate competition. The law simply limits the degree of noncompetitive pricing in the marketplace.

At the bottom of Table 1, we summarize the impact of the law on retailers. As raw fluid prices rise, the ceiling prices rise, but the percent gross margin that comes from charging the ceiling price remains constant at 29%. Is 29% an acceptable ceiling for gross margin on milk? We think it is for the following reasons. The average percent gross margins across all products for most supermarkets is in the mid 20s. Milk is one of the fastest moving items in a supermarket, so its gross margin should be lower than slower turnover items. This suggests a gross margin below the all product average. In-store costs directly attributable to the sale of milk are primarily the labor needed to stock the milk case and the electricity needed to keep the milk cooled. Rapid turnover reduces the electricity charges per gallon. For these reasons, supermarkets can cover costs and earn profits with milk at 29% gross margin.

The last line in Table 1 gives the dollar gross margin under the alternative raw milk price scenarios assuming that the processor and retailer price their lowest priced product at the ceiling

prices. The retailer's margin is between 63 and 71 cents a gallon. This amount of gross margin is more than sufficient to cover in-store costs and provide a profit.

VI. The Farmer and Consumer Fair Share Approach:

This approach limits the noncompetitive pricing of milk and returns some benefits to farmers. Consequently, consumer benefits are somewhat less than in the 40-40 Consumer Approach. We have designed this example of the policy so that it is essentially neutral to the retailers and processors under the January 2003 prices, i.e. they do no worse than under the 40-40 Consumer Approach. This need not be the case.

The example that we provide here is, in our opinion, quite close to how this policy should be implemented. We keep a 40% markup at wholesale. At the retail level, we use a 20% markup over the wholesale price to determine the retail trigger price. If the raw fluid price is below \$17.00 per hundredweight, the retailers must share a portion of any increase in retail price over the trigger price with the farmer until the retail price hits a price ceiling that is 50% above the wholesale price. If the raw fluid price is above \$17.00 per hundredweight, retailers pay nothing to farmers, but they still have the retail price ceiling, a protection for consumers.

Table 2 presents a spreadsheet analysis of the Farmer and Consumer Fair Share Approach, with these parameters. Sections 1, 2, and 3, are identical to those in Table 1. Section 4 uses the average wholesale price to compute the dollar trigger markup with the 20% trigger markup rate.

Section 5 uses the 50% ceiling price markup to compute the retail ceiling prices. Section 6 gives critical performance information. Note that as the raw fluid price increases, consumer

savings also decreases, but even when farmers receive no benefit from the program, consumers do save as much as 36 cents per gallon.

The fair share ratio kicks in when the raw farmer fluid price per hundredweight drops below \$17.00. This guarantees that the farmer receives a payment from retailers that brings money received back to \$17.00 per hundredweight for milk sold in supermarkets that is priced at the ceiling. Again, if retailers decide to compete and price below the ceiling that limits noncompetitive pricing, farmer benefits are lower and consumer benefits are higher. In January 2003, for example, the Fair Share Approach rebates \$1.89 per hundredweight to farmers if supermarkets price at the retail ceiling price. Given past price conduct in this market, this is the profit maximizing move for retailers.

The last component of Section 6 in Table 2 contains supermarket performance indicators. The supermarket average price, net of farm payment, is the retail price minus the payment to farmers, assuming that the supermarket has set the retail price at the price ceiling level. It ranges from \$2.18 to \$2.68 per gallon. The retailers percent gross margin varies under this approach, but primarily to the up side in comparison to the 40-40 Consumer Approach. Percent gross margin ranges from 27% to 33%. Dollar gross margin ranges from 60 cents to 89 cents per gallon. Again, retailers can cover costs and earn profits at these gross margin levels.

Finally, we need to close with a note of caution. Dairy farmers in Connecticut or elsewhere that supply fluid milk to Connecticut retailers will not receive \$17.00 per hundredweight for their milk if this approach becomes law. Supermarket retailers sell only about 40% of all fluid milk. Also, retailers would rebate these payments to a commission who pools them and pays out proceeds to all farmers who supplied milk to the processors that supplied the retailers. Until a similar program is passed in other New England states, the benefit to individual

farmers that supply Dean/Garelick, Hood, or Guida will be low. Connecticut retailer's share of the milk that flows through those companies plants, except possibly for Guida, is quite low. If all New England states pass fair share laws, then the 40% of fluid milk that is sold through supermarkets is covered. Can the fair share approach be extended to the remaining 60%? We think it can, but that is another paper.

Another parting comment. Fair share pricing applies to all brands, even though we use only the lowest priced brands, for example, private label milk to determine the payment rate per gallon. If the raw fluid price is below \$17.00 per hundredweight, private label milk makes a fair share payment to farmers. Other higher price brands in the retail store, for example, Hood, Garelick, and Guida milk, will also pay the same amount per gallon into the fair share pool. This allows branded milk to sell at higher prices, but they still contribute to producer equity.

Table 1. The 40-40 Consumer Approach:

The Basic Rule: For lowest priced brand of milk at retail, wholesale markup is capped at 40% over the raw milk price, and retail markup is capped at 40% over wholesale price.

	Oct 02	Jan 03	Jun 02	May 01	Sept 01
1. Components of Class 1 Price					
Class 1 Skim Price	10.06	9.82	10.38	11.03	11.14
Class 1 Butterfat Price	1.03	1.21	1.19	1.92	2.27
Coop Premium	1.40	1.40	1.40	0.00	0.00
Assessments	0.23	0.23	0.23	0.23	0.23
Class 1 3.5% Price	14.93	15.34	15.81	17.59	18.94
2. Per Gallon Prices					
Whole (3.25%)	1.26	1.30	1.34	1.47	1.58
2%	1.17	1.18	1.22	1.28	1.35
1%	1.09	1.08	1.13	1.13	1.17
Skim	1.02	1.00	1.05	0.99	1.00
Average Raw Milk Price	1.13	1.14	1.18	1.22	1.28
3. Wholesale Markup	40%	40%	40%	40%	40%
Dollar Wholesale Markup	0.45	0.46	0.47	0.49	0.51
Wholesale Ceiling Prices Per Gallon					
Whole (3.25%)	1.72	1.75	1.81	1.96	2.09
2%	1.62	1.63	1.70	1.77	1.86
1%	1.54	1.54	1.60	1.61	1.68
Skim	1.47	1.45	1.52	1.47	1.51
Average Wholesale Price	1.59	1.59	1.66	1.70	1.79
4. Retail Price Markup	40%	40%	40%	40%	40%
Dollar Retail Markup	0.63	0.64	0.66	0.68	0.71
Retail Ceiling Prices Per Gallon					
Whole (3.25%)	2.35	2.39	2.47	2.64	2.81
2%	2.26	2.27	2.36	2.45	2.58
1%	2.18	2.18	2.26	2.30	2.39
Skim	2.11	2.09	2.18	2.16	2.22
Average Retail Ceiling Price	2.22	2.23	2.32	2.39	2.50
5. Current Retail Price	2.92	2.92	2.92	2.92	2.92
Consumer Savings	0.70	0.69	0.60	0.53	0.42
Farmer Benefit	0	0	0	0	0
Supermarket Impact					
Average Ceiling Price	2.22	2.23	2.32	2.39	2.50
Percent Gross Margin	29%	29%	29%	29%	29%
Dollar Gross Margin	0.63	0.64	0.66	0.68	0.71

Table 2. The Farmer and Consumer Fair Share Approach:

Basic Rule: 40% markup to wholesale, 20% markup to retail trigger price, 50% markup to retail ceiling price, and a progressive share ratio to establish a raw fluid price floor at \$17.00 per hundredweight.

	Oct 02	Jan 03	Jun 02	May 01	Sept 01
1. Components of Class 1 Price					
Class 1 Skim Price	10.06	9.82	10.38	11.03	11.14
Class 1 Butterfat Price	1.03	1.21	1.19	1.92	2.27
Coop Premium	1.40	1.40	1.40	0.00	0.00
Assessments	0.23	0.23	0.23	0.23	0.23
Class 1 3.5% Price	14.93	15.34	15.81	17.59	18.94
2. Per Gallon Prices					
Whole (3.25%)	1.26	1.30	1.34	1.47	1.58
2%	1.17	1.18	1.22	1.28	1.35
1%	1.09	1.08	1.13	1.13	1.17
Skim	1.02	1.00	1.05	0.99	1.00
Average Raw Milk Price	1.13	1.14	1.18	1.22	1.28
3. Wholesale Markup	40%	40%	40%	40%	40%
Dollar Wholesale Markup	0.45	0.46	0.47	0.49	0.51
Wholesale Prices Per Gallon					
Whole (3.25%)	1.72	1.75	1.81	1.96	2.09
2%	1.62	1.63	1.70	1.77	1.86
1%	1.54	1.54	1.60	1.61	1.68
Skim	1.47	1.45	1.52	1.47	1.51
Average Wholesale Price	1.59	1.59	1.66	1.70	1.79
4. Retail Trigger Price Markup	20%	20%	20%	20%	20%
Dollar Trigger Markup	0.32	0.32	0.33	0.34	0.36
Trigger Prices Per Gallon					
Whole (3.25%)	2.03	2.07	2.14	2.30	2.45
2%	1.94	1.95	2.03	2.11	2.22
1%	1.86	1.86	1.93	1.95	2.03
Skim	1.79	1.77	1.85	1.82	1.87
Average Trigger Price	1.90	1.91	1.99	2.05	2.14
5. Retail Ceiling Price Markup	50%	50%	50%	50%	50%
Dollar Ceiling Markup	0.79	0.80	0.83	0.85	0.89
Retail Ceiling Prices Per Gallon					
Whole (3.25%)	2.51	2.55	2.64	2.81	2.99
2%	2.41	2.43	2.52	2.62	2.76
1%	2.33	2.34	2.43	2.47	2.57
Skim	2.26	2.25	2.35	2.33	2.40
Average Ceiling Price	2.38	2.39	2.48	2.56	2.68

6. Current Price	2.92	2.92	2.92	2.92	2.92
Consumer Savings	0.54	0.53	0.44	0.36	0.24
Farmer					
Share Ratio	42%	34%	25%	0%	0%
Program Payment Per Gallon	0.20	0.16	0.12	0.00	0.00
Raw Fluid Price @ 3.5%*	1.26	1.30	1.34	1.49	1.61
Total Fluid Price Per Gallon	1.46	1.46	1.46	1.49	1.61
Raw Fluid Price Per Hundredweight @ 3.5%	14.70	15.11	15.58	17.36	18.71
Program Payment Per Hundredweight	2.30	1.89	1.42	0.00	0.00
Total Raw Fluid Price Per Hundredweight	17.00	17.00	17.00	17.36	18.71
Supermarket					
Average Price Net of Farm Payment	2.18	2.23	2.36	2.56	2.68
Percent Gross Margin	27%	28%	30%	33%	33%
Dollar Gross Margin	0.60	0.63	0.71	0.85	0.89

* Raw Fluid Price @3.5% does not include the 0.23 Processor and Administrative Assessment.