Regulatory Economic Impact Analysis of the Final Decision to Amend Federal Milk Marketing Order Pricing Formulas

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I. PURPOSE OF THIS ANALYSIS

The Agricultural Marketing Service (AMS) held a rulemaking hearing from August 23 - October 11, 2023, November 27 - December 8, 2023, January 16 - 19, 2024, and January 29 - 30, 2024, to consider and take evidence on 21 proposals seeking to amend the Federal Milk Marketing Order (FMMO) regulatory uniform price formula provisions in 7 CFR part 1000. Based on the evidentiary record, AMS published a recommended decision on July 15, 2024, which opened a 60-day public comment period (89 FR 57580).

Based on review of 128 public comments received during the open comment period, and re-evaluation of the evidentiary record, AMS adjusted certain provisions contained in the recommended decision. The changes contained in the final decision, issued November 12, 2024, include: 1) a decrease of the implementation lag from 12-months to 6-months for milk composition factors; 2) inclusion of the marketing cost allowance in all make allowances; 3) adjustment to the nonfat dry milk (NFDM) make allowance; and 4) adjustments to certain Class I differentials. This regulatory impact analysis examines the changes in prices over the 2019 – 2023 time period if these proposed changes were in effect in each of the 11 FMMOs.

The dynamic AMS regional econometric model was not used due to the complexity of the changes being incorporated. In order to use the dynamic model, all of the price formula changes must be incorporated, including the Class I differential changes. Previous to this rulemaking, the dynamic model had 11 Class I pricing points to conduct impact analyses for proceedings which did not address Class I differential changes. However, since this final decision proposes changes to the Class I differentials, the model required revisions to incorporate the current and proposed differentials in each of the 3,108 counties in the contiguous 48 States. These additional changes significantly enhanced the complexity of an already complex econometric model. Since the model attempts to reflect future behavior regarding changes in milk pooled by order and resulting impacts, each change must be run independently, and the imposed statutory time constraints contained in 7 CFR 900.28 made it impossible to complete.

II. METHODOLOGY

AMS used a static analysis to determine the price impacts of the package of proposed amendments included in the final decision if they were in place from 2019 - 2023. AMS built an Excel workbook to reflect the FMMO pools by order, using price formulas and marketwide pool data. The workbook was designed to mimic observed pools from January 2019 to December 2023, including all existing component, class, and uniform prices. The parts of the pricing formulas with recommended changes, as outlined below, were updated, and the resulting prices and values were recorded for comparison. All other data were held constant. Averages reported across months are weighted averages.

The pounds reported reflect the pooled volume for all FMMOs. The location value of pooled milk is accounted for and reflects marketings as occurred, as the location of the plant where milk is delivered impacts value. Only minimum component values plus the producer price differential (PPD) values, or skim and fat values where applicable, are reflected in the pool values (no premiums or deductions are considered).

This static analysis operates using several key assumptions:

- Beyond the proposed pricing formula changes, all other variables remain unchanged.
- Actual component levels were assumed for protein, other solids, and nonfat solids from 2019 - 2023.
- Values for items including overage, inventory reclassification, other source receipts, producer settlement fund reserves, and unobligated balances in producer settlement funds were left unchanged.
- Volumes of pooled Class I skim milk were assumed to consist of 10 percent extended shelf life (ESL) and 90 percent high temperature short time (HTST) fluid milk products.
- The static analysis shows what the marketwide pool values would have been if each pool was valued using the proposed formulas and location differentials per the final decision. The supply response to changes in producer prices is not captured, nor is the supply response to changes in handler classified prices. Similarly, demand responses to these price changes are also not captured.
- The relative volumes of milk pooled in the different classes are also held constant in each monthly pool.

III. EXAMINATION OF THE FINAL DECISION

The final decision proposes amendments to: A) milk composition factors, B) surveyed commodity products, C) Class III and Class IV formula factors, D) base Class I skim milk price, and E) Class I differentials. This section describes the recommended change for each subject area.

A. Milk Composition Factors

The Class III and Class IV skim milk price formulas are based on fixed component factors per 100 pounds (cwt) of skim milk. The current FMMO component factors, which were adopted in 2000, are 3.1 percent protein, 5.9 percent other solids, and 9.0 percent nonfat solids.

The final decision proposes updating these factors to 3.3 percent protein, 6.0 percent other solids, and 9.3 percent nonfat solids.

Component	Current	Recommended Decision	Final Decision
Protein	3.1%	3.3%	3.3%
Other Solids	5.9%	6.0%	6.0%
Nonfat Solids	9.0%	9.3%	9.3%

B. Surveyed Commodity Products

AMS administers the mandatory, audited Dairy Product Mandatory Reporting Program (DPMRP) to gather wholesale prices of four manufactured dairy products (cheese, butter, NFDM, and dry whey) for use in FMMO formulas. Currently, the cheddar cheese price used in

the FMMO formulas is a sales-weighted average of the 40-pound cheddar cheese block price and the 500-pound cheddar cheese barrel price (adjusted for moisture).

The final decision proposes to remove 500-pound barrel cheddar cheese from the DPMRP survey and to rely solely on the 40-pound block cheddar cheese price to determine the monthly average cheese price used in the formulas.

C. Class III and IV Formula Factors

End-product pricing under current FMMO regulations utilizes four wholesale product prices (butter, NFDM, cheese, and dry whey) to determine the value of raw milk based on market conditions and established formulas.

Proposed changes to the Class III and IV formula factors include two elements: 1) manufacturing (make) allowances, and 2) butterfat recovery percentage.

Make allowances represent the costs of converting raw milk into the four manufactured dairy products surveyed by USDA. Set in 2008 and determined using two surveys, the current make allowance levels are as follows (per pound) - cheese: $0.2003; butter: $0.1715; NFDM: $0.1678; and dry whey: $0.1991. The final decision proposes to update the manufacturing allowances to the following (per pound) - cheese: $0.2519; butter: $0.2272; NFDM: $0.2393; and dry whey: $0.2668.

The butterfat recovery factor represents the amount of butterfat in raw milk that can be recovered during the cheesemaking process. Set in 2000, the current butterfat recovery assumption is 90 percent. The final decision proposes to update the butterfat recovery factor to 91 percent. Such an increase also necessitates a proposed change to the butterfat yield factor in cheese from 1.572 to 1.589.

D. Base Class I Skim Milk Price

From 2000 to 2019, the base Class I skim milk price was determined by the higher of the advanced Class III or Class IV skim milk price (referred to as the “higher-of” formula). Currently (since May 2019), the base Class I skim milk price is determined by the average of the advanced Class III and Class IV skim milk prices plus $0.74 per cwt (referred to as the “average-of” formula).

The final decision proposes the base Class I skim milk price to be the higher of the advanced Class III or Class IV skim milk prices for the month. Further, the final decision proposes to adopt a Class I ESL adjustment equating to a Class I price for all ESL products equal to the difference between the higher-of mover and the average-of the advanced Class III and Class IV skim milk pricing factors, plus a 24-month rolling adjuster with a 12-month lag. The rolling monthly adjuster would be calculated as the average of the differences between the “higher-of” and the “average-of” calculations for the prior 13 to 36 months.

E. Class I Differentials

FMMO Class I prices are calculated as the average of the advanced Class III and Class IV skim milk prices, plus $0.74, plus a location-specific differential. The resulting calculation is referred to collectively as the Class I differential. The current Class I differentials were established during Federal Order Reform in 2000, with an adjustment to Class I differentials for the Appalachian, Florida, and Southeast FMMOs, in 2008.

The final decision proposes to retain the current $1.60 base differential and adopt new location-specific Class I differential values to reflect current marketing conditions. Maps of the current and proposed Class I differentials may be viewed at https://www.ams.usda.gov/rules-regulations/moa/dairy/hearings/national-fmmo-pricing-hearing.

IV. ESTIMATED IMPACTS

This section provides the changes in prices over 2019 - 2023 if the package of proposed amendments to the FMMO pricing provisions in the final decision were in place at that time.

Table 1 represents the total pounds of producer milk utilized in each of the four classes, by FMMO, for January 2019 through December 2023.

Table 1: Pounds by Class & FMMO (January 2019 - December 2023)

FMMO	Class I	Class II	Class III	Class IV	Total
Northeast	40,449,431,633	32,954,395,898	36,957,286,787	24,397,207,963	134,758,322,281
Appalachian	19,032,549,075	3,720,004,285	1,597,380,167	2,436,373,448	26,786,306,975
Florida	10,282,426,597	1,733,714,084	172,326,374	262,738,473	12,451,205,528
Southeast	15,228,920,006	3,769,344,325	1,065,814,037	1,561,981,689	21,626,060,057
Upper Midwest	11,977,713,106	5,433,940,330	112,597,325,082	5,414,363,737	135,423,342,255
Central	22,383,193,807	6,981,456,030	29,086,070,744	14,806,980,193	73,257,700,774
Mideast	32,401,034,942	14,296,799,058	32,017,437,275	11,371,869,470	90,087,140,745
California	24,712,732,141	6,880,796,704	43,166,751,466	45,175,515,644	119,935,795,955
Pacific Northwest	8,238,794,323	2,274,784,284	14,971,162,014	13,313,528,310	38,798,268,931
Southwest	19,894,098,890	5,783,792,250	24,106,680,284	14,447,055,278	64,231,626,702
Arizona	6,559,210,546	2,714,613,042	5,959,427,748	8,624,189,740	23,857,441,076
Total	**211,160,105,066**	**86,543,640,290**	**301,697,661,978**	**141,811,803,945**	**741,213,211,279**

Table 2 utilizes the volumes reported in Table 1 and reported pool values to calculate the original total pool value by FMMO, and the pool values calculated using the proposed amendments for 2019 through 2023. Four FMMOs show decreases in pool value ranging from $17.6 to $325.4 million over the 5-year time period analyzed: Upper Midwest, California, Pacific Northwest, and Arizona. The remaining 8 FMMOs show increases ranging from $44 million in the Southwest to $508.7 million in the Appalachian FMMO.

Table 2: Total Pool Value by FMMO (January 2019 - December 2023)

FMMO	Original	Final Decision	Difference (Final Decision – Original)
Northeast	$ 28,657,675,442.01	$ 29,142,160,485.99	$ 484,485,043.98
Appalachian	$ 5,905,792,661.76	$ 6,414,485,400.85	$ 508,692,739.09
Florida	$ 2,942,146,808.61	$ 3,119,834,123.63	$ 177,687,315.03
Southeast	$ 4,787,891,879.71	$ 5,177,154,348.63	$ 389,262,468.92
Upper Midwest	$ 27,327,461,686.02	$ 27,150,166,301.92	$ (177,295,384.11)
Central	$ 14,830,156,545.36	$ 15,213,587,172.16	$ 383,430,626.80
Mideast	$ 18,204,486,539.42	$ 18,660,188,365.34	$ 455,701,825.93
California	$ 23,699,222,583.98	$ 23,373,828,525.69	$ (325,394,058.29)
Pacific Northwest	$ 8,035,162,990.16	$ 8,017,521,755.00	$ (17,641,235.16)
Southwest	$ 13,607,734,162.15	$ 13,652,601,027.47	$ 44,866,865.32
Arizona	$ 4,667,292,228.11	$ 4,640,176,224.16	$ (27,116,003.95)
Total	**$ 152,665,023,527.30**	**$ 154,561,703,730.85**	**$ 1,896,680,203.55**

Table 3 shows the calculated Class I revenue by FMMO from 2019 through 2023 under the proposed amendments. Consistent with the calculation of total pool value in Table 2, Table 3 shows the reported Class I revenue (Original), the estimated revenue with proposed amendments in the final decision (Final Decision), and the calculated differences between the final decision and original (Final Decision – Original). All 11 FMMOs show increases, ranging from $54.4 million in Arizona to $852.6 million in the Northeast. The total Class I revenue with the proposed amendments is calculated to be $42.6 billion across all FMMOs, an increase of $3.9 billion from the actual reported revenue for the 2019 - 2023 period.

Table 3: Class I Revenue by FMMO (January 2019 - December 2023)

FMMO	Original	Final Decision	Difference (Final Decision – Original)
Northeast	$ 7,604,797,016.06	$ 8,457,400,848.82	$ 852,603,832.76
Appalachian	$ 3,632,420,123.08	$ 4,091,425,120.92	$ 459,004,997.84
Florida	$ 2,208,113,279.38	$ 2,407,005,301.60	$ 198,892,022.22
Southeast	$ 2,911,152,096.88	$ 3,231,421,094.77	$ 320,268,997.89
Upper Midwest	$ 1,973,533,519.30	$ 2,193,147,919.23	$ 219,614,399.93
Central	$ 3,934,324,973.24	$ 4,331,918,088.39	$ 397,593,115.15
Mideast	$ 5,661,333,422.04	$ 6,386,062,336.99	$ 724,728,914.95
California	$ 4,419,800,032.32	$ 4,708,317,036.09	$ 288,517,003.77
Pacific Northwest	$ 1,446,207,301.21	$ 1,552,731,739.23	$ 106,524,438.02
Southwest	$ 3,778,531,723.88	$ 4,043,782,252.65	$ 265,250,528.77
Arizona	$ 1,185,629,443.32	$ 1,240,041,861.77	$ 54,412,418.45
Total	**$ 38,755,842,930.71**	**$ 42,643,253,600.46**	**$ 3,887,410,669.75**

Table 4 shows the original calculated weighted SUP at 3.5 percent butterfat (Original), the weighted SUP calculated under proposed amendments in the final decision (Final Decision), and the calculated differences between the final decision and original (Final Decision – Original). All FMMOs, except Arizona, experience an increase in the weighted SUP, ranging from $0.29 per cwt in California to $1.93 per cwt in the Appalachian FMMO. Arizona decreases slightly by $0.09 per cwt. The overall difference across all FMMOs is estimated to be an $0.75 per cwt increase for the 5-year period analyzed.

Table 4: Weighted SUP @ 3.5 Butterfat by FMMO $/cwt (January 2019 - December 2023)

FMMO	Original	Final Decision	Difference (Final Decision – Original)
Northeast	$ 19.62	$ 20.56	$ 0.94
Appalachian	$ 21.14	$ 23.07	$ 1.93
Florida	$ 23.13	$ 24.57	$ 1.44
Southeast	$ 21.21	$ 23.04	$ 1.83
Upper Midwest	$ 18.04	$ 18.45	$ 0.41
Central	$ 18.15	$ 19.23	$ 1.08
Mideast	$ 18.38	$ 19.46	$ 1.08
California	$ 17.85	$ 18.14	$ 0.29
Pacific Northwest	$ 18.10	$ 18.64	$ 0.54
Southwest	$ 18.72	$ 19.35	$ 0.63
Arizona	$ 18.84	$ 18.75	$ (0.09)
Orders Combined	**$ 18.73**	**$ 19.48**	**$ 0.75**

Table 5 shows the weighted SUP at actual component tests as reported (Original), the weighted SUP calculated under the proposed amendments in the final decision (Final Decision), and the calculated differences between the final decision and original (Final Decision – Original). With this calculation, four FMMOs experience decreases in the weighted SUP: Upper Midwest (-$0.13 per cwt), California (-$0.27 per cwt), Pacific Northwest (-$0.05 per cwt), and Arizona (-$0.11 per cwt). All other FMMOs show an increase, ranging from $0.07 per cwt in the Southwest to $1.90 per cwt in the Appalachian FMMO. The overall difference across all FMMOs continues to be positive, with an estimated $0.26 per cwt increase for the 5-year period analyzed.

Table 5: Weighted SUP @ Test by FMMO $/cwt (January 2019 - December 2023)

FMMO	Original	Final Decision	Difference (Final Decision – Original)
Northeast	$ 21.27	$ 21.62	$ 0.35
Appalachian	$ 22.05	$ 23.95	$ 1.90
Florida	$ 23.63	$ 25.06	$ 1.43
Southeast	$ 22.14	$ 23.94	$ 1.80
Upper Midwest	$ 20.01	$ 19.88	$ (0.13)
Central	$ 20.10	$ 20.62	$ 0.52
Mideast	$ 20.05	$ 20.55	$ 0.50

California	$ 19.76	$ 19.49	$ (0.27)
Pacific Northwest	$ 20.71	$ 20.66	$ (0.05)
Southwest	$ 21.05	$ 21.12	$ 0.07
Arizona	$ 19.56	$ 19.45	$ (0.11)
Orders Combined	**$ 20.52**	**$ 20.78**	**$ 0.26**

As shown in Table 6 below, the simple monthly average calculation by component shows marginal decreases ranging from $0.0708 per pound for nonfat solids to $0.0674 per pound for butterfat. Protein is the only component to increase at an estimated $0.0672 per pound for the 5-year period analyzed.

Table 6: Component Values, Simple Monthly Averages $/lb (January 2019 - December 2023)

Component	Original	Final Decision	Difference (Final Decision – Original)
Butterfat	$ 2.4662	$ 2.3987	$ (0.0674)
Protein	$ 2.7055	$ 2.7727	$ 0.0672
Other Solids	$ 0.2654	$ 0.1957	$ (0.0697)
Nonfat Solids	$ 1.0661	$ 0.9953	$ (0.0708)

Table 7 shows the calculated total pool value by cwt utilizing the total pool pounds for all FMMOs provided in Table 1 and the total pool value with the proposed amendments in Table 2. The total pool pounds remain constant. The value, however, increases $1.9 billion over the 5-year period analyzed. This equates to a value of $20.85 per cwt across all FMMOs with the proposed amendments, an increase of $0.25 per cwt from the actual value per cwt reported during the time period.

Table 7: Pool Value $/cwt (January 2019 - December 2023)

	Original	Final Decision	Difference (Final Decision – Original)
Total Pool Value ($)	$ 152,665,023,527.30	$ 154,561,703,730.85	$ 1,896,680,203.55
Total Pool Pounds (lb)	741,213,211,279	741,213,211,279	0
Pool Value ($/cwt)	**$ 20.60**	**$ 20.85**	**$ 0.25**

V. CONCLUSION

Based on this static analysis of the proposed amendments to the FMMO pricing formulas in the final decision, AMS concludes the overall economic impact across all FMMOs would have been beneficial over the 5-year period analyzed. Assuming future data is similar to historic data, the analysis shows the proposed amendments, which incorporate more current milk marketing costs faced by producers and processors, are likely to contribute to increases (on average) in producer revenue and pool values, and, thus, contribute to orderly marketing conditions.