

Analyses to Examine Effectiveness of Programs to Mitigate Price Volatility Under Similar Expenditures

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Background

In a recently released report on the impacts of three programs to mitigate price volatility (Nicholson and Stephenson, 2010), the programs were analyzed as proposed by their sponsoring organizations. An alternative approach to assessing these programs—and alternatives using current programs—is to examine program impacts on variation in the All-Milk price when each program is limited to a similar amount of government expenditures, consistent with the expected available funds over the course of the next Farm Bill.

Methods

The modeling approach used to develop these analyses is described in detail in Nicholson and Stephenson (2010). We used this model and optimization procedures to identify program implementation rules that fixed simulated government expenditures from 2012 through 2018 to a total of \$700 million (\$100 million per year). We then examined the impacts of programs on the All-Milk price, variation in milk price, the pattern of government expenditures, and annual milk income less feed costs for a medium-sized (183-cow) farm.

Programs Analyzed and Additional Assumptions:

The analyses include assessments of programs currently proposed to address price volatility, but also alternatives that make use of current programs such as DPPSP and MILC. In each case, the programs are analyzed for their ability to reduce variation in milk prices given significant shocks to feed costs (in 2015), and to export demand (increase in 2016, decrease in 2017). The scenarios analyzed are:

DPPSP Opt End Shock assumes elimination of MILC in 2012. Values determined by the optimization procedure are purchase prices for products (cheese, butter, NDM) that result in \$700 million in government expenditures during 2012-18.

MILC Shock assumes elimination of the DPPSP in 2012 but continuation of MILC. The value determined by the optimization procedure is the proportion of milk for which payment is made under MILC (e.g., currently 45%) that results in a results in \$700 million in government expenditures during 2012-18.

CS Shock and **MMP Shock** assume implementation of the Costa-Sanders legislation or the Marginal Milk Pricing program in 2012, respectively, but with continued operation of MILC (but not DPPSP). In the absence of MILC or DPPSP, there would be no government expenditures under these programs. Value determined by the optimization procedure is the proportion of milk for which payment is made under MILC (e.g., currently 45%) that results in a results in \$700 million in government expenditures during 2012-18.

CS Shock No Other Pgms and **MMP Shock No Other Pgms assume** that both MILC and DPPSP are eliminated in 2012, when these programs are implemented. As mentioned above, this results in no government expenditures. However, these scenarios allow examination of the impacts of government spending of \$700 million on price variability.

FFTF Shock assumes elimination of MILC and DPPSP in 2012, when the market stabilization and margin protection components of the FFTF are implemented.. The optimization procedure identifies the premium payment per cwt on the supplemental margin program.

Results

The results of these analyses are presented as annotated figures. Additional information may be made available upon request.

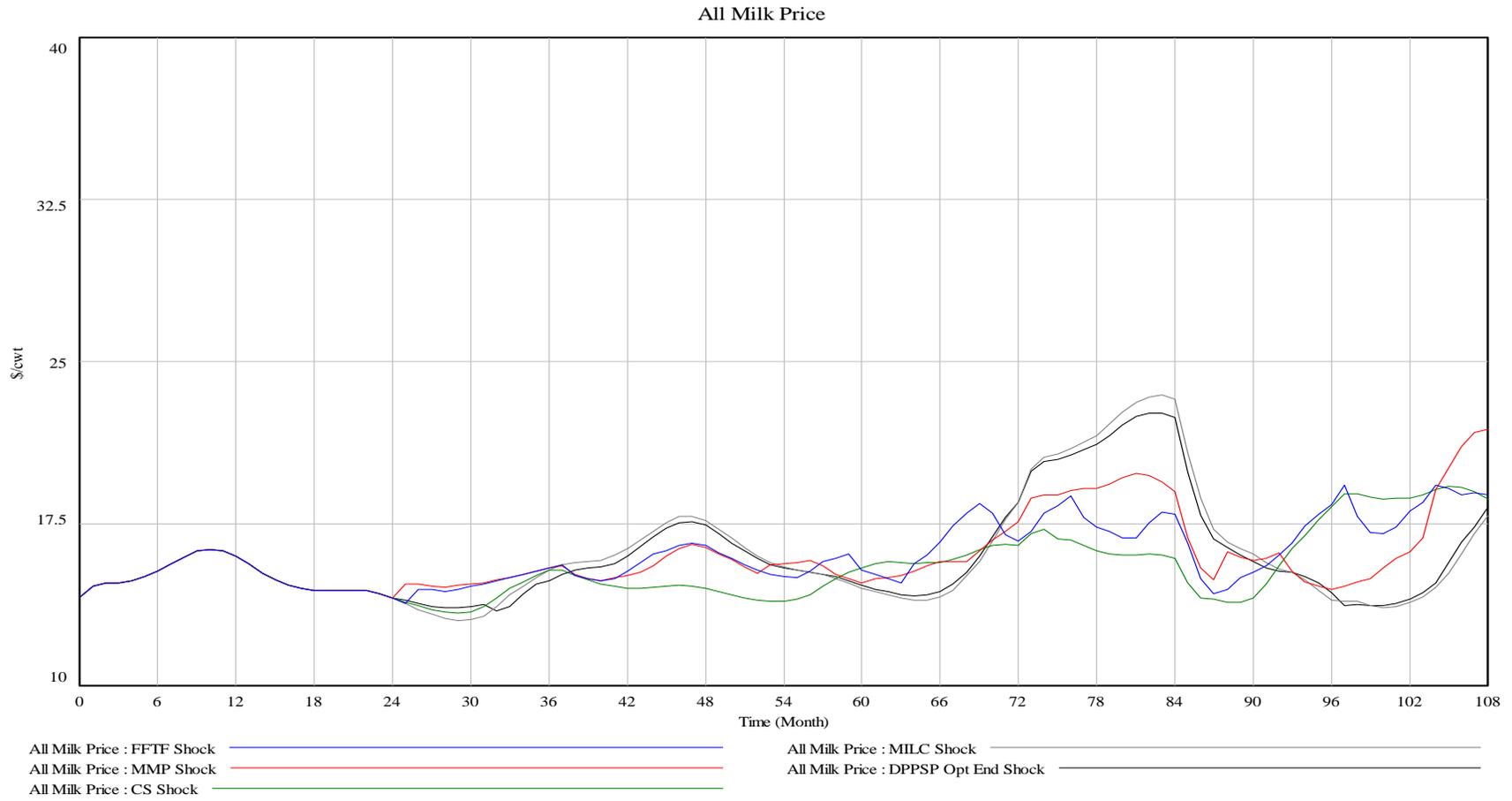


Figure 1. All-Milk price from 2010 (time 0) to 2018 (time 108) for five program options with government expenditures of \$700 million over 7 years. Recently proposed programs reduce the impact of shocks in 2015 (time 60) through 2018 (time 96)

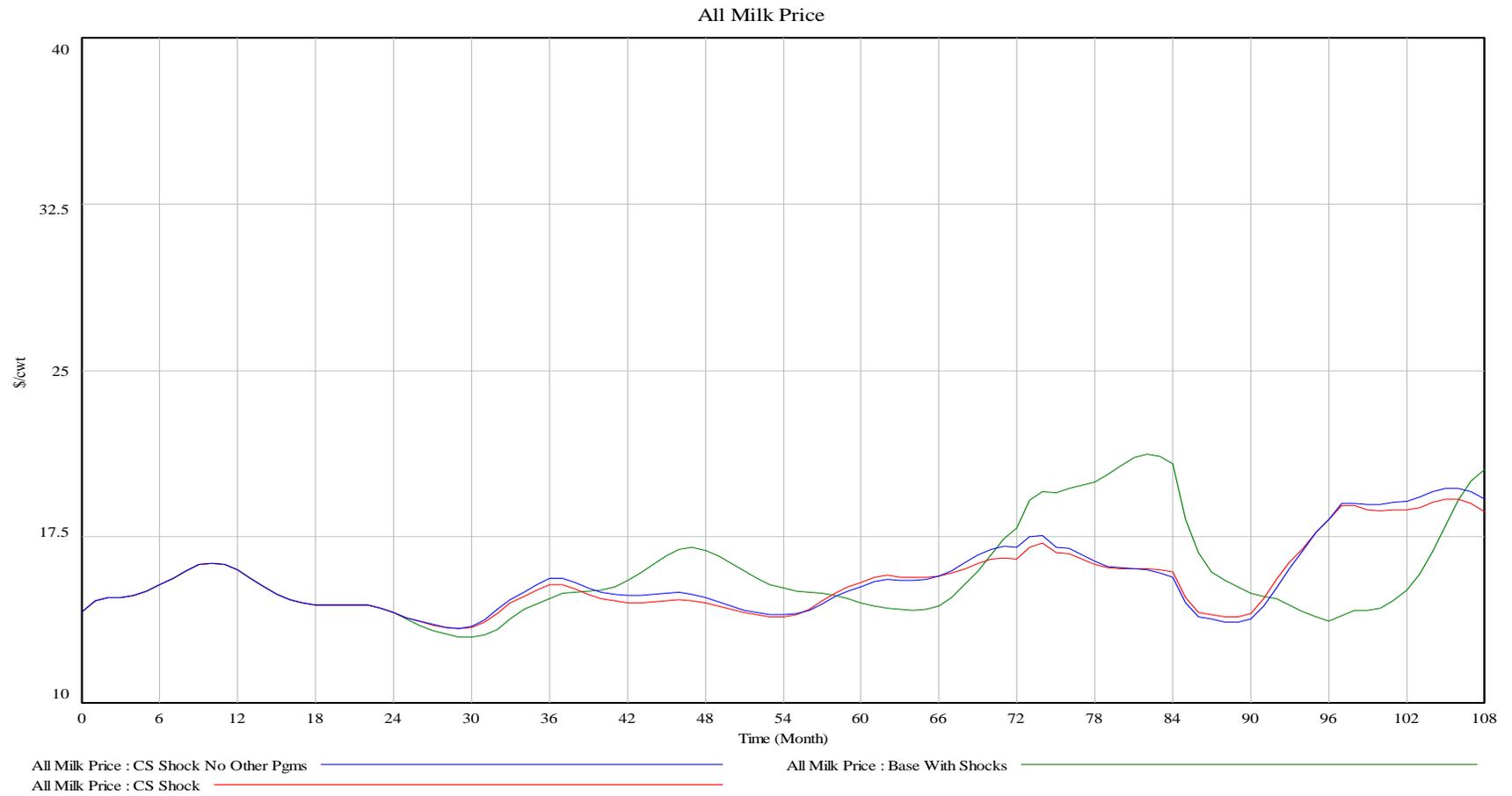


Figure 2. All-Milk price from 2010 (time 0) to 2018 (time 108) for Costa Sanders legislation with and without MILC (implying \$700 million in government expenditures over 7 years). Few differences exist between Costa Sanders with and without MILC.

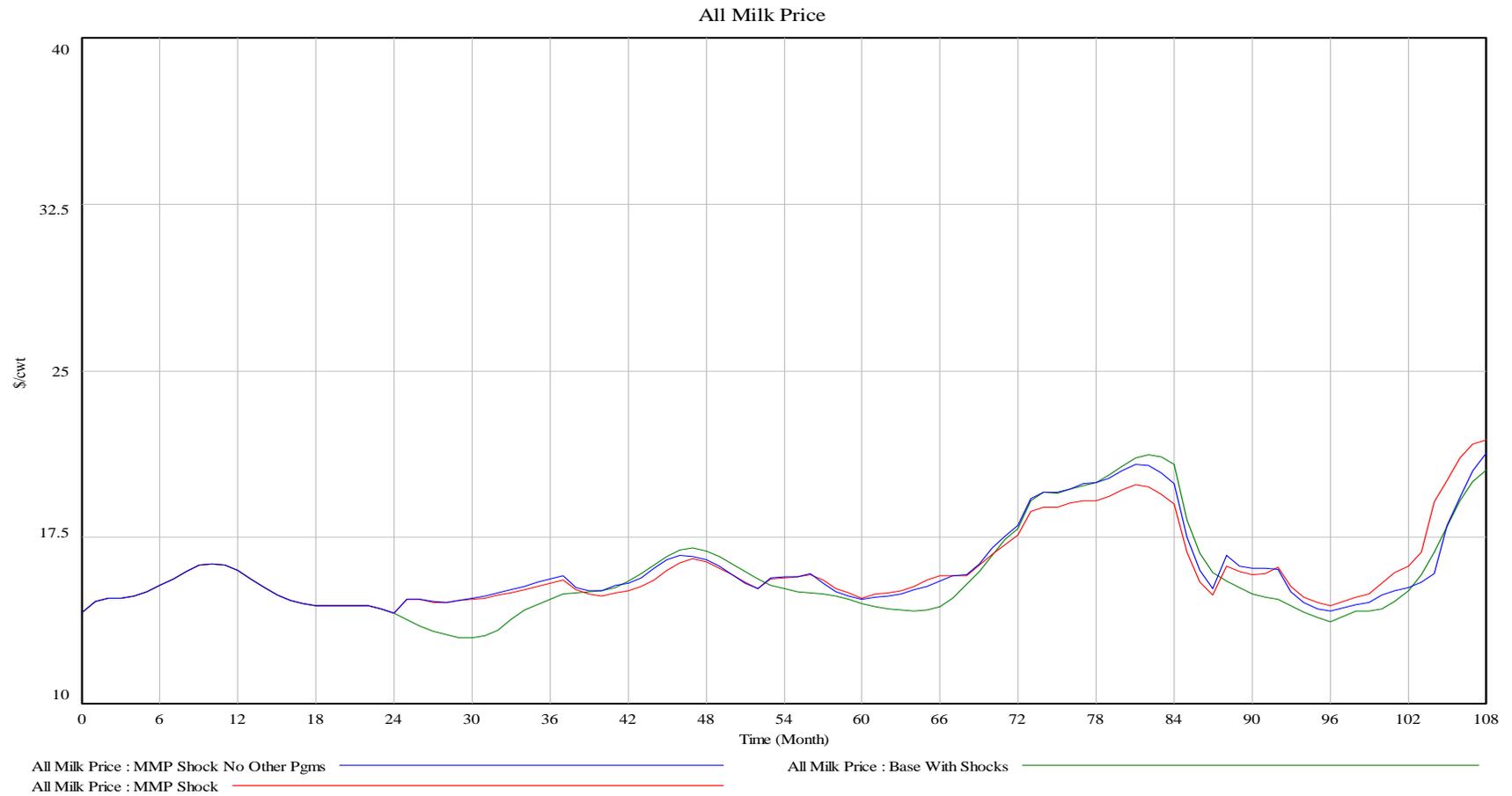


Figure 3. All-Milk price from 2010 (time 0) to 2018 (time 108) for Marginal Milk Pricing with and without MILC (implying \$700 million in government expenditures over 7 years). Limited differences exist between MMP with and without MILC.

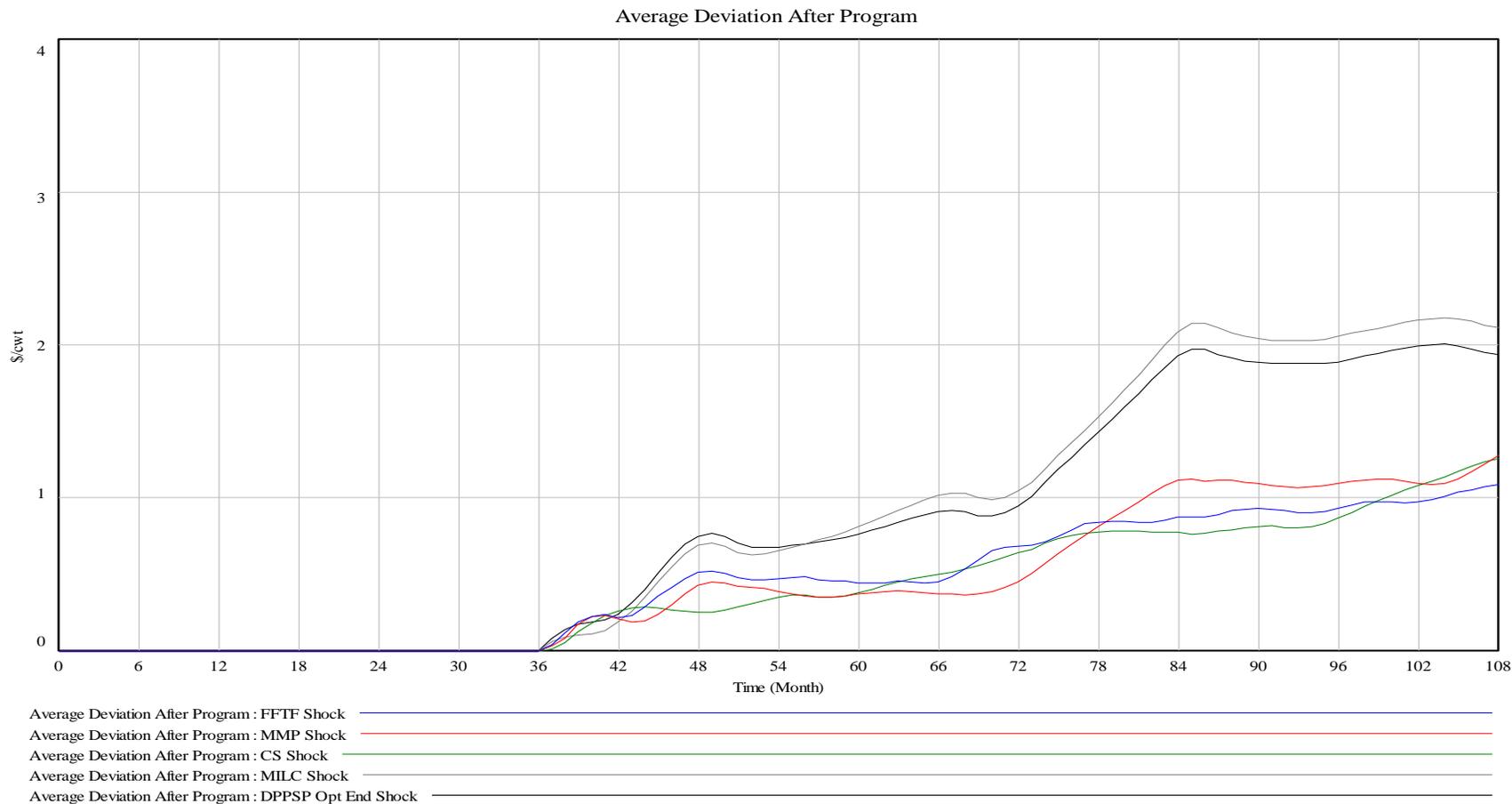


Figure 4. Average Absolute Deviation from the Mean All-Milk Price (a measure of variation) beginning in 2013 (one year after program implementation, time 36) through 2018 (time 108) for five program options. The ending value of this variable is a measure of variation during project implementation. The three currently proposed programs reduce variability in the All-Milk price even when limited to expenditures of \$700 million over 7 years. The DPPSP could provide similar reductions in variability (not shown) if purchase prices were raised significantly. However, this would result in government expenditures significantly higher than under the currently proposed programs.

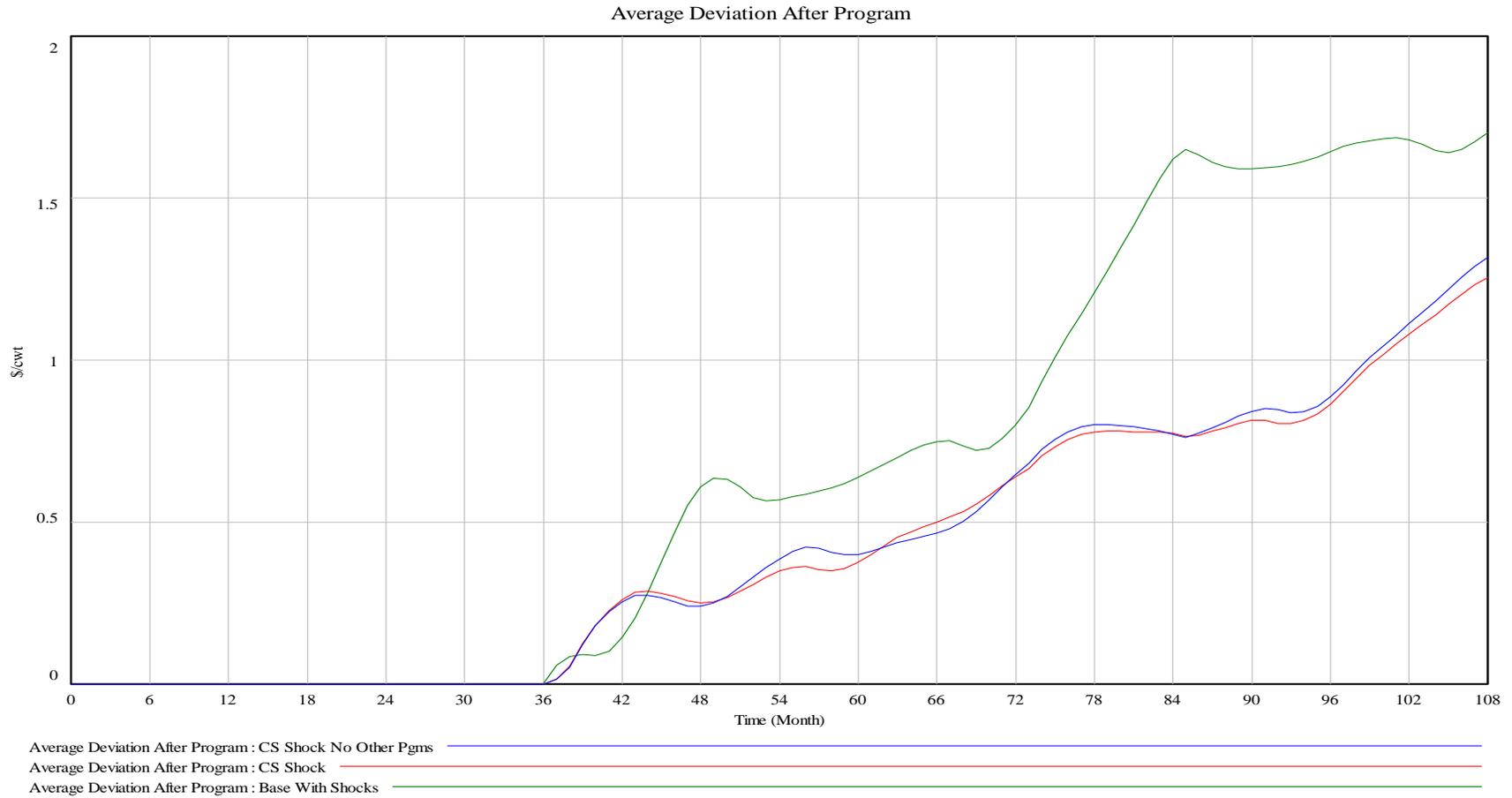


Figure 5. Average Absolute Deviation from the Mean All-Milk Price (a measure of variation) beginning in 2013 (one year after program implementation, time 36) through 2018 (time 108). The ending value of this variable is a measure of variation during project implementation. The variation under Costa Sanders is similar with and without operation of MILC.

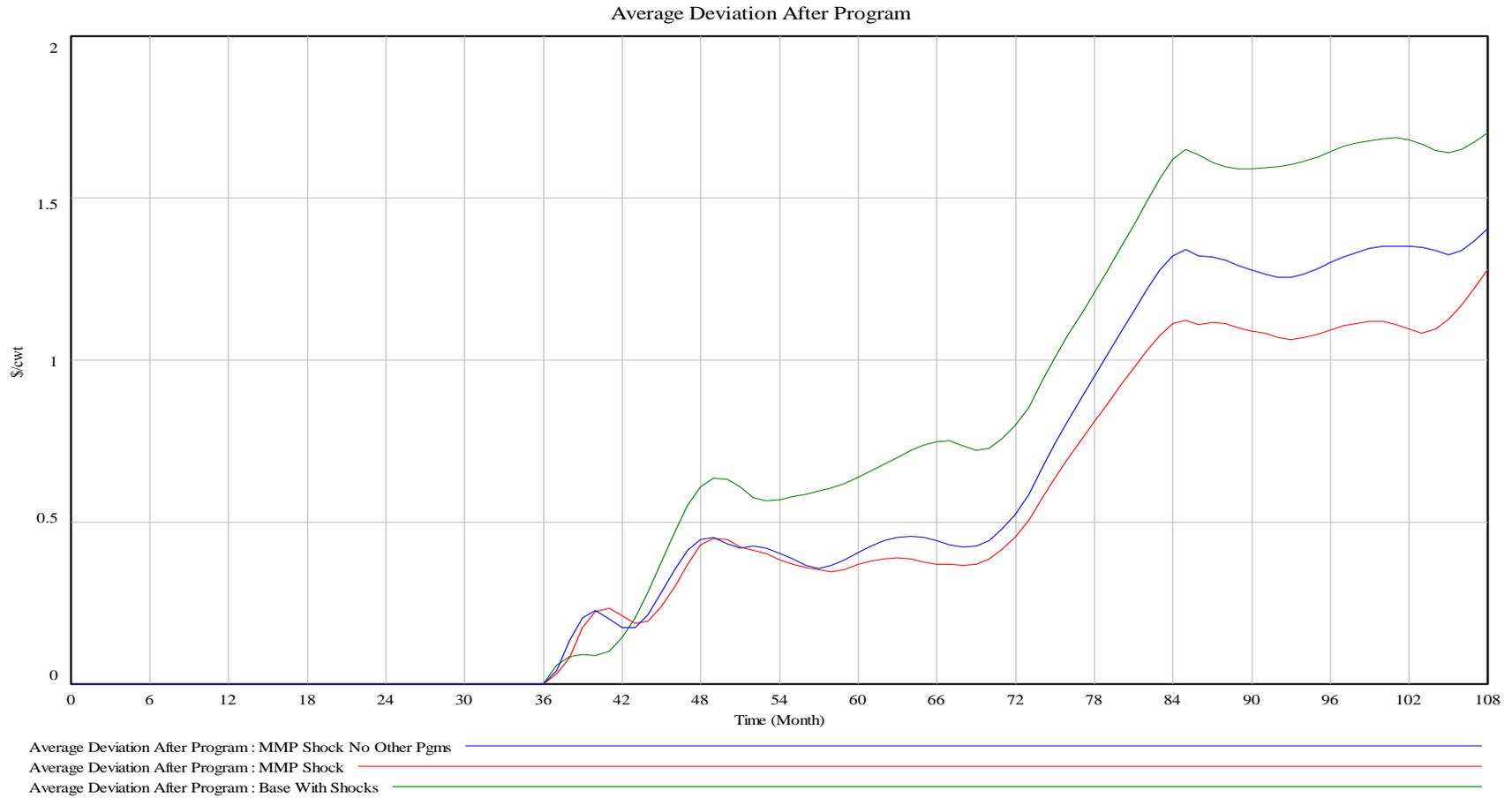


Figure 6. Average Absolute Deviation from the Mean All-Milk Price (a measure of variation) beginning in 2013 (one year after program implementation, time 36) through 2018 (time 108). The ending value of this variable is a measure of variation during project implementation. The variation under Marginal Milk Pricing is somewhat higher without MILC.

Government Expenditures 2012 to 2018

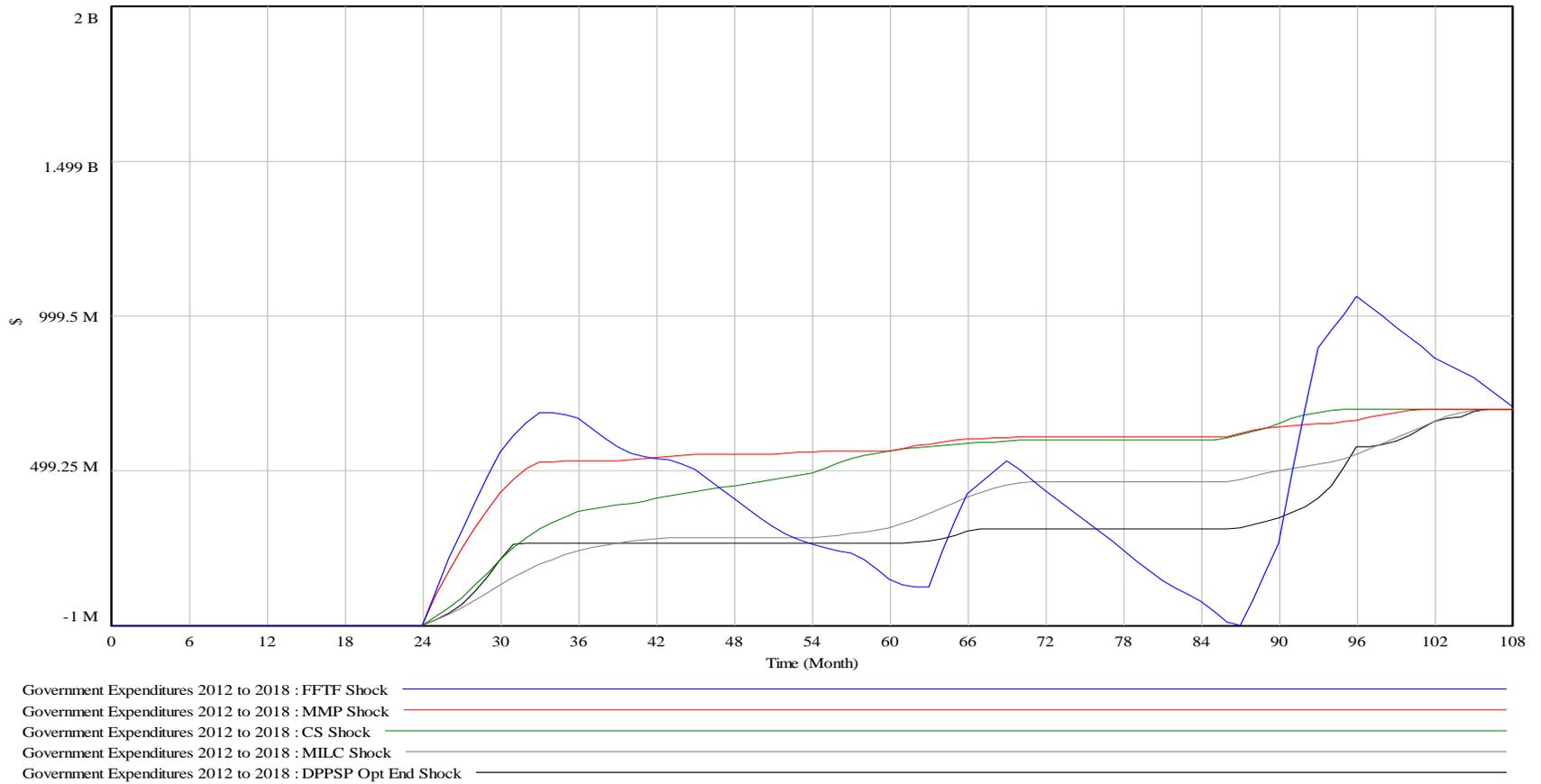


Figure 7. Cumulative government expenditures over time beginning in 2012 (time 24) through 2018 (time 108) for five program options. Each program spends a total of \$700 million over 7 years.

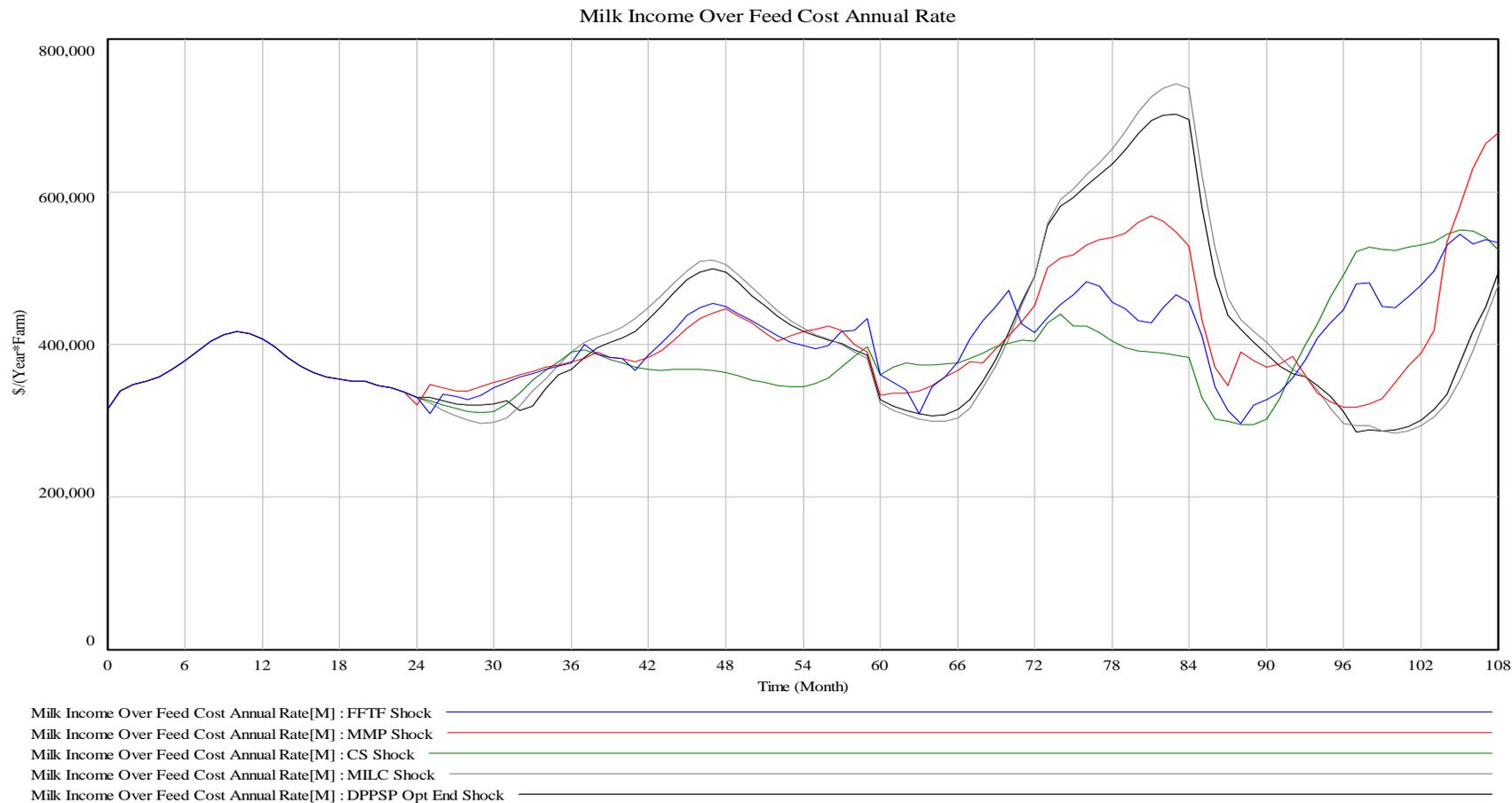


Figure 8. Milk Income Less Feed Costs for a medium-size (183-cow) farm for five program options. The three proposed program options tend to reduce variation in milk income less feed costs.

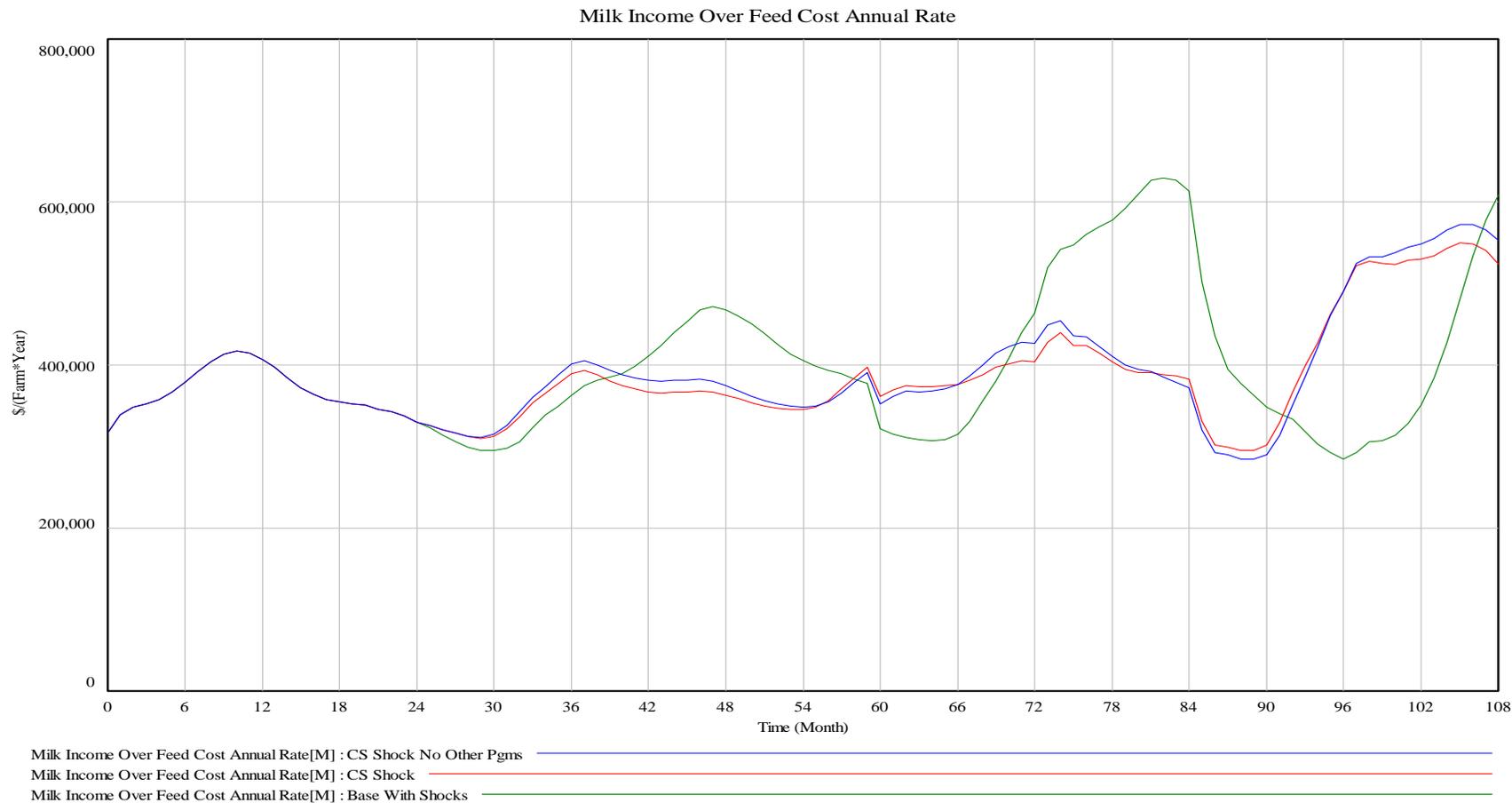


Figure 9. Milk Income Less Feed Costs for a medium-size (183-cow) farm for Costa Sanders with and without MILC. The Costa Sanders legislation would have similar impacts on milk income less feed costs with and without MILC.

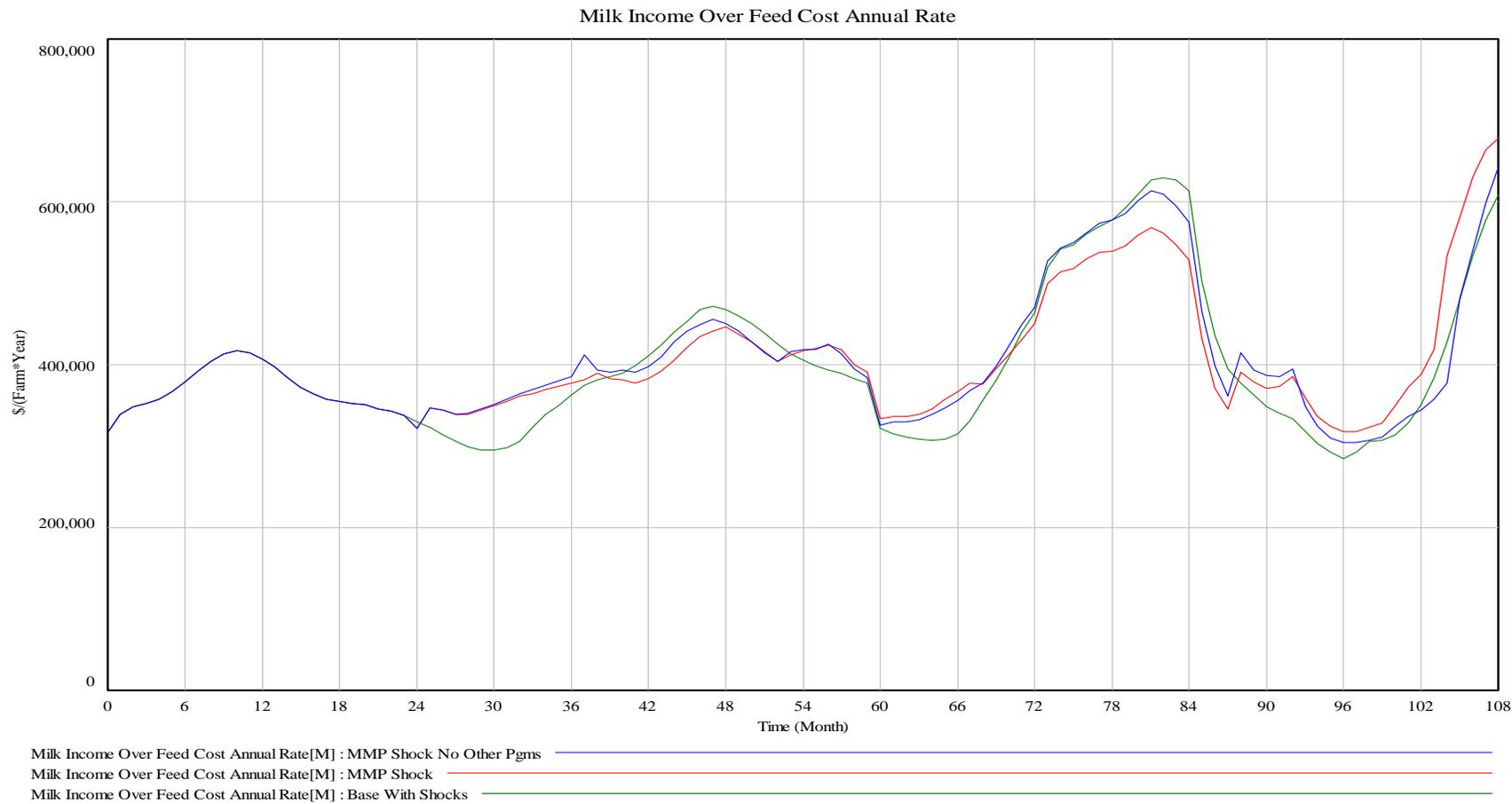


Figure 9. Milk Income Less Feed Costs for a medium-size (183-cow) farm for Marginal Milk Pricing with and without MILC. The MMP would have similar impacts on milk income less feed costs with and without MILC.