

Farm-Level Financial Impacts of the Dairy Security Act of 2011 (H.R. 3062) and the Dairy Provisions of the Rural Economic Farm and Ranch Sustainability and Hunger Act of 2011 (S.1658)

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Summary

Two proposed pieces of dairy legislation could reduce variation in Net Farm Operating Income (NFOI) for four representative U.S. dairy farms, and decrease the frequency of negative NFOI. The effects on variation in NFOI depend strongly on the overall participation in these voluntary programs. Because they reduce price variation, however, they also result in lower average NFOI during 2012 to 2018. Farms participating in margin protection and supply management programs would receive more in indemnity payments than they pay in premiums under assumed levels of participation. There are few differences in outcomes between the legislation, despite different provisions with regard to suspension of supply management programs.

Introduction

Alternatives to current U.S. dairy policies are receiving a great deal of discussion at present, but there has been limited formal assessment of the market or farm-level impacts. This document provides a brief summary of key market and farm-level outcomes for two recently-introduced pieces of legislation, the Dairy Security Act of 2011 (H.R. 3062, referred to as DSA) and the dairy-related provisions of the Rural Economic Farm and Ranch Sustainability and Hunger Act of 2011 (S.1658, referred to as REFRESH). This analysis focuses on the financial implications for farms of various sizes, including Net Farm Operating Income (NFOI), the ability of the programs to reduce the frequency of negative NFOI, the cumulative net payments under the margin program components of the legislation, and cumulative NFOI for all farms. A companion document focuses on market-level impacts.

Methods Used

The methods used for the dynamic analysis of the scenarios are based on a previously-developed dynamic model of the U.S. dairy sector (detailed discussion is available in Nicholson and Stephenson, 2010²). The model represents milk supply, product demand, trade policy and U.S. dairy policy elements, aggregated at the national level. The model was modified to include voluntary participation in the DPMPP and DMSP components of the proposed legislation, and also includes outcomes for “representative” farms, which in this case means farms that maintain the same average herd size for the period under analysis. The model includes four such

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² http://dairy.wisc.edu/pubPod/pubs/Analyses_of_Volatility_Programs.pdf

“representative” farms of different herd sizes (less than 250 cows, 250 to 499 cows, 500 to 1,999 cows and 2000 or more cows). Although this does allow an initial examination of the impacts, it is a significant simplification of important variations within the farm size groups in terms of characteristics and motivations that would drive choices about participation and other outcomes. It also does not permit explicit examination of regional differences in outcomes under the proposed legislation. The model represents all of the essential provisions of the proposed programs, including the time delays involved in implementing DMSP.

Scenarios Analyzed

The model analyzes five scenarios, including a *Baseline* that assumes continuation of current programs. For the DSA and REFRESH programs, assumptions must be made about the extent of dairy farmer participation in the voluntary DPMPP (and therefore DMSP) components of the proposed legislation. In the modeling framework, these assumptions are:

- The *proportion of farms* in each size class that choose to participate;
- The *margin level* participating farms choose to protect with supplemental insurance;
- The *proportion of the farm's milk* production that will be covered by supplemental insurance;

Each of these assumptions about how producers will respond to the program is highly uncertain, which makes assessment of the programs challenging. We address this by choosing what we believe are appropriate upper and lower bounds on these participation decisions, creating “low participation” and “high participation” scenarios. These two scenarios are then examined for both the DSA and the REFRESH proposed legislation. For consistency with previous analyses, we assume program implementation in January 2012, and analyzed outcomes through the end of December 2018. The five scenarios analyzed are:

- *Baseline*: continuation of current dairy programs, with scheduled modifications to existing programs like MILC;
- *DSA Low Participation*: Eliminates DPPSP, MILC and DEIP and replaces them with the DPMPP and DMSP programs in January 2012. Low participation assumes that 10% of small farms (0-249 cows), 5% of medium farms (250-499 cows), 2.5% of large farms (500-1999 cows) and 1% of extra large farms (2000 or more cows) participate. All farms are assumed to cover 50% of their milk at the \$5 margin level;
- *REFRESH Low Participation*: As assumed for *DSA Low Participation*, but with the DMSP suspension triggers based on the relationship between world and U.S. prices for Cheese and NDM from S.1658 (REFRESH) rather than H. R. 3062 (DSA);
- *DSA High Participation*: Eliminates DPPSP, MILC and DEIP and replaces them with the DPMPP and DMSP programs in January 2012. High participation assumes that 50% of ALL farms cover 60% of their milk at the \$6 margin level;
- *REFRESH High Participation*: As assumed for *DSA High Participation*, but with the DMSP suspension triggers based on the relationship between world and U.S. prices for Cheese and NDM from S.1658 rather than H. R. 3062;

Results

The key findings of our analysis of these programs are below (and in more detail in Tables 1 and 2):

- The proposed programs can reduce the variation in the NFOI for all farm size categories analyzed (Figure 1 shows this for the Medium farm (250-499 cows). The stabilization of NFOI is greater when participation in the programs is larger (Figure 2 shows a comparison for participating farms with low and high participation assumptions);
- The programs also reduce the frequency of months in which NFOI income is negative for participating farms, particularly for larger farm sizes. However, the proportion of months with negative NFOI increases for Medium farms that do not participate;
- Because they stabilize prices, the programs also reduce average NFOI per farm during the period 2012 to 2018 for all farm size categories and reduce the cumulative total NFOI for all farms during the period;
- Participating representative farms receive a larger amount in indemnity payments under the programs than they pay in premiums, under both the low and high participation scenarios. The average premium subsidy is about \$0.45/cwt for the low participation scenario, decreasing to \$0.27/cwt for the high participation scenario.

Concluding Comments and Limitations

The proposed programs can have beneficial farm-level effects in that they would reduce variability and the frequency of periods of negative NFOI. However, they would also result in lower average NFOI for all farm size categories due to lower average prices. It is important to note however, that the current volatility imposes costs on farms (that is, it usually requires changes in management and financing that have costs) and can result in substantial equity loss and a higher probability of business failure. These costs and risks are not directly included in our analysis, so it is not possible to conclude on the basis of reduced average NFOI that dairy farmers would be worse off under the proposed legislation. In addition, our analyses do not assess the effectiveness of the proposed legislation in the face of shocks such as feed cost increases or rapid changes (up or down) in export demand. Importantly, impacts at the farm level depend on the extent to which all other farms choose to participate. This implies that assessment of the best decision for an individual farm also depends on the decisions made by other farms. Because of the difficulty in assessing farmer participation decisions, our analysis should be considered as suggestive of the likely impacts of the proposed programs, rather than as definitive predictions of the next 7 years were these programs to be in place.

Table 1. Simulated Farm-Level Financial Outcomes, Baseline and Four Policy Scenarios

Outcome	Units	Baseline	DSA Low	REFRESH Low	DSA High	REFRESH High
Average NFOI, 2012-2018						
Small, Non-participating	\$/year	36,942	32,475	32,489	28,349	28,349
Small, Participating	\$/year	36,942	31,203	31,209	28,131	28,131
Medium, Non-participating	\$/year	68,029	48,362	48,424	27,496	27,496
Medium, Participating	\$/year	68,029	41,674	41,702	26,382	26,382
Large, Non-participating	\$/year	338,313	301,475	301,753	195,441	195,441
Large, Participating	\$/year	338,313	266,250	266,390	189,722	189,722
Extra Large, Non-participating	\$/year	1,648,151	1,550,057	1,551,126	1,113,711	1,113,711
Extra Large, Participating	\$/year	1,648,151	1,402,630	1,403,207	1,090,064	1,090,064
Proportion Months with Negative NFOI, 2012-2018						
Small, Non-participating	%	0.0%	0.0%	0.0%	0.0%	0.0%
Small, Participating	%	0.0%	0.0%	0.0%	0.0%	0.0%
Medium, Non-participating	%	22.4%	31.8%	31.8%	9.4%	9.4%
Medium, Participating	%	22.4%	24.7%	24.7%	2.4%	2.4%
Large, Non-participating	%	24.7%	25.9%	25.9%	4.7%	4.7%
Large, Participating	%	24.7%	12.9%	11.8%	0.0%	0.0%
Extra Large, Non-participating	%	21.2%	17.6%	17.6%	0.0%	0.0%
Extra Large, Participating	%	21.2%	0.0%	0.0%	0.0%	0.0%
Cumulative Payments Less Premiums, 2012-2018						
Small, Participating	\$/farm ^a	0	15,312	15,368	9,059	9,059
Medium, Participating	\$/farm ^a	0	75,733	76,010	44,806	44,806
Large, Participating	\$/farm ^a	0	376,593	377,972	222,806	222,806
Extra Large, Participating	\$/farm ^a	0	1,533,264	1,538,876	907,136	907,136
Premium Subsidy, average 2012-2018	\$/cwt	0.00	0.45	0.45	0.27	0.27
Cumulative NFOI, all farms, 2012-2018	\$/bil	29.2	19.7	19.7	15.3	15.3

^a Participating farms only

Table 2. Difference from Baseline Simulated Farm-Level Financial Outcomes, Four Policy Scenarios

Outcome	Units	Baseline	DSA Low	REFRESH Low	DSA High	REFRESH High
Average NFOI, 2012-2018			<i>Difference from Baseline</i>			
Small, Non-participating	\$/year	36,942	-4,466	-4,453	-8,592	-8,592
Small, Participating	\$/year	36,942	-5,739	-5,733	-8,811	-8,811
Medium, Non-participating	\$/year	68,029	-19,668	-19,606	-40,533	-40,533
Medium, Participating	\$/year	68,029	-26,356	-26,328	-41,647	-41,647
Large, Non-participating	\$/year	338,313	-36,838	-36,560	-142,872	-142,872
Large, Participating	\$/year	338,313	-72,063	-71,923	-148,591	-148,591
Extra Large, Non-participating	\$/year	1,648,151	-98,095	-97,026	-534,440	-534,440
Extra Large, Participating	\$/year	1,648,151	-245,521	-244,944	-558,088	-558,088
Proportion Months with Negative NFOI, 2012-2018						
Small, Non-participating	%	0.0%	0.0%	0.0%	0.0%	0.0%
Small, Participating	%	0.0%	0.0%	0.0%	0.0%	0.0%
Medium, Non-participating	%	22.4%	9.4%	9.4%	-12.9%	-12.9%
Medium, Participating	%	22.4%	2.4%	2.4%	-20.0%	-20.0%
Large, Non-participating	%	24.7%	1.2%	1.2%	-20.0%	-20.0%
Large, Participating	%	24.7%	-11.8%	-12.9%	-24.7%	-24.7%
Extra Large, Non-participating	%	21.2%	-3.5%	-3.5%	-21.2%	-21.2%
Extra Large, Participating	%	21.2%	-21.2%	-21.2%	-21.2%	-21.2%
Cumulative Payments Less Premiums, 2012-2018						
Small, Participating	\$/farm ^a	0	15,312	15,368	9,059	9,059
Medium, Participating	\$/farm ^a	0	75,733	76,010	44,806	44,806
Large, Participating	\$/farm ^a	0	376,593	377,972	222,806	222,806
Extra Large, Participating	\$/farm ^a	0	1,533,264	1,538,876	907,136	907,136
Premium Subsidy, average 2012-2018	\$/cwt	0.00	0.45	0.45	0.27	0.27
Cumulative NFOI, all farms, 2012-2018	\$/bil	29.2	-9.5	-9.4	-13.9	-13.9

^a Participating farms only.

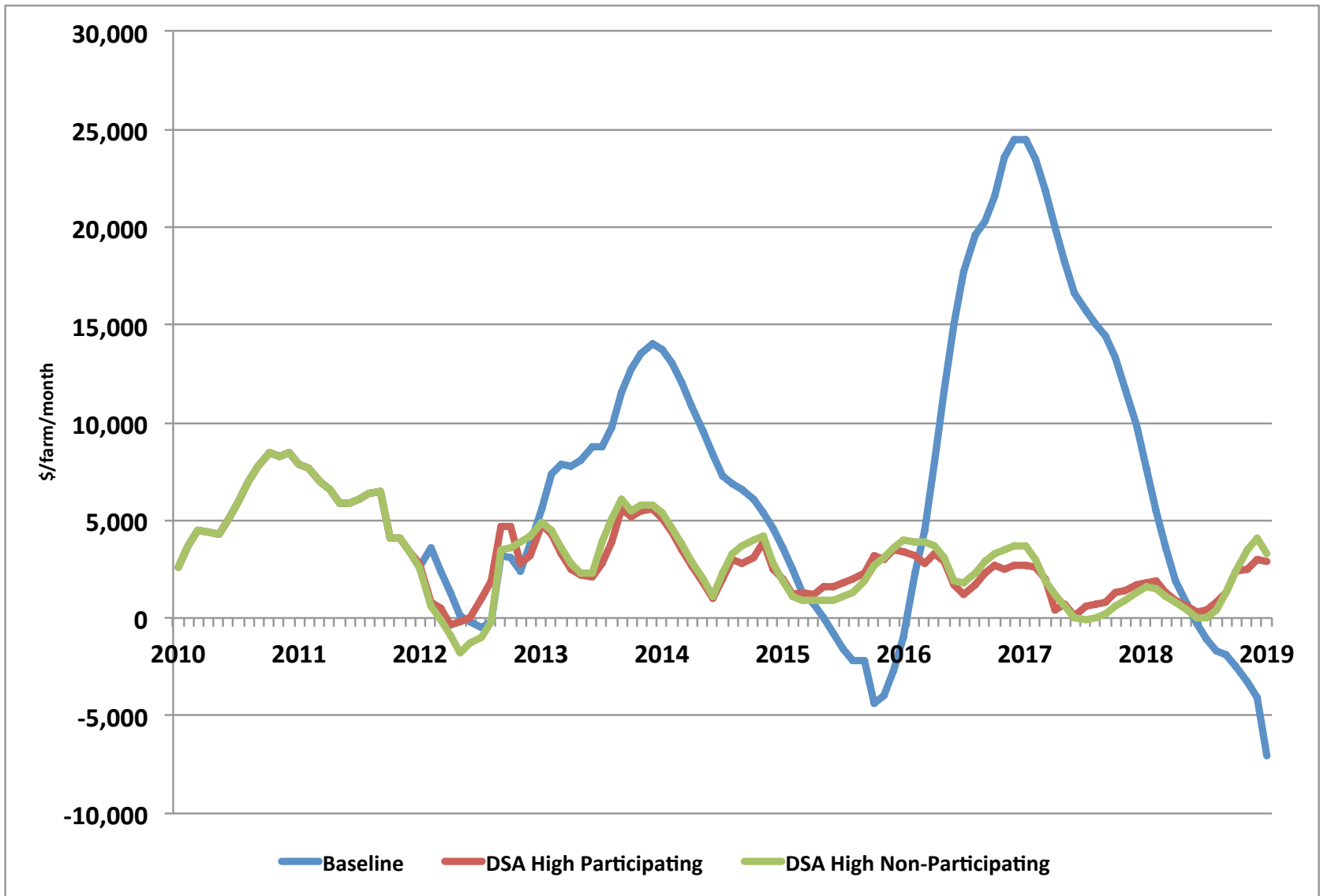


Figure 1. Simulated Net Farm Operating Income for Participating and Non-Participating Medium-Size Farm (250-499 Cows), Baseline and DSA High Participation Scenarios

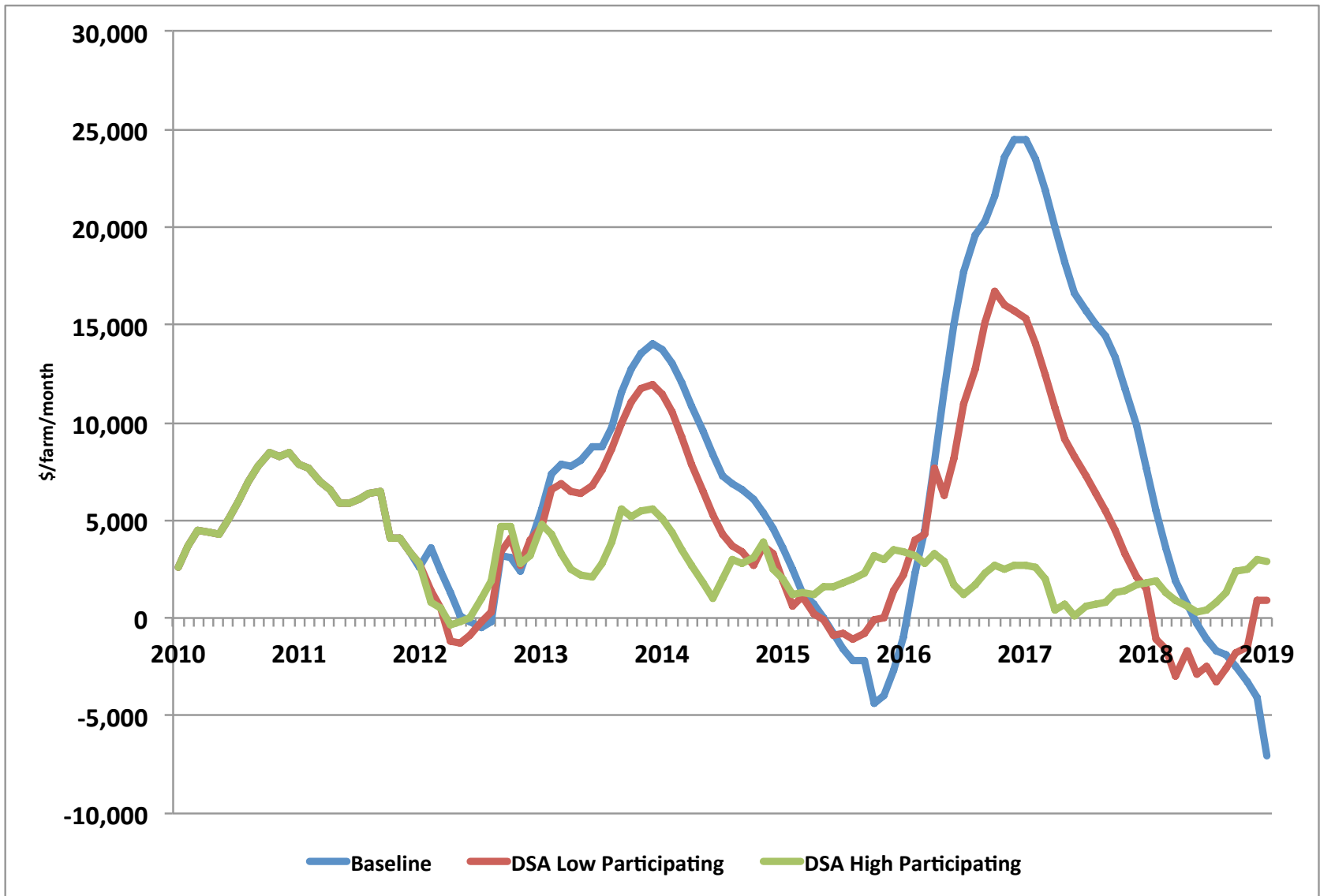


Figure 2. Simulated Net Farm Operating Income for Participating Medium-Size Farm (250-499 Cows), DSA Low Participation and DSA High Participation Scenarios