Are There Holes in the Dairy Safety Net?

NWDEPA
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Driven to Discover℠

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Sense of the Congress?

- *The Margin Protection Program for Dairy Producers, which was included in the Agricultural Act of 2014, was intended to provide a safety net for dairy producers in times of low margins.*
- ***However, that program has not worked as anticipated, and dairy farmers have been hit with milk prices that have plummeted since 2014, as well as new challenges with our export markets.***
- *This has resulted in sharply reduced incomes and a significant number of dairy operations going out of business, and many more dairy producers who are struggling to keep their operations financially sound.*
- ***Prompt congressional action is needed to fix the program so that it provides the support that was intended.***

https://rules.house.gov/sites/republicans.rules.house.gov/files/115/OMNI/DIVISION%20A-%20AG%20SOM%20OCR%20FY17.pdf

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Fixing Dairy Policy?

- **Fix MPP** (NMPF, Bleiberg):
  - Increase Feed Coefficients by 10%
  - Use AMS feed prices (prices paid, not prices received)
  - Monthly payments
- **Introduce Dairy – Revenue Protection** (AFBF, Newton):
  - "Crop insurance for dairy"
  - Actuarially fair premiums, subsidized
- **Private Sector Solutions** (Blimling, LaMendola)
- **Back to free-market economic principles** (Sumner)

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Diagnosis before treatment

1. MPP-Dairy: what happened in 2014-2017?
   - Are producers rational or irrational users?
   - Has program performance been at odds with DMAP predictions?

2. Scoring dairy policy
   - Have the sources of risk & volatility changed?
   - How should we model producer behavior?

3. Policy design implications of loss-aversion assumption

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Three years ago…

Margin Protection Program for Dairy Producers

- USDA risk management program that replaces MILC program.
- Voluntary program, with no supply management of any kind.
- Offers protection against low margins that may come from low milk prices, high feed prices, or a combination of both.
- Provides a payment when "the margin" falls below a specified level.
- Very simple and hassle-free

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Three years ago…

A Simple Way to Think about Risk Management with MPP

Coverage Level	Tier 1 ≤ 4mil lbs. Covered Prod. Hist. ($/cwt)	Tier 2 >4 M lbs. Covered Prod. Hist. ($/cwt)
$4.00	$0.000	$0.000
$4.50	$0.010	$0.020
$5.00	$0.025	$0.040
$5.50	$0.040	$0.100
$6.00	$0.055	$0.155
$6.50	$0.090	$0.290
$7.00	$0.217	$0.830
$7.50	$0.300	$1.060
$8.00	$0.475	$1.360

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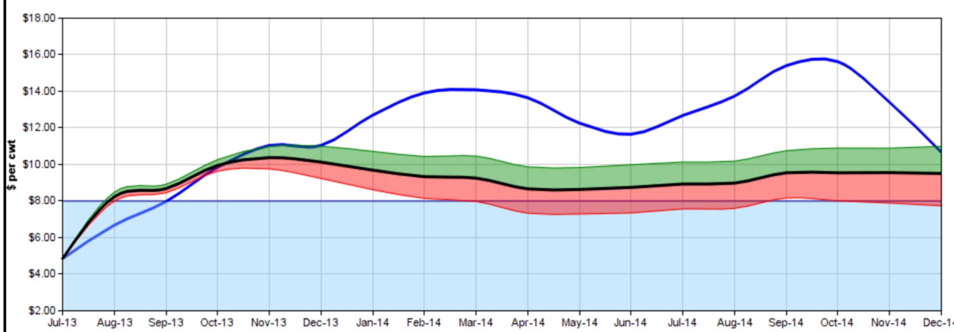
What happened in 2014?



MPP-Dairy Margins reach all-time high in October 2014 at $15.62/cwt. 2014 average is $13.31/cwt. September – December available for coverage, but virtually all producers who enrolled for MPP started it in 2015.

Market conditions: strong exports, strong imports from China boost world markets.

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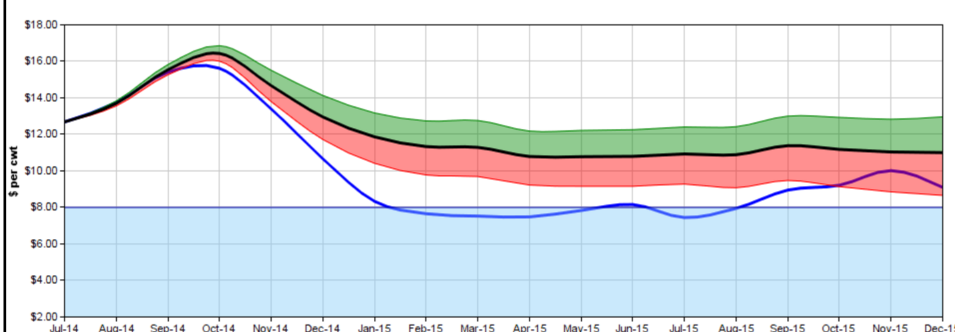
What happened in 2015?



MPP-Dairy Margins average $8.30/cwt, payments issued for 8 out of 12 months, but only for $7.50 or $8.00 coverage levels. Net indemnities negative for all levels.

Market conditions: EU abolishes milk production quotas, European production increases strongly. Exports retreat, US milk production grows. Most producers finish the year in red.

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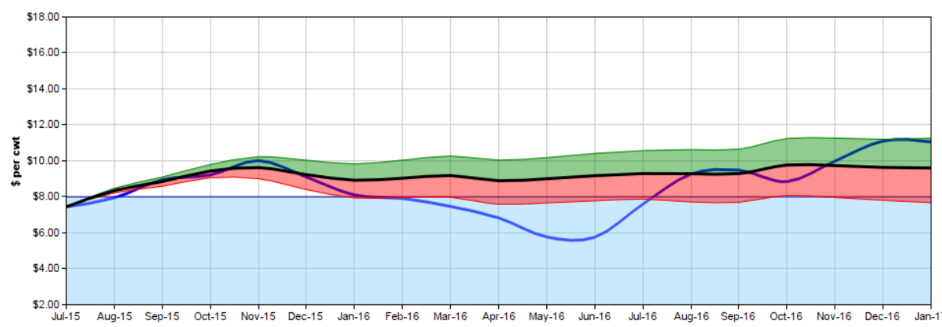
What happened in 2016?



MPP-Dairy Margins continue to deteriorate. Average margin for the year projected at $8.09/cwt. May-June margins at $5.76, payment triggered for $6.00 and higher coverage levels.
Market conditions: EU milk production still growing strongly. Exports sluggish. US production continues to grow in most states. Most dairies below break-even milk prices.

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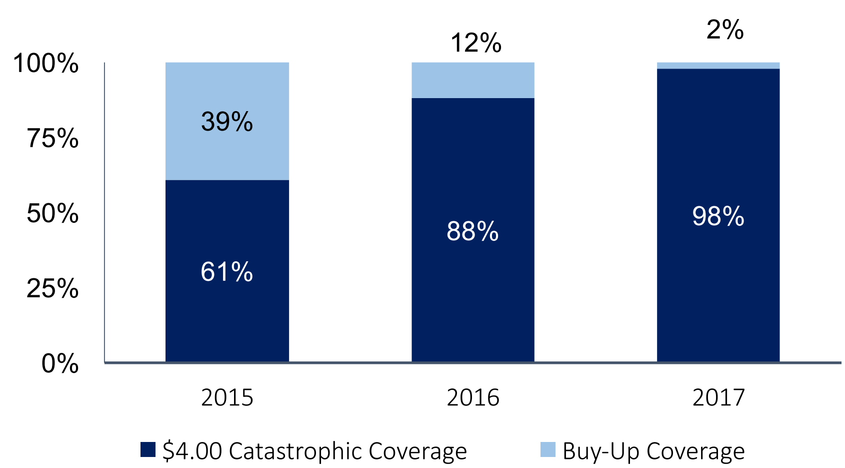
Percent of Milk Enrolled in the Dairy Margin Protection Program at Catastrophic and Buy-Up Levels: 2015 to 2017



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Net returns to participation in MPP-Dairy

	Small 150 cows 3,600,000 lb.	Medium 1,200 cows 30,000,000 lb.	Big 5,000 cows 120,000,000 lb.
2015, $5.00	-$1,080	-$10,154	-$42,836
2015, $6.50	-$2,322	-$70,201	-$307,145
2015, $8.00	-$11,250	-$298,647	-$1,300,488
2016, $5.00	-$938	-$10,678	-$44,213
2016, $6.50	$863	-$39,967	-$183,568
2016, $8.00	$649	-$205,777	-$929,008

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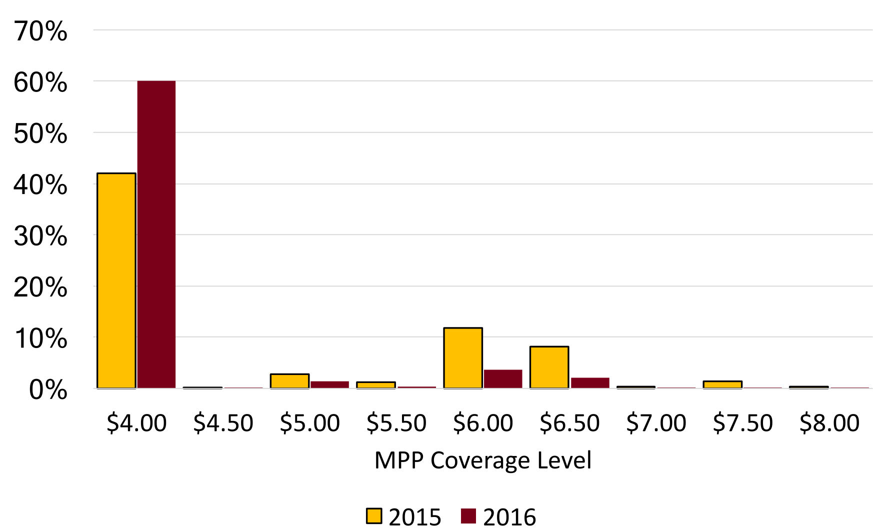
MPP Coverage as % of 2015 and 2016 US Milk Production



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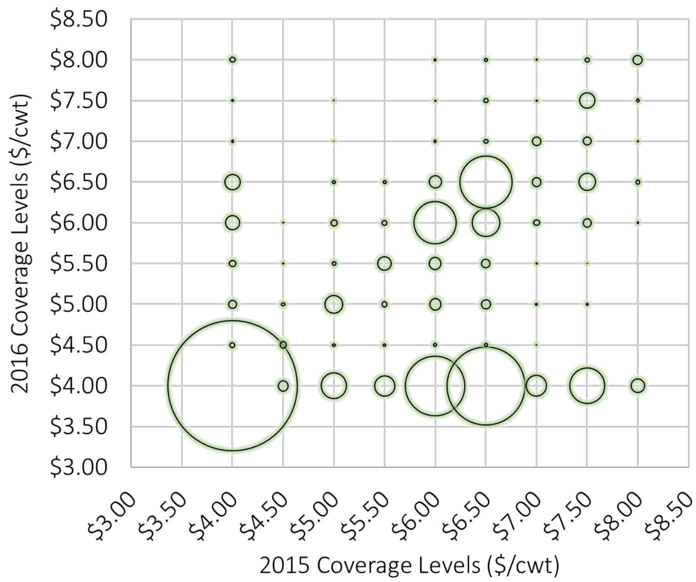
Farm-Level Enrollment Data Reveals Exodus to $4.00/cwt



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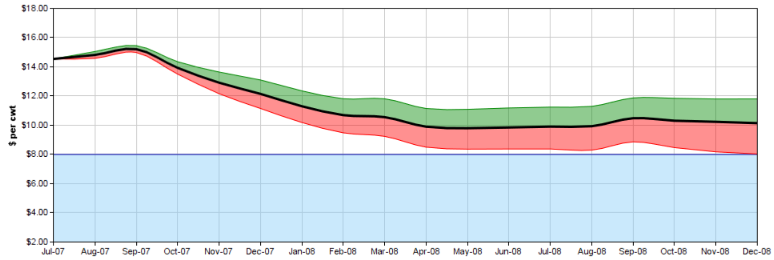
The Price of Simplicity

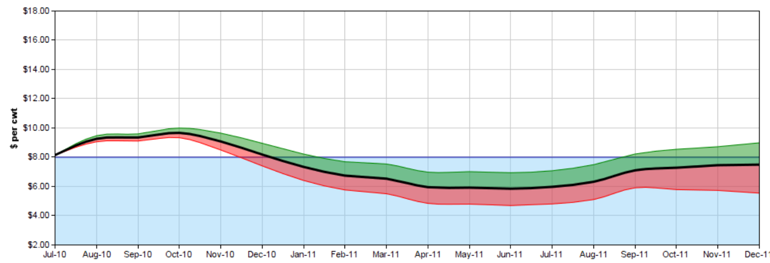
Cov. Level	<=4 mil	>4 mil
$4.00	$0.00	$0.00
$4.50	$0.01	$0.02
$5.00	$0.02	$0.04
$5.50	$0.04	$0.10
$6.00	$0.05	$0.15
$6.50	$0.09	$0.29
$7.00	$0.22	$0.83
$7.50	$0.30	$1.06
$8.00	$0.48	$1.36

Forecasting MPP-Dairy Payouts

Forecast
for 2008
as of
9/30/2007



Forecast
for 2011
as of
9/30/2010



Thinking about MPP-Dairy Subsidies

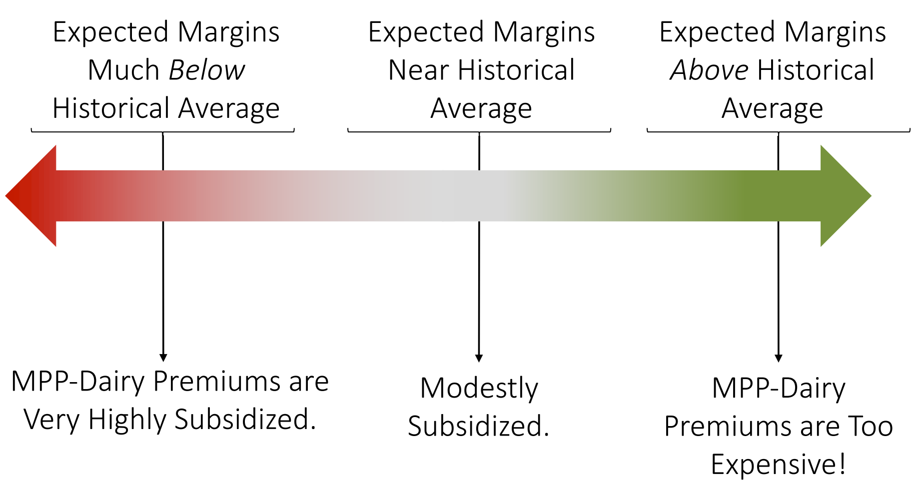
Subsidy = 1 - Actual Premium / Actuarially Fair Premium

Example: $6.50/cwt, 4 mil lbs, CP: 90%
Actual Premium: $3,340
Expected Payment: $15,996

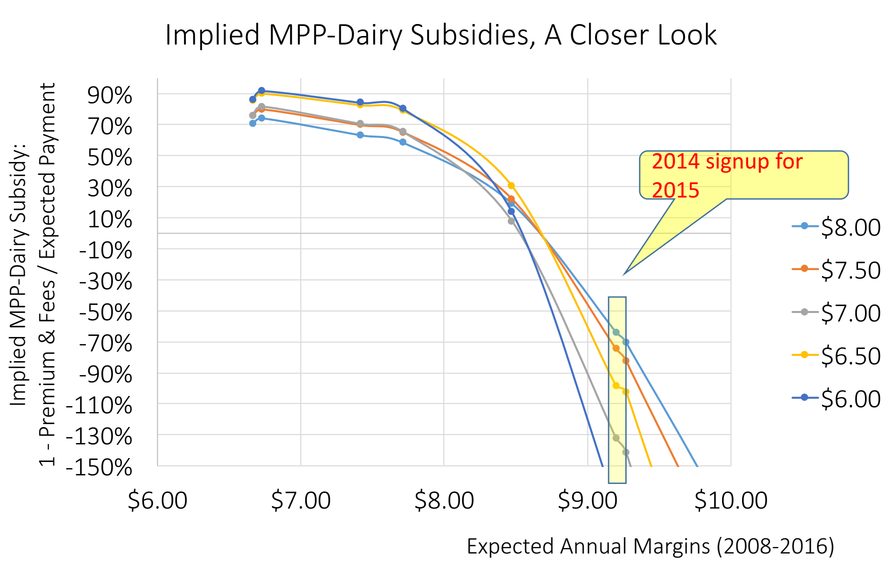
Expected Payment = Actuarially Fair Premium

So subsidy is… 1 - $3,340 / $15,996 = 79%

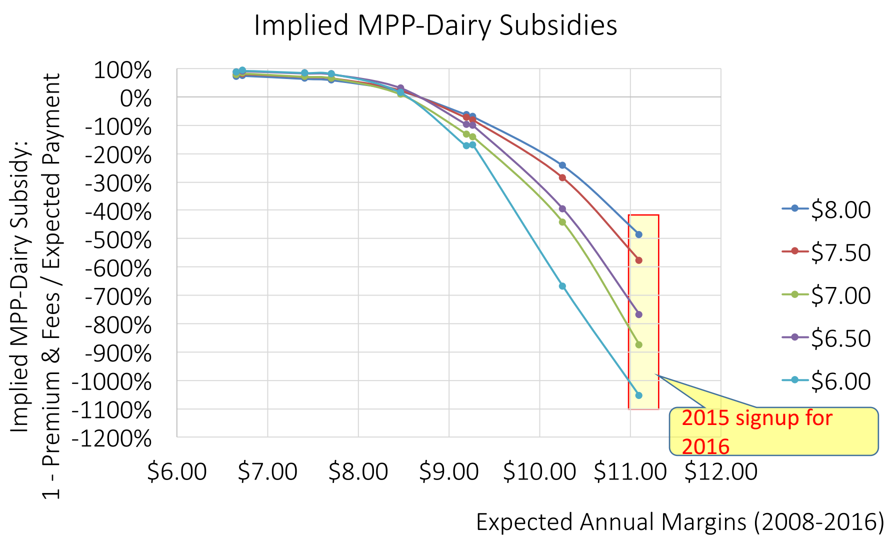
MPP-Dairy Subsidies are *Implied* in Margin Forecasts



Implied Subsidies: 2014 Signup for 2015



Implied Subsidies: 2015 signup for 2016



2. Scoring Dairy Policy

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1. Assign Probabilities to Sign-Up Scenarios
2. Identify Incentives at Sign-Up
3. Simulate Sign-Up Choices
4. Simulate Realized Margins

Scoring Policy Costs: 1. Assign Probabilities to Scenarios

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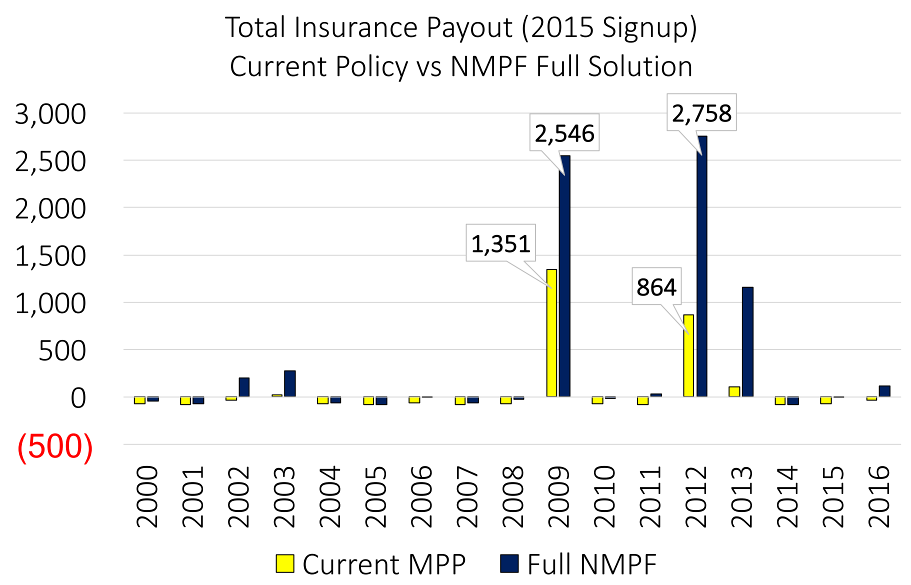

Year-On-Year Growth in U.S. Milk Production Moderating

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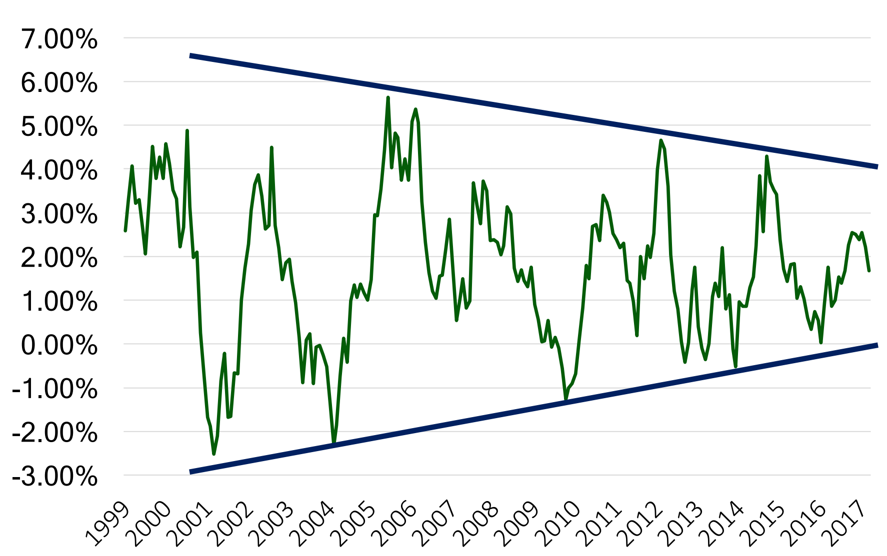

Inelastic Demand → Supply Shocks Have Strong Price Impacts

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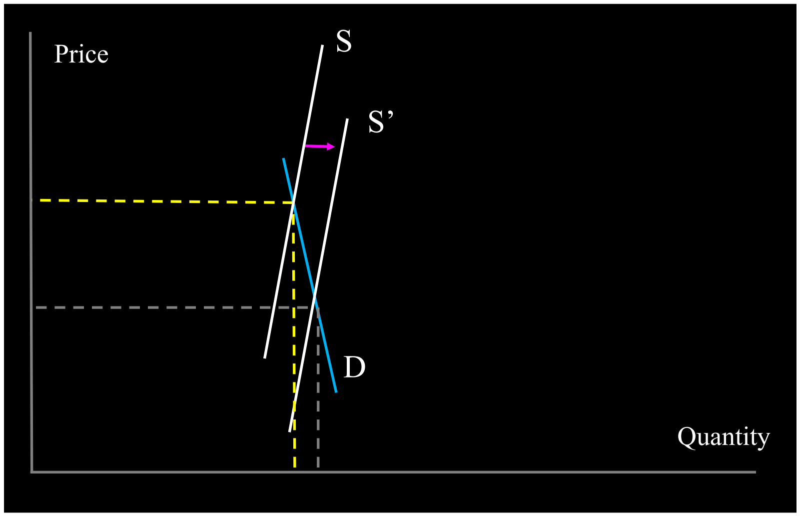

More Exports → Demand is More Elastic

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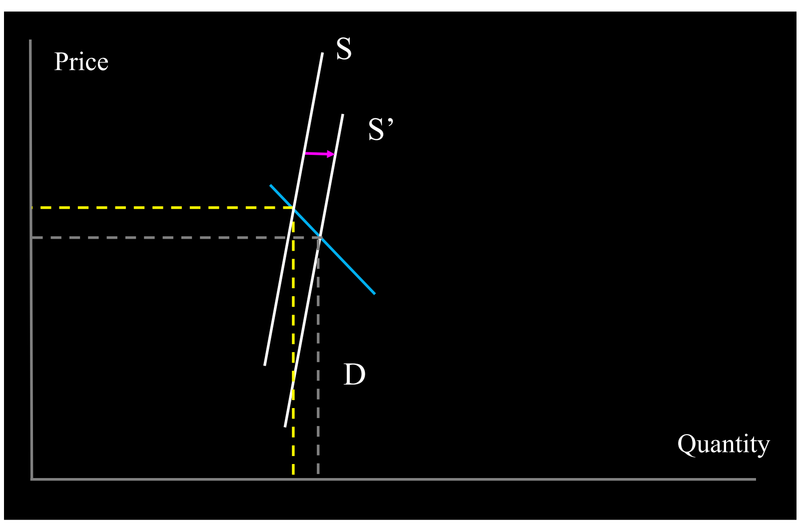

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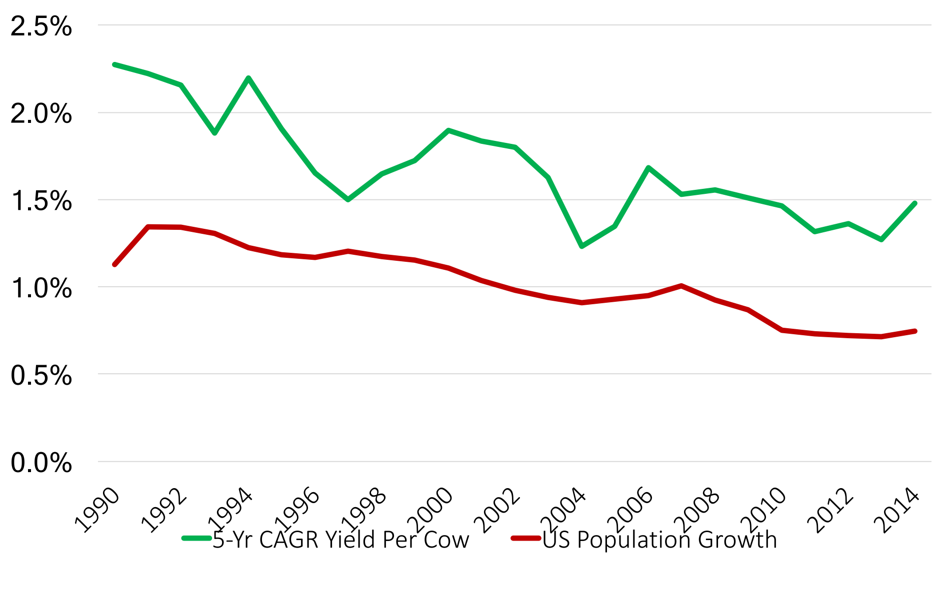
Cow Productivity Gains Outpace U.S. Population Growth Rate



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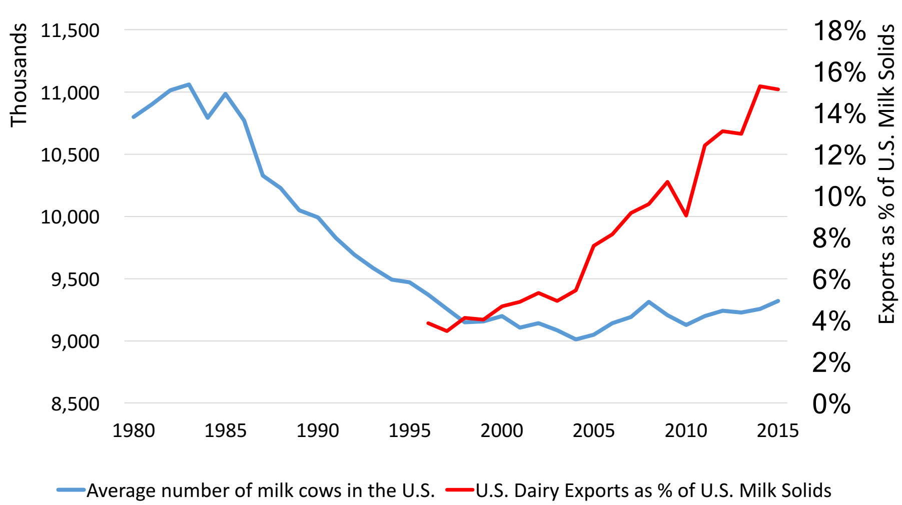
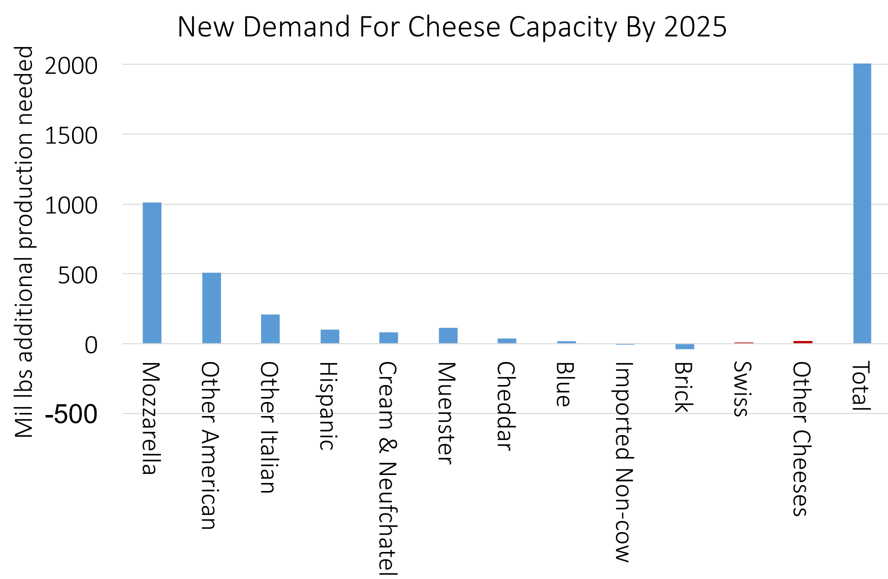
Dairy Herd Size Stabilized when Exports Took Off



Growth in U.S. Cheese Consumption by 2025



How to Estimate Dairy Policy Costs?

1. Assign Probabilities to Sign-Up Scenarios
2. Identify Incentives at Sign-Up
3. Simulate Sign-Up Choices
4. Simulate Realized Margins

2. Identify Incentives at Signup: Maximum Expected Net Indemnity By Tier (on December 15, prior year)

Year	Average Forecast Margin ($/cwt)	Tier 1 Expected Net Indemnity ($/cwt)	Tier 1 Optimal Coverage Level ($/cwt)	Tier 2 Expected Net Indemnity ($/cwt)	Tier 2 Optimal Coverage Level ($/cwt)
2008	9.48	0.081	6.50	0.025	4.00
2009	6.78	1.297	8.00	0.519	6.50
2010	8.62	0.131	6.50	0.039	5.00
2011	5.77	2.099	8.00	1.214	8.00
2012	7.71	0.724	8.00	0.265	6.00
2013	6.53	1.512	8.00	0.681	6.50
2014	10.41	0.003	4.00	0.003	4.00
2015	8.36	0.243	8.00	0.02	4.00
2016	8.85	0.051	8.00	0.002	4.00
2017	10.69	0.001	4.00	0.001	4.00

Willingness-to-Pay Estimates

Choice Experiment	WTP	% Opt out
High Margin Scenario	-$0.89/cwt	52.9%
Moderate Margin Scenario	$0.06/cwt	42.4%
Low Margin Scenario	$0.17/cwt	26.6%
Very Low Margin Scenario	$0.31/cwt	22.8%

Cov. Level	<=4mil	>4mil
$4.00	$0.00	$0.00
$4.50	$0.01	$0.02
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Scoring Dairy Policy: 3. Simulate Sign-Up Choices

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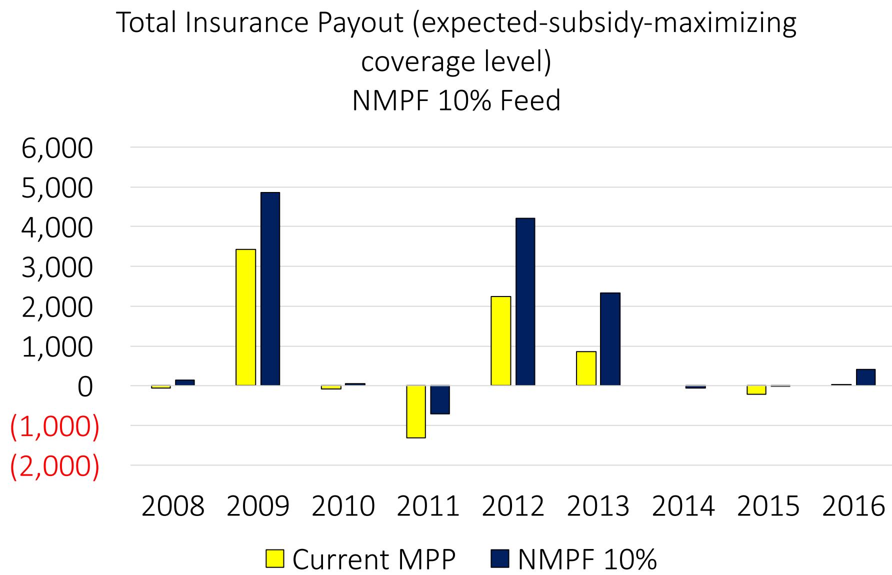

Are Dairy Producers Risk Averse?

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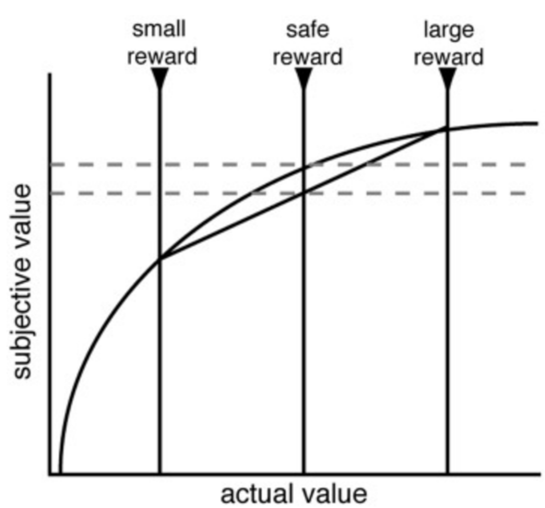

Loss Aversion: Producers Likely More Sensitive to the Loss of Premium than to the "Joy" of Indemnity

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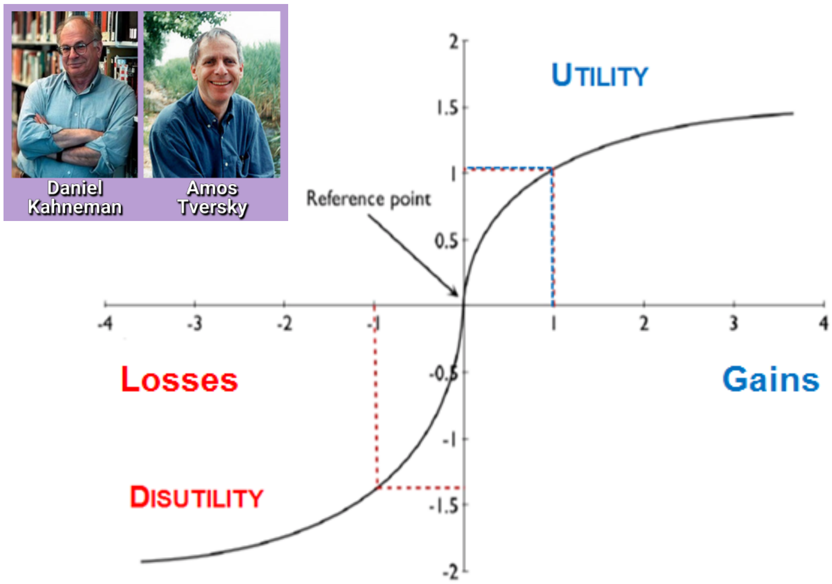

Designing safety net for loss-averse producers

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- **Using "forward looking" estimates under risk-neutrality or risk-averse preferences may overestimate policy costs.**
- **Buy-up beyond catastrophic coverage level is best encouraged by designing programs that have low premiums, rather than high expected net indemnity**

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Removing caps on subsidies for LGM-Dairy

- *The agreement supports the development of insurance products that recognize and cover livestock products such as milk as 'agricultural commodities' separately and distinctly from coverage developed for 'livestock.'*
- *The statute only refers to livestock and lists types of livestock in the definition (7 U.S.C. 1523(b)), but lists no livestock products. There is no indication that Congress intended for livestock products to fall under the limitation of livestock insurance policies and this restriction has unnecessarily hindered the availability of policies for livestock products like milk.*
- *The agreement encourages RMA to present this reinterpretation to the Federal Crop Insurance Corporation board at the next scheduled meeting and develop additional policies for milk to provide dairy farmers with more robust risk management options before the end of the year.*

https://rules.house.gov/sites/republicans.rules.house.gov/files/115/OMNI/DIVISION%20A-%20AG%20SOM%20OCR%20FY17.pdf

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Designing safety net for loss-averse producers (cont'd)

- **Will removing subsidy caps on Title XI dairy programs sap CME futures and options sell hedge liquidity?**
- **Not necessarily.**
- Consider a fence strategy consisting of **long put + short call.**
- Producers do not like paying option premiums, but seek downside protection.
- By selling calls, they can generate revenue to partially or fully reduce the cost of put options.
- **Consider an exotic fence strategy with LGM-Dairy policy in place of a put option, and short call to pay for the (subsidized) premium. This strategy eliminates "loss" due to premiums paid, and fits loss-averse producers better.**
- Exotic LGM-fence can provide more liquidity for dairy buyers looking for a counterparty to take the short call position.

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Fixing Dairy Policy?

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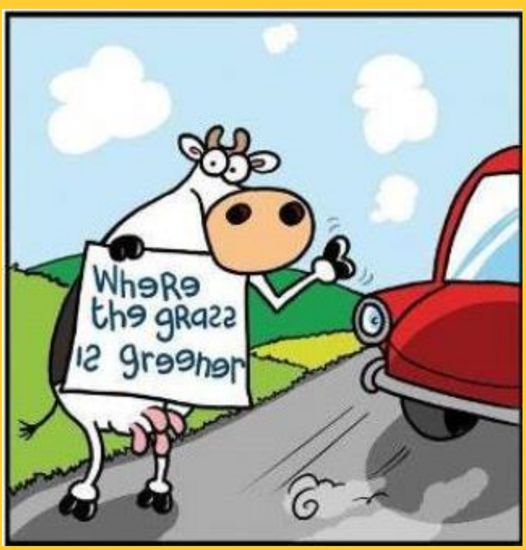

Thank You!

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