Adverse Gaming Incentives in Farm Safety Net Programs: Evidence from the Milk Income Loss Contract

John Newton †

Cameron S. Thraen ‡

and

*Mark Stephenson**

Poster prepared for presentation at the Agricultural & Applied Economics Association's 2014 AAEA Annual Meeting, Minneapolis, MN, July 27-29, 2014.

† Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, Urbana 61801

‡ Department of Agricultural, Environmental & Development Economics, The Ohio State University, Columbus 43210

* Director of Dairy Policy Analysis at the University of Wisconsin, Madison 53706

Adverse Gaming in Dairy Farm Safety Net Programs

Prepared By:
John Newton[1], Cameron S. Thraen[2] and Mark Stephenson[3]

Research Question

The new Margin Protection Program (MPP) for dairy producers pays indemnities when the average national dairy production margin falls below a user selected coverage level from \$4 to \$8/cwt. MPP does not use a rating method to update premiums similar to other insurance products. Instead MPP premiums are *fixed* over the life of the farm bill and producers may annually change their MPP coverage options. Will these policy design choices create **"adverse gaming"** incentives?

Q: Will dairy farmers use available information from milk and feed future markets to maximize the expected benefits of government safety net programs?

Contact

EMAIL: **JCNEWT@ILLINOIS.EDU**

Objective

www.farmdocdaily.illinois.edu

USDA Milk Income Loss Contract (MILC) compensates farmers when the Boston class I milk price falls below a feed-adjusted target price of milk. With MILC the limit for benefits each fiscal year is capped at 2.985 million lbs. of milk; however, each FY a producer may elect the start month in which the farm is eligible to begin receiving benefits. For large farms the start month decision is critical in determining MILC performance since there is only one opportunity maximize returns. **For these dairies MILC payment data was analyzed to determine the accuracy of start month decisions to provide insight into the propensity for dairy farmers to adversely game taxpayer-funded safety net programs.**

Definition:

"Adverse Gaming"

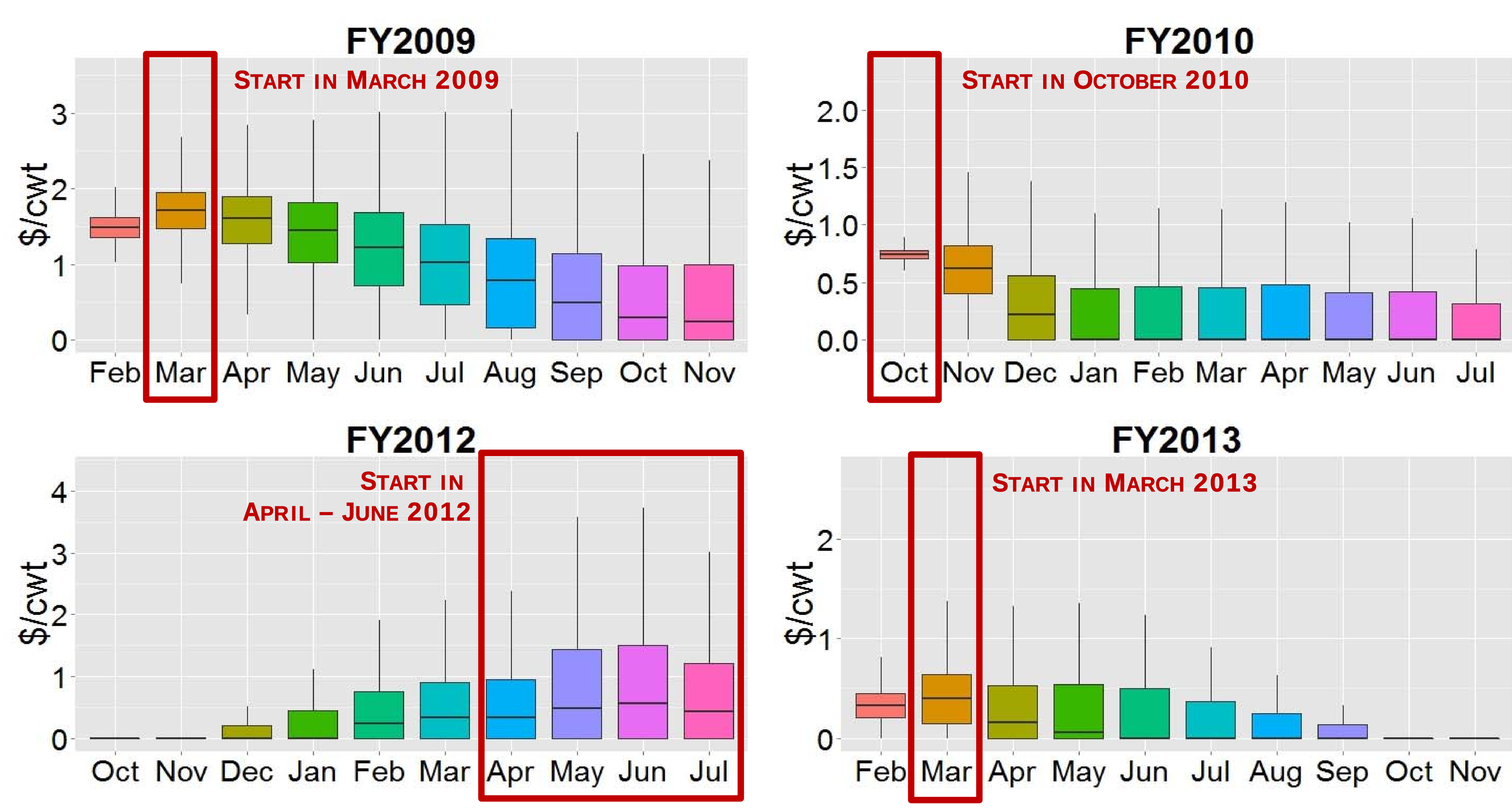
1. **Identifying almost certain losses and then buying insurance coverage for these losses.**

Grand Total: \$115,575,099

Paid to 1,243 Dairy Farm Managers

Results and Discussion

Market Forecast



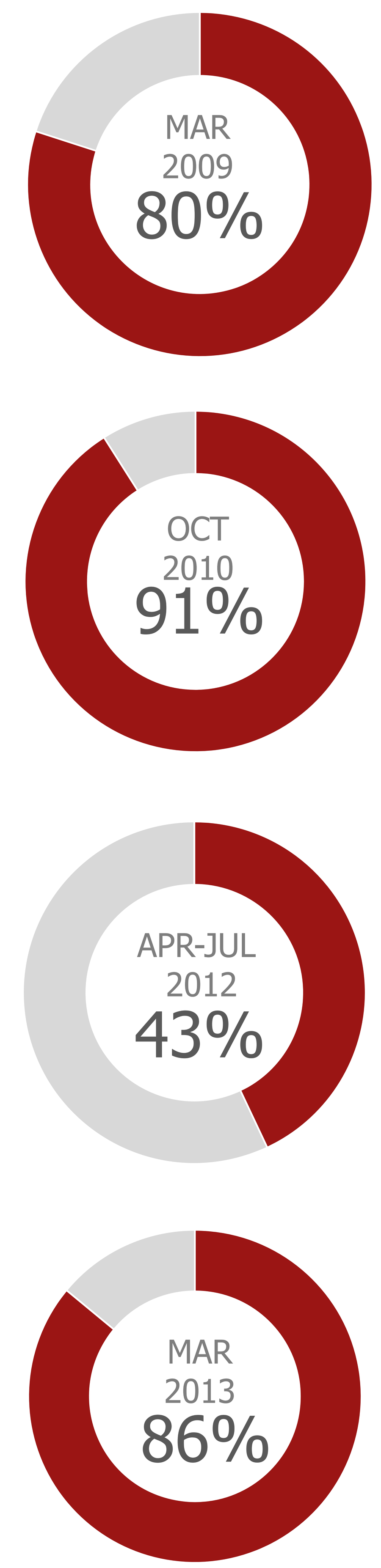
Probability Distributions of E_{t-1}(MILC) Payment Rates
(Optimal Decision Months Highlighted in Red)

Correlated Monte Carlo milk and feed futures price variables were used to derive probability distributions of monthly MILC benefits for each fiscal year sign-up date over 2009 to 2013. Using MILC payment probabilities optimal start date decisions are estimated for dairies producing more than 2.985 million pounds of milk per month. Results of the Monte-Carlo experiment were compared against actual dairy farmer participation in the MILC program to reveal strategic behavior by dairy farmers.

Futures Market Indicated Optimal Start Months>>>

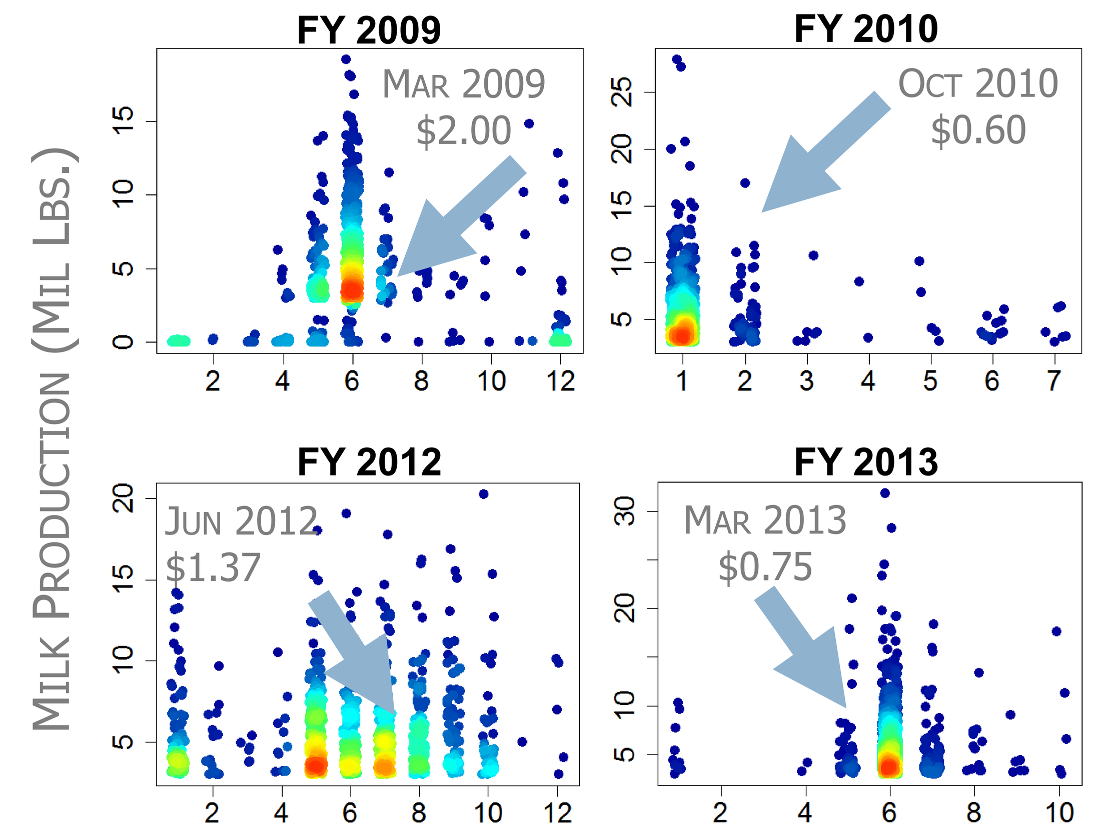
FY 2009	FY 2010	FY 2012	FY 2013
Choose MAR	Choose OCT	Choose JUN	Choose MAR
Expected \$1.71	Expected \$0.74	Expected \$0.83	Expected \$0.42

Actual Enrollment



Percentage of Farms Selecting Start Month

Thermal Density of Start Month Decision
(Farms ≥ 2.985 Mil Lbs. per month)



Large Farms Maximized MILC Returns by Strategically Selecting Start Month

Evidence from the thermal density plots indicate that farm managers eligible to receive only one month of MILC benefits strategically selected the fiscal year start month to coincide with the highest expected MILC payment rates.

2009 - 80% of farmers accurately chose March as the MILC start month

2010 - 91% of farmers accurately selected October as the start month

2013 - 86% of farmers accurately selected March as the start month.

Data and Methodology

MILC farm-level payment data was collected from USDA's Farm Service Agency for 2009 to 2013 fiscal years. Approximately 1.3 million payments totaling \$1.6 billion dollars were made to over 47K dairy farmers during this time period. Start month decisions were analyzed to determine accuracy among dairy farmers with more than 2.985 Mil Lbs. per month of milk deliveries.

MILC Monthly Payment Rates 2009 – 2013 Fiscal Years

In Red: Maximum MILC Payment Months During Each Fiscal Year

Conclusions

1. **By selecting start months which coincided with the highest expected MILC payment rates a large percentage of dairy farmers were able to maximize financial returns to participation.**
2. **Over \$115 million dollars was paid to 1,243 dairy farm managers. An average of \$92,980 per farm.**
3. **MPP participants may adversely game the program and overinsure in face of imminent margin declines, and underinsure when expected margins are above historical averages.**
4. **Confirmation of strategic behavior in MILC indicates that farmers may adversely game the MPP program to maximize financial returns.**

Author Affiliations: [1]University of Illinois Urbana-Champaign, [2]The Ohio State University, [3]University of Wisconsin Madison

@NEW10_AGECON