Distribution of Canadian Agricultural Program Payments

Janelle Mann and Brandon Schaufele

Presented at the Risk Management Workshop
November 6, 2017
BACKGROUND

• Papers that have studied Canada’s agricultural payment programs with a focus primarily on efficiency (Rude and Ker, 2013; Vercammen, 2013; Schaufele, Unterschultz and Nilsson, 2010; Kimura, Anton et al., 2011)

• Here we investigate the distribution, or equity, of Canada’s evolving agricultural payment programs
DATA

• Tax filer data from Statistics Canada

• All operations with a positive gross farm income within a year, divided into percentiles
  • 3,000 operations per percentile in 2001
  • 2,600 operations per percentile in 2006

• Methods employ gross farm revenue data
**METHOD**

![Graph showing percentiles and cumulative distribution function.](image)
RESULTS

(a) Cattle

(b) Grains and Oilseeds

(c) Dairy

(d) Hogs
Results

Graph showing the Kakwani Index for All Farm Enterprises from 2001 to 2008. The index values show a peak around 2004 and a decline thereafter.
CONCLUSION

• Overall, a 75-90 rule emerges from empirical analysis; the top quartile of farms earn 75% of all agricultural revenues and receive 90% of the program payments (approximate).
QUESTIONS TO PONDER

• Is this observed inequity due to program design?
  
  • Simulation using cow-calf data indicates Kakwani index of -0.04 compared to -0.12 in observed data.

• What is driving the observed inequity?

• Do policy makers, producers, and tax payers care about equity?
Free Riding on Non-Index Funds

Janelle Mann, Charles Grant, and Larry Rigaux

Presented at the Risk Management Workshop
November 6, 2017
BACKGROUND

- Phoenix Agri-Tec market information report includes the net speculative position of non-index funds
  
  - Non-index funds (*thinking funds*) versus index funds (*non-thinking funds*)
  
  - Non-index funds (*thinking funds*) often hold over 25% of total open interest
BACKGROUND
BACKGROUND

Impact of Net Speculative Positions

Mann, Grant, and Rigaux
BACKGROUND

\[ \rho = 0.695^{***} \]

\[ \rho = 0.555^{***} \]

\[ \rho = 0.639^{***} \]

\[ \rho = 0.381^{***} \]
RESEARCH QUESTIONS

• Commodity traders, who are mainly hedgers would like to know:

  • Do non-index fund (thinking funds) trading activities provide useful market signals?

  • Are non-index funds (thinking funds) profitable?
DATA

• Weekly Tuesday aggregate futures positions held by non index funds published by the U.S. Commodity Futures Trading Commission
  • Thank you Phoenix AgriTec for collecting and providing the data!

• Weekly Tuesday futures price from 2009-2016 (post commodity boom, 2007-2008)
DATA

• Weekly Tuesday aggregate futures positions held by non index funds published by the U.S. Commodity Futures Trading Commission
  • Thank you Phoenix AgriTec for collecting and providing the data!

• Weekly Tuesday futures price from 2009- 2016 (post commodity boom, 2007-2008)
  • Futures for soybeans, corn, and cattle are rolled over on the first Tuesday of the expiring futures month (deliverable contracts) whereas futures for hogs is rolled over on the third Tuesday of the expiring futures month (cash settled contract)
METHOD – MARKET SIGNAL

• Do non-index fund (thinking funds) trading activities provide useful market signals?

• Granger causality following Toda and Yamamoto (1995)

\[ Y_t = \beta_0 + \beta_1 X_{t-1} + \beta_2 X_{t-2} + \ldots + \beta_{k+d_{\text{max}}} X_{t-k+d_{\text{max}}} + A_1 Y_{t-1} + A_2 Y_{t-2} + \ldots + A_{k+d_{\text{max}}} X_{t-k+d_{\text{max}}} + u_t \]

\( Y_t \) = Nearby commodity futures price
\( X_t \) = Net speculative position for non-index funds

• \( H_0 \): Net speculative positions for non-index funds do not Granger cause commodity futures prices

• \( H_1 \): Net speculative positions for non-index funds Granger cause commodity futures prices
RESULTS — MARKET SIGNAL

• Corn (p-value = 0.7707) and live hogs (p-value = 0.6369)
  • Speculative positions for non-index funds (thinking funds) in and of itself do not provide any new / additional information for individual traders

• Soybeans (p-value = 0.0997) and live cattle (p-value = 0.0550)
  • Speculative positions for non-index funds in and of itself do provide new / additional information for individual traders
METHOD - PROFITABILITY

• Are non-index funds (thinking funds) profitable?

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METHOD - PROFITABILITY

- Are non-index funds *thinking funds* profitable?

### Long canola

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RESULTS - PROFITABILITY
RESULTS - PROFITABILITY

Non-index Fund Profit from Corn Trading (Millions USD)
RESULTS - PROFITABILITY

Non-index Fund Profit from Lean Hogs Trading (Millions USD)
RESULTS - PROFITABILITY

Non-index Fund Profit from Live Cattle Trading (Millions USD)
CONCLUDING REMARKS

• Do non-index fund (thinking funds) trading activities provide useful market signals?

• Are non-index funds (*thinking funds*) profitable?

Yes – Soybeans and live cattle
No – Corn and lean hogs
CONCLUDING REMARKS

• Do non-index fund (thinking funds) trading activities provide useful market signals?

• Are non-index funds (thinking funds) profitable?

  Yes – Soybeans and live cattle
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• Additional contributions – Roll-over method and profitability calculation

• Potential extensions – Nonlinear Granger causality