The Value of Economic Data

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A Few Preliminary Thoughts

• Data is a public good as it they are not divisible or appropriable (Arrow 1962)

• Ag data collection has high fixed costs while dissemination is relatively inexpensive (Just AJAE, 1983)

• As an Editor of a scientific journal it is obvious that the research submitted is largely driven by the available data more than the relevance of the question. (Vercammen, 2016)
The Better Approach to Research

- Economic Issue
- Research Question
- Data
- Analysis
The Common Approach to Research

Data  Research Question  Analysis
Entrepreneurship stimulated by Government Data
The Future of On Farm Data

Estimated Amount Of Data Generated By The Average Farm Per Day

Source: OnFarm, BI Intelligence Estimates, 2015
Some Broad Categories of Agricultural Economic Data

- Animal & Crop Prices
- Farm Economy
- Farm Practices & Management
- Food & Nutrition Assistance
- Food Choices & Health
- Food Markets & Prices
- Food Safety
- International Markets & U.S. Trade
- Natural Resources & Environment
- Rural Economy & Population
Let’s Not Forget Disaggregates

• How many random surveys needed to achieve 95% confidence of +/- 2 bu of true national corn yield?
  – Answer: 0.68% of all farms

• How many random surveys needed to achieve 95% confidence of +/- 2 bu of true county corn yield in all counties?
  – Answer: 81% of all farms
RMA vs. NASS Data

- RMA Market Penetration Report
  - Corn 84% insured
  - Soybeans 84% insured

Falling Response Rates to USDA Crop Surveys: Why it Matters
By Robert Johansson, Anne Effland, and Keith Coble

https://www.rma.usda.gov/pubs/2013/portfolio/
The Potential Implications of “Big Ag Data” for USDA Forecasts

• There is value in randomized sampling to avoid non-representative sample
  – Ex RMA data
  – Biases not significantly reduced by large samples
  – Bias appears to be stable across years
  – Inaccurate data

• USDA gold standard as a benchmark

A Vision of Agricultural Research in the Future

- (1) Research and Experiment Data: Shared and organized in a useable fashion.
- (2) Program Administrative Data: Privacy protected such that research is achieved while avoiding private data release.
- (3) Private Precision Data Re: Weather, Inputs, and Outputs: Data held by farms & agribusiness firms that is a new avenue for research using machine learning etc.
- (4) Surveys that Collect Missing Data: Government statistical agencies maintaining important benchmark surveys & captures important information like farm financials and prices.

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Policy Analysis Going Forward

• Much of the big data advancement has been in predictive models – non-causal models

• Policy analysis needs causal models
  – Some new big data analytics will be adapted to causal models

• The role of government statistical data collection
  – Equalizing asymmetric information