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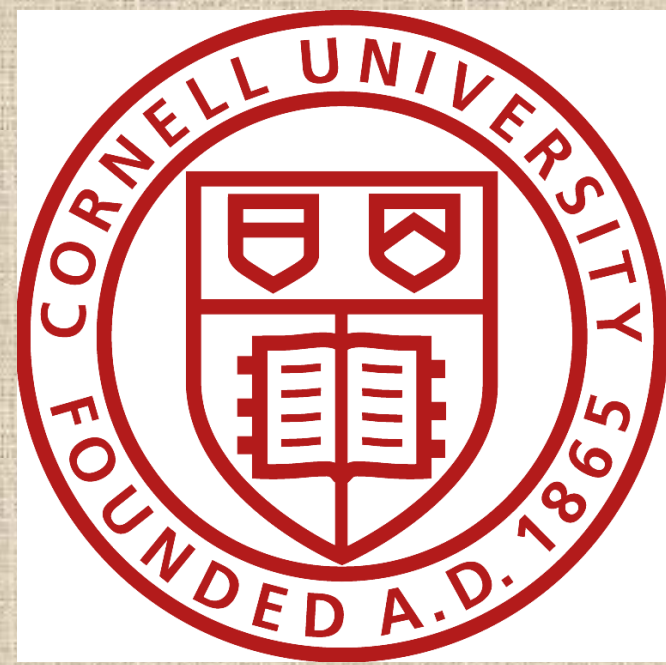
Reoptimization or Bias? Factors Affecting Changes in Production Decisions of Farmers

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MOTIVATION

Any number of factors influence farmers' and ranchers' ever changing production plans.

The main goal of the project is *to analyze how and why producers change their plans* by taking advantage of a rich database resulting from the Texas A&M AgriLife Extension, FARM Assistance Program, which includes producer budget plans and other factors.

Other goals include:

- expanding the existing database to include actual production data and characteristics of the farm manager.
- contributing to the research literature on expectations and adaptations in agricultural decision-making.
- testing for the presence of specific decision-making biases.

APPROACH: DATA COLLECTED

Follow up phone interviews/meetings are currently being conducted to obtain from participants their actual production experiences (acres, price, and yield from 2011 and 2012) to match with their plans recorded prior to those growing seasons.

Participants were asked to return the FARM Track survey assessing key characteristics regarding their attitudes and management styles.

To encourage participation, farmers were offered a discount on their next FARM Assistance analysis fee (\$50 off the typical \$400).

Despite all these efforts, the number of farmers that responded to the surveys was low. In total we obtained 34 observations. Not all participants responded to both years.

FARM TRACK SURVEY

The FARM Track follow-up survey was designed to solicit from participants demographic controls and psychological constructs for risk attitudes, which are obtained from standard questions. Also addressed are challenging issues of expectations and biases. The survey consists of questions with scaled agree/disagree responses including the following topics, including subjective ranges of high/low probabilities:

Innovativeness and Technology Adoption Market Orientation Risk Attitude Risk Perception
Risk/Loss Aversion and Time Preference Motivation for Savings Hedging, Insurance, and Risk Management Climate Change
Planned Investment/Expansion Drivers Financing Constraints Opinion of the Agricultural Business Climate
Borrowing History Yield and Price Expectations Next Year Production Plans

RESULTS

Table 1. OLS Fixed Effects Panel Regression Results on the Decision to Follow Thought Production Plans.

Variable	Model 1	Model 2	Model 3
Optimist	1.555*** (3.618)	0.604 (1.533)	0.719* (1.683)
Risk-Taking Behavior			-0.471 (1.203)
Risk Perception	1.046** (2.877)	1.163*** (4.434)	1.264*** (4.208)
Credit Denied	-3.717*** (-4.083)	-3.015*** (-3.76)	-3.211*** (-3.748)
Crop Insurance Indem.	-0.056 (-1.669)	-0.214*** (-4.045)	-0.211*** (-3.973)
Net Cash Flow	-0.051 (-1.614)		
Crop-Only Farm	1.857* (1.902)	1.169 (1.369)	1.424 (1.519)
Adj. R ²	0.9985	0.8670	0.8371
AIC	-30.313	-43.553	-40.684

t-statistic in parenthesis. * p-value < 0.10, ** p-value < 0.05, *** p-value < 0.01. Constant value not included, individual fixed effects estimated

CONSLUSIONS

This paper looks at behavioral and farm characteristics that affect producers' decisions to follow-through with their initial business plan (marketing, investment and risk management). Being able to change business plans is an indicator or adaptability to new market information.

Overall, we find several variables that correlate with the decision to follow-through with an original business plan. These variables include behavioral characteristics such as measures of risk perception and attitudes towards risk, as well as farm financial data.

Behavioral variables such as risk perception, business risk vulnerability, and being optimistic about next year overall farming conditions are significant in explaining the likelihood of following through with an original plan. Financial variables such as being denied business credit before and crop insurance payments relate negatively to plan follow through. Farm characteristics, like being a crop farm versus having livestock, also explain the likelihood of plan follow up.

This study sheds new light into the behavioral and financial aspects of business adaptation to new market conditions. This is important because being able to respond to new market information adequately can improve the farm or ranch's financial performance and in more extreme cases, can affect its solvency.

More research needs to be done in this area, but this paper represents a first step towards understanding the important and under-studied problem of the farmer or rancher's decision to change business plans or to follow-through in a context of price and production uncertainty.

CONTACT INFORMATION

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