Selected Presentation at the 2020 Agricultural & Applied Economics Association Annual Meeting, Kansas City, Missouri, July 26-28

Measuring the Effect of Direct-to-Consumer Marketing Strategy on Farm Income: A Generalized Propensity Score Approach

Feng-An Yang[1], Shih-Hao Chen[1]

[1] Department of Agricultural Economics
National Taiwan University

Introduction

- Direct-to-consumer marketing refers to selling farm products directly to consumers in agricultural business.
- It has become increasingly popular in many countries in recent years.
- While a number of studies have examined the effect of direct-to-consumer marketing on farm income, there is no consensus on whether direct marketing can increase farm income.
- Most work relies on a binary indicator of participation in direct-to-consumer marketing.
- However, farmers in practice can have different combinations of marketing channels and adopt different numbers of direct marketing strategies.

Objective

- To investigate the relationship between direct-to-consumer marketing and farm income.
- To estimate a dose-response function of farm income (response) on a continuous measure of direct-to-consumer marketing strategy adopted by farmers (dose).

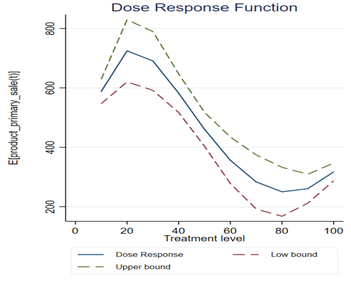
Empirical Strategy

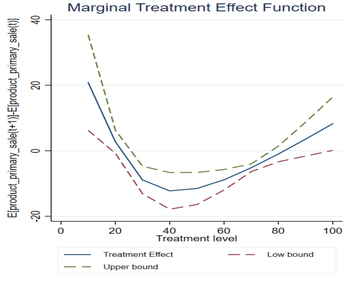
- We use a Generalized Propensity Score (GPS) approach to deal with the continuous treatment variable (the percentage sales to consumers).
- Farm products at the different treatment levels are similar conditional on the estimated GPS.
- They only differ in percentage sales to consumers.

Data

- 2013 Core Farm Households Survey.
- A nationally representative sample of farm households with an annual agricultural income greater than NT$ 200 thousand
- Include 13,482 product-specific observations from 9,563 farm households.

Dose-Response Function





Balancing Property

Table 1. Covariate balance before and after adjustment

	Before adjustment		After adjustment	
Variable	Mean Difference	t value	Mean Difference	t value
Age	0.880***	3.65	-0.242	0.23
Male	0.003	0.48	-0.005	0.01
Primary	-0.031***	-2.89	0.015	0.01
Junior	-0.044***	-4.54	-0.008	0.01
Senior	0.047***	4.89	-0.002	0.01
College	0.028	5.84	-0.005	0.00
Years of experience	-0.022***	-0.07	-0.238	0.33
Agricultural production and marketing group	0.099	9.27	-0.034***	0.01
Agricultural cooperative	-0.006	-1.21	0.004	0.00
Farmer Association	-0.016 **	-2.21	-0.012 *	0.01
Plot area	-1.036	-0.41	-6.256 **	2.80
Contracting farming	-0.008***	-2.77	0.003	0.00

***, **, * are significant at the 1, 5, and 10% level, respectively.

Conclusion

- Direct-to-consumer marketing has a nonlinear effect on farm income.
- Increasing percentage sales to consumers up to approximately 20% leads to higher farm income.