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**Livelihood Disruption and Venture Creation:  
Entrepreneurship as Technology Adoption,  
A Case of Tobacco Farmer in Kentucky**

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# Livelihood Disruption and Venture Creation: Entrepreneurship as Technology Adoption, A case of Tobacco Farmer in Kentucky

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## Introduction

- Technology adoption and Entrepreneurial activity both involve substantial risks.
- The uncertainty in household income and changes in economic environment during the tobacco transition payment program lead many individuals into entrepreneurial activities.
- Heterogeneity in learning by doing, or knowledge generated by direct or indirect experience, is determined by the degree to which the individual is connected to an entrepreneurial social network.
- Entrepreneurs need complementary resources to produce and deliver their goods and service (Teece 1987). They need support, knowledge and access to distribution channels through social network.
- The link and the interaction among entrepreneurs and their social network can enlarge the availability of resources that help maintain a new firm (Hansen 1995).

## Objectives

- Use the theory of technology adoption to study entrepreneurship
- Examine the role of social networks (learning by doing) in the adoption of entrepreneurship
- Study the factors associated with an entrepreneurial activity decision

## Hypotheses

- *The “push” hypothesis*: farmers with decreased income are pushed into starting a new business
- *Learning by Doing*: Farmers who have friends who have started ventures will be more likely to start their own, controlling for other social connections.

## Data

- A Survey of Kentucky Farmers: The Tobacco Buyout, 2005-2006
- 702 respondents

## Methods

### Bivariate Probit Model

$$\max_{t \in [0,1], T} U(\pi_0(\theta, (1-t), T)) + EU(\pi_e | S, \theta, t, T),$$

- $S$  = Social network
- $\pi_e$  = Current employment profit
- $\pi_0$  = Entrepreneurial activity random profit
- $t$  = Percentage of working time devoted to the entrepreneurial activity
- $T$  = Leisure time
- $U$  = Standard utility of wealth function
- $\theta$  = Personal characteristics

$$EU(\pi_e | S, \theta, t, T) = \int_{-\infty}^{\infty} U(\pi_e) f(\pi_e | S, \theta, t, T) d\pi_e$$

- Discrete choices
  - whether or not to quit tobacco farm

$$U_i^* = U(\pi_{0i}(\theta_i, (1-t_i), T_i; u_i))$$

$$U_i^* = X_{1i}\beta_1 + u_i$$

$$z_i = \begin{cases} 1 & \text{if } U_i^* \leq EU(\pi_{ei} | S_i, \theta_i, t_i, T_i) \\ 0 & \text{if } U_i^* > EU(\pi_{ei} | S_i, \theta_i, t_i, T_i) \end{cases}$$

- whether or not to start new business

$$EU_i^* = EU(\pi_{ei} | S_i, \theta_i, t_i, T_i; \varepsilon_i)$$

$$= \int_{-\infty}^{\infty} U(\pi_e) f(\pi_e | S_i, \theta_i, t_i, T_i; \varepsilon_i) d\pi_e$$

$$EU_i^* \cong X_{2i}\beta_2 + \varepsilon_i$$

$$y_i = \begin{cases} 1 & \text{if } EU_i^* > U(\pi_{0i}(\theta_i, (1-t_i), T_i)) \\ 0 & \text{if } EU_i^* \leq U(\pi_{0i}(\theta_i, (1-t_i), T_i)) \end{cases}$$

- Factors affecting entrepreneurial technology adoption by farmers
  - Farm structure/size, Human capital, Risk and risk preferences, Tenure, Labor Supply, Credit constraint, Location factors
- Factors affecting entrepreneurial decision
  - Economic factors, Human capital, Social network, Distance and geography, Tenure, Demographic factors

## Results

Bivariate Probit (Outcome equation)			
	b/se		b/se
entrep			
income1	0.484** (0.2201)	know people	0.290* (0.1573)
income2	0.033 (0.1742)	urban	0.104 (0.1563)
income3	0.108 (0.2009)	distance	0.107 (0.2035)
land	0.163 (0.1270)	rent	-0.068 (0.1628)
buyout checks	-0.000 (0.0000)	age1	0.402* (0.2324)
payment option	0.288 (0.1947)	age2	0.464** (0.1863)
educ	0.123 (0.1423)	age3	0.260 (0.1935)
comp	0.064 (0.1727)	white	-0.525** (0.2237)
internet	0.100 (0.1443)	death	0.313** (0.1261)
social group	-0.142 (0.1743)	divorce	0.214 (0.2048)
		constant	-1.650*** (0.3137)

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Bivariate Probit (Selection equation)			
	b/se		b/se
quittobacco			
income1	-0.161 (0.2504)	age1	0.028 (0.2508)
income2	-0.122 (0.1908)	age2	-0.185 (0.1951)
income3	0.111 (0.2095)	age3	-0.026 (0.1916)
land	0.123 (0.1516)	white	0.166 (0.3036)
buyout checks	0.000 (0.0000)	death	0.181 (0.1391)
payment option	0.329 (0.2042)	divorce	0.241 (0.2252)
educ	0.259 (0.1621)	business climate	-0.516*** (0.1400)
comp	-0.046 (0.1783)	tobacco acres	-0.001 (0.0032)
internet	0.061 (0.1490)	tobacco sell	-0.000 (0.0000)
social group	0.522*** (0.1946)	hay	0.292* (0.1748)
know people	0.039 (0.1614)	beef	0.556*** (0.1799)
urban	-0.103 (0.1781)	horses	0.146 (0.1780)
distance	0.626** (0.2862)	veget	-0.112 (0.2078)
rent	0.090 (0.1766)	grains	0.084 (0.1344)
		constant	-3.218*** (0.4832)
		athrho	0.196* (0.1013)

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## Conclusions

- Tobacco farmers are more likely to start their own business if:
  - Low Income
  - Know others who started their own business
  - Under 54 years of age
  - White
  - Experienced a recent death in the household.
- The finding supports the “push” hypothesis as farmers with low income are pushed into starting a new business.
- Learning by doing is supported. Other social connections (with non-entrepreneurs) appears to have no impact.

## References

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