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Farmers' Choice of Using Sustainable Agricultural Practices: A Social Capital Approach

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Abstract

This paper explores, in the context of social capital, why farmers choose to use sustainable agricultural practices. A random telephone survey of Georgia farmers examined whether different levels of social capital account for the use of sustainable agricultural practices. The hypothesis tested is that farmers who exhibit higher levels of social capital will adopt sustainable agricultural practices more often than those who exhibit lower levels of social capital.

Farmers' Choice of Using Sustainable Agricultural Practices:
A Social Capital Approach

The purpose of this paper is to explore, in the context of social capital theory, why farmers choose to use sustainable agricultural practices. A random telephone survey was conducted in the winter of 2004 of 431 farmers in Georgia. The survey was designed to test correlations between levels of social capital and whether a farmer uses one or more of 18 sustainable agricultural practices. The hypothesis that is being tested is that farmers who exhibit higher levels of social capital will adopt sustainable agricultural practices more often than those who exhibit lower levels of social capital.

Sustainable agriculture refers to an agricultural production and distribution system that:

- Achieves the integration of natural biological cycles and controls
- Protects and renews soil fertility and the natural resource base
- Optimizes the management and use of on-farm resources
- Reduces the use of non-renewable resources and purchased production inputs
- Provides an adequate and dependable farm income
- Promotes opportunity in family farming and farm communities
- Minimizes adverse impacts on health, safety, wildlife, water quality and the environment

In the survey, farmers were asked a series of yes-no questions regarding farming practices that seek to achieve the above sustainable goals. After the farming practices questions, the respondents were asked a version of a social capital question to determine why they used (or didn't use) these practices. Similar to the lost wallet questions (would you return a wallet with money and why) respondents were asked to allocate 100 points among three reasons for using sustainable agriculture practices:

- They are concerned about future farmers and their ability to use resources
- It is the right thing to do - the practices are sound
- They earn higher profits or lower their costs

These three responses correspond to research that has been done to determine motivations for social capital. The first, concern about future farmers and resources, corresponds to the definition of social capital — a person's or group's sense of obligation (or sympathy) toward another person. The second response corresponds to actions consistent with a norm or code. There is no requirement to care for others, rather the action is a result of learned behavior. The third response is a desire for reward (profit) and also requires no caring, and no social capital is needed.

This paper suggests that neoclassical economics, built on the idea of profit maximization, does not fully explain farmer's actions. The paper explores whether reward or profit is a dominant factor in the choice of farming practices or are social capital elements involved?

Survey

The analysis of the study was based on a telephone survey of Georgia farmers using a random dial approach. The survey was conducted by the Georgia Agricultural Statistics Service (NASS-USDA) in the winter of 2004. The design of the study called for conducting a total of 431 telephone interviews, representing a statistically significant sample of Georgia farmers at the 95% confidence interval. To achieve 431 interviews, 921 phone contacts were made, representing a 46.8% response rate. The non-response rate included respondents who were unavailable, non-working numbers, answering machines, no answer/busy, or strange noise. The survey had 76 questions including demographic information.

Farmers were not asked if they were "sustainable" farmers. Rather, they were asked whether they used a series of 18 practices that covered the range of sustainable agriculture. The practices were grouped as pest management (3), grazing (3), soil/nutrient management (5), marketing (5), and organic

(2). After the practices questions, farmers were asked about the reasons for adoption – the social capital question. Farmers were also asked eight questions regarding their farming operation.

Table 1 shows the demographic information of the respondents in the survey. This information is compared to the respondents from a statewide random-digit dial survey of residents of Georgia in the summer of 2003 (Jordan 2004). Farm respondents were generally older than others in the state, have lived in Georgia longer, and have been at their current address considerably longer. Respondents were overwhelmingly more male, married, white, voters, and lived in smaller communities. The educational background of farm respondents was similar to the general population. Total mean household income was generally higher among farm respondents than the general public.

Table 2 shows the mean responses for several questions regarding farm operations. Over 50% of the respondents worked full- or part-time off the farm. Acres cultivated, owned and rented show that the mean responses were from relatively small farm operations. Only six percent of respondents cultivated more than 500 acres, 15% owned more than 500 acres and another five percent rented more than 500 acres. When asked to characterize the primary farm enterprise, 69% responded livestock/poultry farms. This results from the large number of small cow/calf operations that dominate much of north Georgia agriculture. Nearly half (46%) of the respondents had gross farm income of less than $10,000. Eight percent of the respondents can be characterized as limited-resources farms — having total household income of less than $20,000. Twenty-six percent of farmers can be characterized as large farms having gross farm income of over $50,000. Finally, 66% are characterized as small farms (between limited resource and large farms).

Table 3 presents the responses to questions regarding sustainable agricultural practices. Nearly half of all respondents are involved in management-intensive grazing system (47%), mix pasture forages in a single field (45%) and use cover crops (48%). Few farmers are certified organic (2%) or process organic crops or add value to them (5%). Five percent of farmers are planting a greater variety of crops than in the past and only two percent are replacing tobacco. Almost three-quarters of respondents are using at least one of the soil/nutrient management practices, 63% are using one of the grazing systems, 46% are involved in one of the marketing practices, 40% with a pest management system, and 5% are involved with organics. The use of sustainable soil/nutrient practices is most common with a majority of farmers using two of the five alternatives.

Respondents were sorted by six farm types: large farm (over $50,000 in gross farm income), limited resource farm (total household income under $20,000), and farms where the operator worked part-time off farm, full-time off farm, and full-time on farm. Limited resource farmers had the lowest mean use-rate in 12 of the 18 practices and in all five of the general categories. Of the other six practices, large farmers had the lowest mean use-rate in four. Farmers that work full-time off farm had the highest mean use-rate in 11 of the 18 practices, particularly in marketing (4 of 5).

Social Capital Sustainable Agriculture

Modifying a definition proposed by Robison, Schmid and Siles (1999), social capital is a person's or group's sense of empathy (or sympathy) and ethical obligation toward other persons or groups. The sense of empathy or sympathy requires affinity or caring for other persons or groups beyond the bounds of individual reward or profit. To make social capital operational requires in people a feeling of ethical obligation, or a norm to "do the right thing." Social capital is produced when the sense of sympathy and

obligation moves people to act. In this survey, respondents were asked about motivations for using any of the farming practices by allocating 100 points among three reasons. Since mixed motives exist, the respondents were not asked to chose one motive, but to allocate importance using 100 points.

The first choice was that the farmer was concerned about future farmers and their ability to use resources. Choosing a sustainable agricultural practice due to a concern for future farmers and available resources requires a sense of sympathy or obligation for other persons and also requires affinity or caring. The second choice was to use sustainable agricultural practices because it is the right thing to do, that the practices are sound. Here there is no requirement to care for others, rather the choice is a result of learned behavior (best management practices). The third choice is that sustainable agricultural practices would lead to higher profits or lower costs. No social capital exists here. This reason represents the standard neo-classical economic assumption of profit maximization.

As shown in Table 4, those farmers who are using at least one of the sustainable practices allocated a mean of 42 points to concern for the future, followed by profit and sound practice (29 each). Seventeen percent of the respondents allocated 100 points to the reason that indicates a concern for the future, while 11% allocated 100 points to both sound practices and profit. For those who do not use any sustainable practices (73) sound practice became the highest motive (35) followed by concern for the future (33) and then profit (31). When analyzed by farm category (large, limited resource, etc.), the allocation of motivations was similar to the full survey except that large farmers had the highest point allocation for concern for the future (60) and the lowest for both sound practices (21) and profit (19).

The responses indicate that, contrary to profit maximization assumptions, farmers are making decisions that include the consequences of social capital. In fact, the respondents who use sustainable

practices place the most emphasis on concern for future farmers. Over 70% of the motivation for adopting sustainable agricultural practices does not include profit. There is no statistical difference ("=.05) among the motives of those who do not use such practices. Both the patterns of users and non-users of sustainable practices hold when respondents are categorized by one of the five groups of practices.

Conclusions

Through the development of social capital in rural areas, sustainable agriculture can be enhanced, and enhance a rural community. Approaching the issue of agriculture and the environment from a social capital perspective allows communities to talk not about environmental protection but about enhancing the quality of life through attention to community and stewardship (Ikerd, 2001).

Sustainable agriculture and social capital are linked when farmers and non-farmers in a rural community recognize their actions can make a difference in achieving goals (Flora, 1995). Social capital on a limited resource farm is often derived from family and neighbors. Yet these farmers need to transcend these closed networks to access additional resources and markets – to expand their social capital. Social capital is at the heart of quality of life issues. From education to health to development, improving social capital can affect the life of a rural community.

One obstacle to the adoption of sustainable agricultural practices by farmers is the perceived risk in changing established practices. The relational dimensions of social capital are critical in sustainable agriculture to enhance market benefit and reduce the costs of risky shifts that often come with changing conventional ways of doing agriculture. Relational dimensions of social capital may form the basis of

new practices of sustainable entrepreneurial partnerships between agriculture and rural community. New institutions different than conventional institutions organized to move value out of communities rather than retain value within may be developed as social capital in a community increases. It is necessary to investigate the kinds of institutional arrangements, networks, and relationships that can foster growth of social capital in rural communities and surrounding farming communities.

As farmers look to sustainable agricultural practices as alternatives to conventional farming, it may be that adopters are motivated less by profit maximization than by concerns that can be characterized as social capital. Even for those farmers who have not adopted sustainable practices, motivations are mixed. One consequence of social capital, of the concern for others, is the act of shifting to sustainable practices. Thus, movement to a more sustainable agriculture will be enhanced as the social capital notions of caring and affinity are increased.

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Table 1. Demographic Information - Mean Responses

Category	Georgia*	Farmer respondent
Years lived in Georgia	30	55
Years at current address	11	30
Own home	82%	99
Male	34%	87%
Female	66%	13%
Number people in household	3	2
Age	45	60
Number of children	2	2
Live in MSA	68%	
Live in non-MSA	32%	
***Population in Area* (*percent*)**		
Over 500,000	14	2
50,000 - 500,000	26	6
10,000 - 49,999	25	23
Under 10,000	13	69
Country (not farm)	7	
Farm	1	
Don't know	16	
Marital Status (percent)		
Married	61	84
Divorced	10	6
Separated	1	>1
Widowed	6	6
Never married / Single	20	4
Living together	1	0
Refused	1	0
Ethnicity (percent)		
White	71	96
African-American	23	4
Asian	1	>1
Other / Refused	5	>1

Category	Georgia*	Farmer respondent
Education* (percent)		
Less than high school	0	4
Some high school	5	8
Graduated high school	24	28
Some college	27	28
College graduate	26	22
Post graduate	15	10
Other / Refused	3	
Registered to Vote (percent)		
Yes	84	96
No	16	4
Household income (percent)*		
>$20,000	10	8
$20,000 - $39,999	14	17
$40,000 - $59,999	15	21
$60,000 - $79,999	10	14
$80,000 - $100,000	8	9
Over $100,000	14	31
Refused / Don't know	29	

* Statewide data from 2003 survey of Georgia residents (Jordan 2004).

Table 2. Farm Operation - Mean Response

Category	Response
Full-time job off farm	40%
Part-time job off farm	12%
Years farming	33
Acres under cultivation	164
Acres owned	318
Acres rent	89
Primary enterprise (percent)	
Livestock/poultry	69
Trees	13
Row crops	8
Fruit, nuts, vegetables	4
Hay	3
Nursery sod	1
Other	2
Gross farm income (percent) last year	
None	8
Less than $1,000	6
$1,000 - $4,999	17
$5,000 - $9,999	15
$10,000 - $49,999	28
Over $50,000	26

Table 3. Sustainable Agricultural Practices

Practice	Percent using
Pest management - 40%	
Biological, cultural, physical pest management tools	25
Habitat for beneficial insects or trap crops	12
On-farm biological cycle	16
***Grazing* - 63%**	
Management-intensive grazing system	47
Mixes of pasture forage in single field	45
Animal management system with two or more species	24
Soil/nutrient management - 74%	
Strip cropping, reduced or no-tillage	35
Cover crops	48
Soil organic matter	32
Maintain micro-organisms in soil	29
Mulches/manures	50
***Marketing* - 46%**	
Greater variety of crops than in past	5
Replacing tobacco	2
Direct marketing	12
Ag coop or commodity group	30
Value added	13
***Organic* - 5%**	
Certified organic	2
Process or value-added organic	5

Table 4. Results: Reasons for Using Any Sustainable Agricultural Practice (each response is set of 100 possible points)

1.	Why do you use practice?	
	Concerned about future farmers and their ability to use resources	42
	It's the right thing to do - practices are sound	29
	Higher profits or lower costs	29
2.	Why do you think others use practice?	
	Concerned about future farmers and their ability to use resources	41
	It's the right thing to do - practices are sound	27
	Higher profits or lower costs	32
3.	If you would ever use practices, why?	
	Concerned about future farmers and their ability to use resources	33
	It's the right thing to do - practices are sound	35
	Higher profits or lower costs	31
4.	Why would other use practices?	
	Concerned about future farmers and their ability to use resources	32
	It's the right thing to do - practices are sound	33
	Higher profits or lower costs	35