

**Does Social Capital Influence Member Participation in  
Agricultural Cooperatives?  
-Korean Agricultural Cooperatives-**



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## Motivation & Objectives

- Relations between people play important roles in governing economic activities as well as many other human activities.
  - Coined as Social Capital (SK) and explored in many disciplines
- Ag co-ops provide a uniquely favorable basis for the utilization of SK, its reproduction and accumulation (Spear, 1999)
  - Most SK dependent organization (Valentinov, 2003).
- Conceptualize the proxies for Social capital in agricultural co-cops
- Verify how SK influences members' activities in agricultural co-ops

## Previous Studies

- SK in forms of loyalty, trust, and others has been studied how it influences the members commitment in the co-op
  - Fulton (1999) introduces **members commitment** into the marketing decision model assuming price is not the only factor
  - Ole Borgen (2001) argues that **trust** in cooperatives makes the member farmers willingly commit themselves to co-op
  - James and Sykuta (2004) examine whether **trust** is a significant factor explaining the choice of farmers to market through co-ops rather than IOFs
  - Zeuli and Bentancor (2005) analyze **loyalty** exploring the determinants of switching milk buyers and show members are loyal to the coop

## Methods

- To conceptualize and evaluate SK proxies, employ the two dimensional approach by Krishna and Uphoff(2002)
  - i) structural level: # of networks, # of contacts, collective actions
  - ii) cognitive level: trust, norms
- To examine the influence of SK on members' marketing participating behaviors, two hypotheses are made
  - Price is not the only factor to affect members' marketing decision
  - SK proxies are included into model
  - Linearity and additivity are assumed for the functional forms

## Hypotheses and Model

- Hypothesis (1)

$$y = \beta_1 + \beta_2 * P + \beta_3 * SK + \beta_4 * IV + \beta_5 * C + \varepsilon$$

where  $y$  = the amount sold thru co-op by member

$P$  = price from received from cooperatives and other

$SK$  = social capital proxies

$IV$  = instrument variables (years of stay and co-op membership)

$C$  = control variables (social-demographic variables)

- Hypthesis (2)

- farmer's decision process is decomposed to two stages

- Heckman's two stage model is employed

- i) whether they will sell products through co-op or not

probit:  $z$  = binary whether sell thru co-op (1) or not (0)

- ii) if choose co-op, how much they will sell

OLS:  $y$  = the amount sold thru co-op by member only who choose co-op

## Sample

- 331 observations
  - member farmers survey in Korean Agricultural Cooperatives in June 2007
  - 700 visiting members at 20 local offices in 10 cooperatives
- Korean Agricultural Cooperatives
  - multi-functional co-operatives
  - members of Korea National Agricultural Cooperative Federation since 1961 (1,065 Ag co-ops and 158 specialty co-ops)
  - total 2.4 million members (2000 per co-op)
  - total 72 thousand employees
  - total asset U\$200 million, total capital U\$10 million (Y2006)

(link: <http://www.nonghyup.com/eng/>)

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## Conceptual and Proxy Variables for the Analysis of Social Capital in Agricultural Cooperatives, with Detailed Calculation Procedures

Conceptual Variable		Proxy Variable	Notation	Data Source and Calculation of the Proxy	Units
Member Patronage		Volume sold thru the co-op	y	Proportion of the total amount of the commodity produced (excluding on-farm use) by the patron that is sold through their cooperative	Percent
		Choice b/w marketing thru co-op or Elsewhere	z	$z=1$ if $y>0$ , otherwise $z=0$	Zero-one
Physical relationship In the networks	General Structural SK	# of associations farmer joins	SSK	Sum of number of associations	Number of associations
	Cooperative structural SK	# of visit to co-op	CSK	Sum of the average number of visits to local, regional and federal offices per month	Number of visits per month
	Collective Actions	Participation in group actions	CA	Sum of the average number of times member participated in GA meeting and voting	Number of times participated
Trust	Generalized trust	trust question in GSS/WVS <sup>1)</sup>	GT	GT=1 if answers yes, Otherwise GT=0	Zero-one
	Social trust	Trust on Neighbors	ST	Tally the points assigning 2 to answering 'yes' and zero to 'no' in 5 questions of trusting neighbors	Number
	Cooperative trust	Trust on co-op and employees	CT	Tally the points assigning to 4 to 1 in 5 questions of trusting & satisfaction from co-op & employees	Number*
Norms	Civic norms	Attitude toward dishonesty regarding social affairs	SN	Tally the points assigning 2 to answering 'never', 1 to 'in case', and zero to 'any time' in 6 questions of cheating <sup>2)</sup>	Number
	Cooperative norms	Attitude on participation in co-op	CN	Tally the points assigning to 4 to zero in 6 questions of attitude on participation in co-op	Number *

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## Descriptive Stat

		[# of observation]	Sample mean [ 331 ]	Zt=1 [303]	Zt=0* [28]
<b>dependent variables</b>		<b>Marketing (y) max=100</b>	<b>48.58</b> (32.37)	<b>53.25</b> (30.00)	
<b>Independent variables</b>	<b>price received</b>	<b>From co-op (p<sup>c</sup>) max=4</b>	<b>2.82</b> (0.70)	<b>2.86</b> (0.63)	
		<b>From others (p<sup>a</sup>) max=4</b>	<b>2.59</b> (0.79)	<b>2.58</b> (0.77)	<b>2.65</b> (0.97)
<b>Demographic Variables</b>		<b>Age (age)</b>	<b>50.34</b> (10.19)	<b>50.27</b> (9.44)	<b>50.97</b> (12.64)
		<b>Education (years) (edu)</b>	<b>11.05</b> (3.02)	<b>11.07</b> (2.98)	<b>10.86</b> (3.47)
		<b>membership tenure (tenure) max=4</b>	<b>3.62</b> (0.78)	<b>3.64</b> (0.76)	<b>3.45</b> (0.95)
		<b>equity invested (equity) max=5</b>	<b>4.03</b> (0.91)	<b>4.07</b> (0.89)	<b>3.62</b> (0.98)
		<b>Farm size (size) max=4</b>	<b>2.10</b> (0.84)	<b>2.13</b> (0.84)	<b>1.76</b> (0.74)
		<b>Income (income) max=4</b>	<b>1.84</b> (0.97)	<b>1.87</b> (0.98)	<b>1.52</b> (0.87)

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## Descriptive Stat (2)

		Sample mean	Z <sub>t=1</sub> [303]	Z <sub>t=0*</sub> [28]
Social	Generalized trust (GT) max=1	<b>0.54</b> (0.50)	<b>0.53</b> (0.50)	<b>0.62</b> (0.49)
	<i>WVS 2001 Korea 0.27</i>			
Capital (SK) proxies	Social trust (ST) max=10	<b>3.77</b> (1.07)	<b>3.78</b> (1.08)	<b>3.69</b> (1.04)
	Co-op trust (CT) max=10	<b>7.03</b> (1.63)	<b>7.04</b> (1.59)	<b>6.88</b> (2.08)
	Civic norms (SN) max=10	<b>8.09</b> (2.00)	<b>8.11</b> (1.95)	<b>7.97</b> (2.28)
	Co-op norms (CN) max=10	<b>5.92</b> (2.00)	<b>5.95</b> (1.96)	<b>5.57</b> (2.35)
	Structural SK (SSK) no max	<b>5.47</b> (2.95)	<b>5.42</b> (2.93)	<b>5.93</b> (3.17)
	Co-op structural SK (CSK) no max	<b>13.84</b> (11.89)	<b>13.36</b> (11.29)	<b>18.88</b> (16.33)
	Collective actions (CA) max=10	<b>7.14</b> (2.20)	<b>7.13</b> (2.22)	<b>7.31</b> (2.02)

# Does SK Influence Member Participation in Agricultural Cooperatives?

Hypothesis  
(1)  
OLS  
results

		Model 1	Model 2	Model 3 *
Intercept		9.95 (0.49)**	8.36 (0.47)	-19.93 (-1.86)
prices	From co-op (p <sup>c</sup> )	13.28 (4.88)	11.91 (4.84)	11.84 (4.81)
received	From others (p <sup>a</sup> )	-2.55 (-1.12)		
Social capital	<b>Generalized trust (GT)</b>	<b>-8.14 (-1.72)</b>	<b>-6.54 (-1.96)</b>	<b>-6.25(-1.89)</b>
proxies	<b>Co-op norms (CN)</b>	<b>3.11 (3.19)</b>	<b>3.13 (3.30)</b>	<b>3.11 (3.28)</b>
	<b>Structural SK (SSK<sup>g</sup>)</b>	<b>-1.22 (-2.00)</b>	<b>-1.32 (-2.28)</b>	<b>-1.37(-2.43)</b>
	<b>Collective actions (CA)</b>	<b>-1.45 (-1.76)</b>	<b>-1.41 (-1.75)</b>	<b>-1.49(-1.85)</b>
	Social trust (ST)	1.55 (0.69)		
	Co-op trust (CT)	-0.16 (-0.16)		
	Member trust (MT)	-0.55 (0.74)		
	Social norms (SN)	0.07 (0.09)		
	Co-op structural SK(SSK <sup>c</sup> )	-0.16 (-1.14)		
demographic	Age	-0.49 (-2.24)	-0.48(-2.22)	
variables	edu	-1.23 (-1.73)	-0.89 (-1.30)	
	Tenure	4.27 (1.71)	5.59 (2.30)	3.54 (1.71)
	Size	8.95 (3.92)	10.80 (5.48)	8.77 (3.88)
	Income	2.73 (1.37)		3.75 (1.96)
	Equity	2.70 (1.41)		

Tolerance of variables: 0.7~0.9

D.W. 1.62 1.59  
 White's 191.9(0.1099) 54.32(0.4240)  
 Breusch Pagan 20.02(0.2200) 11.42(0.2676)

# Does SK Influence Member Participation in Agricultural Cooperatives?

## Hypothesis (2) Probit and Heckit

		Probit Model	Selection Model	Main Model
Intercept		-1.39 (-0.99)*	-0.64 (-0.94)	44.60 (2.33)
prices	<b>From co-op (p<sup>c</sup>)</b>	<b>0.67 (3.65)</b>	<b>0.70 (4.06)</b>	<b>8.81 (2.99)</b>
Received	<b>From others (p<sup>a</sup>)</b>	<b>-0.40 (-2.24)</b>	<b>-0.39 (-2.30)</b>	
Social	<b>Generalized trust (GT)</b>	<b>-0.66 (-1.99)</b>	<b>-0.44 (-1.87)</b>	
Capital	<b>Co-op structural SK(CSK)</b>	<b>-0.02 (-2.89)</b>	<b>-0.02 (-3.06)</b>	
proxies	<b>Co-op norms (CN)</b>	0.04 (0.59)		<b>2.58 (2.87)</b>
	Collective actions (CA)	-0.08 (-1.31)		
	Social trust (ST)	0.12 (0.83)		
	Co-op trust (CT)	0.08 (1.19)		
	Members trust (MT)	0.01 (0.09)		
	Civic norms (SN)	0.06 (0.98)		
	<b>Structural SK (SSK)</b>	-0.05 (-1.15)		<b>-0.80 (-1.44)</b>
demographic	Age	-0.01 (-0.67)		-0.40 (-1.94)
variables	edu	-0.00 (-0.09)		-1.54 (-2.18)
	Tenure	-0.15 (0.91)		
	Income	-0.03 (-0.20)		6.49 (3.69)
	size	0.39 (2.29)	0.35 (2.43)	
	Equity	0.31 (2.41)	0.28 (2.36)	
	<b>lamda</b>			<b>-18.96 (-1.60)</b>

## Results and Discussion

- SK is not working in Korean Ag co-ops, only norms contributes positively on members' behavior.
  - with the negative impact of structural SK, suspicion of opportunistic behaviors are aroused
- Why does not trust work?
  - (1) structural weakness of multi-function co-op
    - every farmer uses and participates in every services co-op provides
  - (2) maybe “top-down” history of Korean co-op:
    - government established the systems and controlled them for long time
    - top-down practices and cultures still remain in co-ops
    - distrust and conflicts between members, local co-ops, and federation

## Conclusion

- Trust is not the only measure to impact on cooperative activities
  - cooperative norms influence members to follow common interest
- SK, the various proxies, should be considered to explain the cooperatives activities and be utilized
- Sometimes SK plays negatively and is utilized as a opportunistic resource.
  - Management should understand and utilize their resources positively

## Future Studies

- (1) proxies for ag co-op should be evaluated and examined rigorously
- (2) more empirical studies in different situations for comparative studies