Environmentally Significant Behavior by Koreans: The Role of Social Capital

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Paper structure

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- Research focus
- Environmentally significant behavior (ESB)
- ESB and collective action problem
- Social capital and ESB
- Empirical analysis results
- Conclusion

Introduction

- The role of environmental policies and technologies are important but not sufficient for sustainable development
- Their role will be undermined without facilitating individual sustainable behavior
- This individual environmentally significant (sustainable) behavior (ESB) involves committed voluntary and proactive environmental behavior.

ESB and collective action problems (CAPs)

- Fostering ESB can be challenging ; it confronts CAPs
- Rational individuals are less likely to bear the cost of ESB whose benefits are non-exclusive
- They are more likely to have strong incentives to free-rides on the others' collective environmental endeavor (Olson, 1971; Ostrom, 1990).

Research questions

- Why do some individuals undertake ESB in the face of CAPs?
- What promotes ESB?
- Our primary focus is on the role of social capital.

Types of ESB

Table 1. Types of Environmentally Significant Behavior*

	Private-sphere	**Public sphere**
Non-action (Intention)	Spport of using/purchasing green products (e.g., willingness to pay higher prices for "green" products)	Support of environmental policies (e.g., willingness to pay higher environmental taxes, acceptance of environmental regulations)
Action	1. **Personal constraint on consumption** (e.g., less water, less driving) 2. **"Green" consumerism** (using/purchasing energy saving products)	1. **Environmental citizenship** (e.g., environmental petition, donated to environmental organizations) 2. Environmental activism (e.g., active participation in environmental organizations and demonstrations

*This table is constructed based on Stern (2000).

Social capital and ESB

- Social capital is generally understood as social goodwill and resources such as trust and reciprocity, positive byproducts of the accumulation of both vertical and horizontal social relations and interactions (Adler and Kwon 2002; Lin 1999; Putnam 1995, 2000).

- Higher levels of social capital appear to play a positive and significant role in the areas where coordinated actions are needed to produce collective outcomes, including economic development, democratic governance (Fukuyama, 1995; Putnam 1995), and environmental sustainability (Pretty, 2003)

Social capital in South Korea

- It is reported that social capital in South Korea is low; according to Samsung Economic Research Institute (2009), South Korea ranked in 25th out of 72countries and 22th out of 29 OECD countries.
- Also, World Value research survey (2005-2006) indicated that 3 out of 10 Koreans responded positively to the question asking their trust toward general people.
- This response is lower than other Asian countries, including China (5.2) and Vietnam (5.2).
- Similarly, this survey result indicated the low level of trust toward government institutions (congress, government, political parties, and the police) and social institutions (religious organizations, business, NGOs).

Data

- We employed data from National Public Environmental Behavior Survey conducted in South Korea in spring of 2012.
- The survey data was gathered from a random sample of 5,000 residents drawn from a National Survey Panel developed by a national survey company.
- We received 1085 responses (21.7%)

Dependent measures

- *Private-sphere ESB* is measured by two separate measures:
  - Personal constraint on consumption (PCC) (less meat, less water, less driving)
  - Personal green consumerism (PGC) (energy saving bulb use, energy saving electronic device use, and recycling).

Principal Component Analysis of ESBs

Variables	Items	Personal constraint on consumption (Cronbach's α =0.69)	Environmental consumerism (Cronbach's α=0.71)
Less meat	I normally try to cut down on eating meat for environmental reasons	0.7579	
Less water	I normally try to use less water when showering or bathing	0.7856	
Less driving	I normally try to drive less	0.5816	
Using energy saving bulbs	I normally try to use energy saving light bulbs		0.8694
Purchasing energy saving appliances	I normally try to purchase energy saving appliance like hot water heater, refrigerator or dish waher		0.8653
Recycling	I normally to to recyle		0.636
Eigen values		1.5299	1.9091
Percent of common variance		24.34	30.45
N			1085

*Each item measured based on a five-point Likert-type scale, with 1=”strongly disagree and 5=”strongly agree”

Independent variable measures

- Social capital measures (using five Likert scale)
  - Generalized trust" (or "thin trust"), trust embedded in social relations beyond their own groups
  - Trust in government institutions
  - Trust in government programs
  - Trust in civic society organizations
  - > "specific instance of trust in mankind" (Lane, 1959) and generalized interpersonal trust (Moore et al., 1985).

Principal component analysis of social capital survey items

Variables	Items*	Social captial (Cronbach's α=0.73)
Generalized trust	Generally specaking, I would say that most people can be trusted	0.606
Trust in government institutions	Generally speaking, I would say that government institutions, including agencies, congress, and court, can be trusted	0.8631
Trust in government programs	Generally speaking, I would say that government programs can be trusted	0.8658
Trust in civil society organizations	Generally speaking, I would say that civil society organization can be trusted	0.6122
Eigne values		2.2365
Percent of common variance		28.42
N		1085

*Each item measured based on a five-point Likert-type scale, with 1=”strongly disagree and 5=”strongly agree”

Control variables

- New environmental values (emphasizing harmonious interaction between humans and nature), environmental perception toward environment-economy trade-off, environmental knowledge
- Demographic characteristics, including age, sex, household income, homeownership, marital status, education, religion, and occupation
- Dummy for residents in Seoul metropolitan area, including Seoul, Incheon, and Kyungki province.

Variable	Obs	Mean	Std. Dev.	Min	Max
Less meat	1085	2.3825	0.9983	1	5
Less water	1085	3.3641	0.9026	1	5
Less driving	1085	3.5300	1.0301	1	5
Personal constraint on consumption (combined)	1085	3.0922	0.6939	1	5
Energy saving bulb	1085	3.6359	0.8746	1	5
Energy saving device	1085	3.7926	0.8140	1	5
Recycling	1085	3.9843	0.7819	1	5
Green consumerism (combined)	1085	3.8043	0.6554	1	5
Social capital	1085	2.7136	0.6235	1	4.75
New environmental paradigm	1085	4.2310	0.5520	2	5
Environment-economy trade-off	1085	2.6230	0.7670	1	5
Environmental knowledge	1085	4.2468	0.5108	1	5
Prosocial activity	1085	2.8464	0.7746	1	5
Age	1085	2.9871	1.3127	1	5
Sex	1085	0.4700	0.4993	0	1
Household income (before tax)	1085	3.2553	1.2627	1	5
Home owned	1085	0.5576	0.4969	0	1
Married	1085	0.6369	0.4811	0	1
Education	1085	2.7180	0.6340	1	4
Religiosity	1085	2.1124	1.4459	1	5
Seoul Metropolitan area residents	1085	0.4866	0.5001	0	1

	Private-sphere ESB							
	Personal constraint on consumption							
	Less meat		Less water		Less driving		Combined	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Social capital	0.2157*	0.0967	0.3431****	0.1000	0.1054	0.0948	0.0954***	0.0319
New environmental paradigm	0.0242	0.1218	0.2016	0.1248	0.0292	0.1210	0.0238	0.0409
Environment-economy trade off	-0.1155	0.0796	-0.0631	0.0796	-0.0684	0.0775	-0.0462†	0.0259
Environmental knowledge	0.0455	0.1285	0.3600**	0.1323	0.4772****	0.1315	0.1564****	0.0433
Prosocial activity	0.6938****	0.0869	0.4223****	0.0871	0.1629*	0.0848	0.2005****	0.0276
Age	0.4410****	0.0640	0.4058****	0.0647	0.1965***	0.0622	0.1684****	0.0208
Sex	-0.2249†	0.1173	0.0743	0.1196	-0.1917†	0.1161	-0.0529	0.0391
Household income (before tax)	-0.0831	0.0518	-0.0206	0.0525	-0.2056****	0.0513	-0.0519***	0.0171
Home owned	0.1036	0.1258	0.1233	0.1270	-0.0533	0.1231	0.0212	0.0419
Married	0.0530	0.1697	0.2217	0.1728	-0.7213****	0.1692	-0.0894	0.0567
Education level	0.0013	0.0946	0.0853	0.0959	-0.0246	0.0931	0.0017	0.0315
Religiosity	-0.0150	0.0412	0.0902*	0.0418	0.0821*	0.0406	0.0218	0.0138
Seoul metropolitan area residents	-0.0620	0.1150	-0.2399*	0.1173	0.4200****	0.1140	0.0343	0.0383
constant							1.2870****	0.2443
/cut1	1.9435	0.7385	1.8423	0.7701	-1.4028	0.7466		
/cut2	3.8297	0.7445	4.1520	0.7534	0.5833	0.7288		
/cut3	5.5788	0.7554	6.1992	0.7662	2.3119	0.7317		
/cut4	8.1963	0.8004	8.8057	0.7901	3.8517	0.7376		
N	1085		1085		1085		1085	
Log likelihood	-1368.021		-1291.258		-1483.348			
χ^2-value	253.66		244.3		93.4			
Prob. > χ^2	0.00		0.00		0.00			
Adjusted R2							0.2077	

Note: †p<=.1, *p < = .05, **p < = .01, ***p < = .005, ****p<=.001

	Private-sphere ESB Green consumerism							
	Energy saving bulbs		Energy saving electronic devices		Recycling		Combined	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Social capital	0.2082*	0.0998	0.1053	0.1021	0.1745†	0.0985	0.0733*	0.0300
New environmental paradigm	0.3312**	0.1266	0.4685****	0.1297	0.3175*	0.1290	0.1182***	0.0386
Environment-economy trade off	-0.2804****	0.0813	-0.2365***	0.0830	-0.2919****	0.0825	-0.1005****	0.0244
Environmental knowledge	0.3135*	0.1336	0.3105*	0.1347	0.4189***	0.1350	0.1499****	0.0408
Prosocial activity	0.5240****	0.0876	0.4088****	0.0886	0.4432****	0.0892	0.1748****	0.0260
Age	0.3369****	0.0654	0.0841	0.0653	0.0805	0.0652	0.0695****	0.0196
Sex	0.0474	0.1205	-0.1401	0.1231	-0.5779****	0.1235	-0.0784*	0.0369
Household income (before tax)	0.1065*	0.0530	0.1235**	0.0543	-0.0564	0.0536	0.0257	0.0161
Home owned	0.2702*	0.1292	0.0523	0.1324	0.2954***	0.1305	0.0712†	0.0395
Married	0.2114	0.1743	0.4875**	0.1785	-0.0765	0.1755	0.0776	0.0535
Education level	0.1555	0.0975	0.2481**	0.0984	0.1691†	0.0980	0.0657*	0.0297
Religiosity	0.0121	0.0426	0.0264	0.0435	-0.0125	0.0427	0.0021	0.0130
Seoul Metropolitan area residents	-0.2592*	0.1180	-0.3195***	0.1209	0.2146†	0.1191	-0.0439	0.0361
constant							1.7297****	0.2304
/cut1	0.9723	0.8061	0.5327	0.8272	-1.1208	0.8773		
/cut2	3.5040	0.7602	2.7911	0.7699	0.9049	0.7731		
/cut3	5.5015	0.7699	4.6148	0.7751	3.2206	0.7676		
/cut4	8.1639	0.7916	7.4899	0.7980	5.7381	0.7832		
N	1085		1085		1085		1085	
Log likelihood	-1234.841		-1182.306		-1161.062			
χ^2-value	264.66		172.14		151.1			
Prob. > χ^2	0.00		0.00		0.00			
Adjusted R^2							0.2103	

Note: †p<=.1, *p < = .05, **p < = .01, ***p < = .005, ****p<=.001

Analysis result summary

- Social capital plays a positive and significa nt role in promoting both PCC and PGC
- Social capital is more effective to fostering PCC than PGC.
- Pro-social (altruistic) behavior is the strong predictor of both PCC and PGC
- Also, environmental knowledge and age are positively and significantly related to both areas of ESB

Continued….

- Household income is negatively related to PCC, particularly driving
- New environmental value, female, and education is positively related to PGC
- Perception toward environmental-economy trade-off is negatively related to PGC.

Conclusion

- Social capital plays a significant and positive role in fostering ESB, including PCC and PGC.
- Low trust societies such as Korea, China, and Italy are more likely to face obstacles of coordinating collective behavior such as ESBs than high trust societies such as Germany and Japan (Fukuyama, 1995).
- The important questions are:
  - How best can we garner social capital?
  - What would be the role that government can play in promoting it?

Continued….

- In the short run, it is important to develop vertical social relationships underlying trust in public institutions and legal frameworks by creating policies that provide formal and equitable arrangements for facilitating cooperation between government institutions and members of the society.
  - This active role of government is important for countries like South Korea to foster vertical social relationships as it was to develop the enabling environment for macro-economic performance (Serageldin and Grootaert, 1996).
- In the long run, it is important to promote horizontal social relationships by promoting civic engagement and social norms that encourage face-to-face interaction and communication and mutual interdependence (Stern, 2005).