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**Trustful Competitor & Distrustful Cooperator:
Impacts of Assessment Biases on Trustworthy Cooperation in Policy Network**

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ABSTRACT

Coopetition is a universal relationship in policy network where various organizations cooperate and also compete with one another. In addition, trust and distrust may coexist in any pair relations in policy network. As the coexistence of cooperation and competition, (and also that of trust and distrust), is somewhat inevitable in policy network, how can we make such ambivalent relationships more reliable and trustful? With the paucity of the multi-dimensional approaches to the trust and distrust in coopetition considered, this study explored the patterns and drivers behind the two paradoxes: trustful competitor and distrustful cooperator, by using the survey and interview with the nuclear-related public institutions in South Korea. The recent situation of the nuclear science and engineering in South Korea can be described as coopetition among nuclear-related ministries and institutions in three domains such as denuclearization, nuclear waste disposal, and nuclear industry development. Under such multidimensional relations in nuclear policy network, the interviewed organizations were asked to give their own assessments about: (1) trust and distrust in their peer organizations in nuclear policy network, (2) stance on nuclear science and policies, (3) attribution of nuclear policy issues, (4) power of self- and peer organizations, and (5) contribution to nuclear policy issues. The findings of this study imply two major points. First, the degrees of assessment bias between nuclear-related organizations in South Korea may lead to trust in competition and also to distrust in cooperation. Second, as the view gaps beget trust in competition as well as distrust in cooperation, what matters in coopetition in policy network is not whether there is a view gap or bias between the network actors but when (or where) such gap exists so it can be beneficial or harmful to the coopetition. Based on the findings, the study suggests the theoretical implications and practical conditions of “trustworthy coopetition” in policy network, in terms of self- and environment assessments.

Keywords: coopetition, cooperation, competition, trust, distrust, bias, network

INTRODUCTION

Organizations come and go. But networks of organizations for policy making and implementation may last longer. Stakeholders in certain policy domain form networks to deal with uncertainty and pursue policy goals collectively in policy decision making process (Loorbach, 2010). An inter-organizational policy network is a persistent relationship of stakeholders in certain policy that has two characteristics: (1) each actor has and control its own resources, and (2) actors jointly participate and decide for collective decision making and delivery (Rethemeyer and Hatmaker, 2008; Saz-Carranza and Ospina, 2011). Considering the relational dynamics of policy networks based on autonomy and interdependence, this study focuses on the two types of co-existence of competing values: competition vs. cooperation; trust vs. distrust.

First, competition and cooperation often co-exist in policy networks (Lee, Felock, and Lee, 2011). Many scholars have pointed out that such “coopetition” might be a universal relationship where various organizations cooperate and also compete with one another for their own and mutual interests. In short, organizations cooperate for market (or value) creation, and at the same time, also compete for market (or value) allocation and utilization (Brandenburger and Nalebuff, 1996; Dagnino, 2009; Kim, 2018; Lavie, 2008; Ritala, Valimaki, Blomqvist, and Henttonen, 2009). Second, besides the universality of coopetition in policy network, another set of values that co-exist is trust and distrust. Trust and distrust may also coexist in any pair relations in policy network because each of two concepts (trust and distrust) points to different dimension in dyadic relationship (Lee & Lee, 2018).

As the coexistence of cooperation and competition, and also that of trust and distrust, is somewhat inevitable in policy network, how can we make such ambivalent relationships more

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reliable and trustful? Competitor might be more likely distrusted than other stakeholders, and cooperator would be more trusted than others. However, beyond such common sense, this study focuses more on another set of paradoxical relationships: “trustful competitor” and “distrustful cooperator.” With the paucity of the multi-dimensional approaches to the trust and distrust in competition considered, this study explored the patterns and drivers behind the two paradoxes. In short, what factors drive the two paradoxical relationships? Among many possible drivers, do the disparities between network members’ perspectives influence their trust in competitor and distrust in cooperator? Are there any similarities and differences of the drivers?

To answer these research questions, we used the data collected through survey and interview with the nuclear-related organizations in South Korea. The recent situation of the nuclear science and engineering in South Korea can be described as cooperation among nuclear-related ministries and institutions in three domains such as denuclearization, nuclear waste disposal, and nuclear industry development. Thus, it is highly presumed that the organizations in the nuclear policy network in South Korea may have been experiencing the paradoxical relationships in cooperation, and thereby provide some clues to the drivers behind such relationships. The following section will present the theoretical background behind the research questions and models.

THEORETICAL BACKGROUND OF RESEARCH QUESTIONS

Response Variables: Trustful Competitor, Distrustful Cooperator

This study explores the drivers behind the two response variables: trustful competitor, and distrustful cooperator. Many studies on policy networks have been conducted with regard to trust-based collaboration among network actors (Ansell and Gash, 2007; Emerson, Nabatchi, and Balogh, 2012; Hatmaker and Karl Rethemeyer, 2008; Lundin, 2007; Willem and Lucidarme,

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2014). In many cases, distrust may be regarded as just an absence of trust, so they are mutually exclusive (Barber, 1983; Deutsch, 1958; Rotter, 1971, 1980; Stack, 1988; Tardy, 1988; Worchel, 1979).

However, the difference between trust and distrust has been getting more attention (Lewicki, 2006; Lewicki, McAllister, and Bies, 1998; McEvily, Radzevick, and Weber, 2012; Rousseau et al., 1998; Sitkin and Roth, 1993). To some scholars, absence of trust does not necessarily mean presence of distrust, and vice versa (Ullmann-Margalit, 2004). Similarly, “low distrust is not the same as high trust, and high distrust is not the same thing as low trust” (Lewicki et al., 1998: 444). In specific, trust is ‘belief in a person’s competence to perform a specific task under specific circumstances’, whereas distrust is ‘belief that a person’s values or motives will lead them to approach all in an unacceptable manner’ (Sitkin and Roth, 1993: 373). In sum, trust is more about hope, vulnerability, assure and initiating, while distrust is concerned with fear, and being skeptical and vigilant (Lewicky, 2006).

Considering the different meanings of trust and distrust that exist in different dimensions or continua, distrust and trust are separate constructs, and therefore they may be not mutually exclusive (Cho, 2006; Lewicki, 2006; Lewicki, McAllister, and Bies, 1998; Lumineau, 2017; McEvily, Radzevick, and Weber, 2012; Sitkin and Roth, 1993; Wales, Parida, and Patel, 2013; Ullmann-Margalit, 2004). In other words, distrust and trust can coexist and further co-move in the same directions toward the same focal object (Otnes, Lowrey, and Shrum, 1997; Priester and Petty, 1996; Thompson, Zanna, and Griffin, 1995).

Then, why do trust and distrust matter in coopetition? Trust matters even in competition because trust in competitor may signify the competition is fair, transparent and therefore sustainably beneficial to all competing actors. In detail, trust helps reducing uncertainty and risks

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of decision, facilitating information exchanges (Granovetter, 1985; Muthusamy and White, 2005; Ostrom, 1998; Putnam, 2001), and reinforcing collaboration in networks (Ansell and Gash, 2008; Berardo, 2008; Calanni et al., 2014; Chen, 2010; Emerson, Nabatchi, and Balogh, 2012; Hatmaker and Rethemeyer, 2008; Imperial, 2005; Vangen and Huxham, 2003). On the other hand, cooperators may distrust each other because of selfish or opportunistic motivation or behaviors. Distrust in partner due to opportunism is something to be mitigated (Guo, Lumineau, and Lewicki, 2017) because such distrust may make cooperation vulnerable and counter-sustainable. In sum, trust and distrust influence the coopetition relationship simultaneously (Dagnino, 2009).

Control Variables: Relationship between Pair—Competition, Cooperation

In studying factors behind trust (or distrust), the causality between dis-/trust and the arguable drivers may be not always clear, so reverse causality is not totally excluded (Klijn, Edelenbos, and Steijn, 2010). Exploring the drivers behind trustful competition and distrustful cooperation, we can trust competitors just because we are also cooperating with them. And we can distrust cooperators just because we also compete with them (Gamson, 1968; Triandis et al., 1975).

Therefore, our research questions should be specified like this: When do we trust our competitors regardless of whether we cooperate with them? When do we distrust our cooperators regardless of whether we compete with them? In this sense, this study controls for the degrees of cooperation in pursuit of explanatory variables of trustful competitor. And we also control for the degrees of competition in exploration of drivers of distrustful cooperator.

Explanatory Variables: View Gap between Pair

Among various dimensions and types of possible explanatory variables, this study focuses more on how each organization in policy network views internal and external environment, and how

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such views differ in dyadic relationship may influence trust and distrust in each other. Such view of internal/external environment is a kind of frame or framing which has various types such as substantive, outcome, aspiration, process, identity, characterization, and loss–gain frames (Gray 1997).

The impacts of views or frames on trust or distrust have been studied by many scholars. For instance, trust is built in various contexts such as economic/calculus-based and social/knowledge-based ones (Castaldo and Dagnino, 2009). And distrust can be driven by category (Kramer, 1999), stereotype or prejudice (Devine 1989; Dovidio et al. 2008; Lewicki, Barry, and Saunders, 2007; Lumineau, 2017; Kramer, 2004; Russell and Russell, 2010), characterization framing (Gray, 1997), and also by whether to be out-group or not (Brewer and Kramer, 1985; Brewer, 1979, 1999). Besides the impacts of frame on trust and distrust, even the gap of frames or views in dyadic relationship may also matter. It has been studies that distrust can be driven by view gap or frame mismatch (Kaufman, Elliott, and Shmueli, 2003; Kaufman and Smith, 1999; Lewicki, Barry, and Saunders, 2007).

With this in mind, this study explored the diversity of view gaps in dyadic relationship as explanatory variables in the four sequential criteria of the value chain of decision making: (1) stance on policy issues; (2) attribution of policy issues; (3) power assessment (for action plans); (4) contribution to policy issues, as follows.

Explanatory Variables 1: View Gap between Pair in the Stance on Policy Issues

The first set of explanatory variables is the view gap between pair in terms of stance on policy issues. Interest or goal incongruence between or among actors is one of the drivers of cooperation (Dagnino, 2009). Further, having the same identity or having a compatible mission enhances trustworthiness (Williams, 2001; Schindler-Rainman, 1981). On the contrary, incongruence

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between network actors in terms of values, interests, or goals may engender distrust (Hardin, 2004; Larson, 2004; Lewicki, 2006; Sitkin and Roth, 1993; Ullmann-Margalit, 2004). In this study, the stance in-/congruence is assessed in three domains: (1) nuclear risk management; (2) gains from nuclear development; (3) national strategy of nuclear development.

RQ1. How would the dyadic gap of the stance on nuclear policy issues (i.e., dyadic gap of assessments on nuclear risk management, gains from nuclear development, and national strategy of nuclear development) influence the response variables—trustful competitor and distrustful cooperator?

Explanatory Variables 2: View Gap between Pair in the Attribution of Policy Issues

Since Heider (1958) began to systematically build attribution theory, the problem of attribution has been widely studied in explanation of individual and social phenomena (Crandall, Silvia, N’Gbala, Tsang, and Dawson, 2007; Kwan and Chiu, 2014). According to the theory, a problem can be attributed to internal factors (e.g., effort, ability) or external ones (e.g., situation, social pressure), but such attribution can be biased. In this regard, attribution fallacy (Kramer, 1994) or bounded rationality (Lewicki et al., 1998) has been pointed to as drivers of dis-/trust. Also considering the three components of trustworthiness—ability, benevolent, and integrity (Mayer, David, and Schoorman, 1995), what a network actor attributes policy issues to may represent the actor’s reasoning ability and trait. Therefore the view gap of attribution of policy issues is presumed to influence trust or distrust in dyadic relationship. In this study, five objects of attribution are examined: (1) policy communications; (2) rationality of policy decisions; (3) politics in ministries which oversee the public organizations studied in this research; (4) political influence on focal organization; (5) ministry influence on focal organization.

RQ2. How would the dyadic gap of the attribution of nuclear policy issues (i.e., dyadic gap of assessments on policy communication, rationality of policy decisions, politics in ministries, political influence on focal organization, and ministry influence on focal

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organization) influence the response variables—trustful competitor and distrustful cooperator?

Explanatory Variables 3: View Gap between Pair in the Power Assessment

Reciprocity is one of the keys to trust in networks (Hatmaker and Rethemeyer, 2008; Park and Rethemeyer, 2014). In this regard, power symmetry between organizations enhance interdependence and reciprocal relationships (Baur et al., 2010). On the other hand, in a transactional relationship between network actors, an actor with more power has less incentive to reciprocate the counterpart (Hardin, 2004; Kramer, 1998). So power asymmetry may lead to lessened trust (Hurley, 2006; Kramer, 1999) or even distrust (Hardin, 2004; Kramer and Wei, 1999; Kang and Park, 2017). In short, status heterogeneity discourages collaboration, but similarity of status enhances trust (Soekijad and van Wendel de Joode, 2009). In this study, the impacts of two kinds of power assessment gap are explored: (1) dyadic gap of self-assessments by focal and partner organization; (2) gap between focal organization's self-assessment and partner organization's assessment of focal organization.

RQ3. How would the dyadic gap of the power assessment between pair (i.e., dyadic gap of self-assessments by focal and partner organization, and gap of focal organization's self-assessment and partner organization's assessment of focal organization) influence the response variables—trustful competitor and distrustful cooperator?

Explanatory Variables 4: View Gap between Pair in the Contribution to Policy Issues

Degrees of participation in collective tasks influences propensity to trust (Lee et al., 2016; Shah, 1998; Stolle, 1998; Veenstra, 2002). On the contrary, exploitive behavior is one of the drivers of distrust (Triandis et al., 1975). In this study, the dyadic gap of assessments are examined for two domains: (1) participation in policy process, (2) cooperation with other peer organizations in the network.

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RQ4. How would the dyadic gap of the contribution to nuclear policy issues (i.e., dyadic gap of assessments on participation in policy process, and cooperation with other peer organizations in the network) influence the response variables—trustful competitor and distrustful cooperator?

Insert Figure 1 about here

METHODS AND DATA

Case

The answers to the research questions were sought by examining the nuclear policy network in South Korea. (More content to be added on the governance and dynamics surrounding the three main issues: denuclearization, nuclear waste disposal, and nuclear industry development.)

Data Collection and Analysis

Sampling was conducted through four steps. First, we made a sampling frame consisting of three categories of nuclear-related organizations: (1) public institutions established and funded by government; (2) central and local government agencies; (3) academic or non-governmental organizations. Second, using in-depth interviews with experts in nuclear policies, the first category (i.e., public institutions established and funded by government) was chosen as research subjects because the institutions in that category are more intimately interacting with one another than others in other two. Third, based on the interviews with experts again, we prioritized and chose the top 17 institutions according to their influences in nuclear-related policy process (see Table 1). Fourth, we contacted and surveyed the mid-career staff in each institution, who are in charge of public relations or planning so they can best represent their own institutions' interest and stance.

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Insert Table 1 about here

The staff we contacted were asked a series of questions—structured and open-ended. They provided their assessments about: (1) trust and distrust in their peer organizations (i.e., 17 institutions) in nuclear policy network, (2) stance on nuclear science and policies, (3) attribution of nuclear policy issues, (4) power of self- and peer organizations, and (5) contribution to nuclear policy issues. As the data mainly consists of dyadic relationships and peer evaluations among the 17 institutions, the original sample size is 272 (i.e., $17 \times 17 - 17$). After removing a missing data point, we eventually got 271 as sample size. Using the data collected, we ran two models to examine the explanatory variables' impacts on the two response variables (i.e., trustful competitor; distrustful cooperator). For data analysis, we used ordinary least squares regression (OLS) and also considered fixed effects to control the possible unique patterns of each organization's responses.

Insert Table 2 about here

FINDINGS

How do the assessment bias or gap between policy network organizations influence their trust or distrust in the context of cooperation? The analysis results shown in Table 4 provide answers to the research question. To begin with, the statistics for the control variables can be explained as predicted: (1) the more cooperation, the more likely trustful competitor; (2) the more competition, the more likelihood of being distrustful cooperator. As the two kinds of relationship—cooperation and competition—usually co-exist in dyadic association, such result might be in line with common sense. However, as we focus more on the paradoxical phenomena—trustful competitor and distrustful cooperator, we employed two methods: (1) the

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degrees of competition and cooperation were controlled for; (2) to use the dyadic relations in fairly high competition and cooperation, we used the data whose values are over a cutoff at [mean – standard deviation] for competition and cooperation respectively.

Insert Table 3 about here

Table 4 shows the statistics as the clues to the four research questions. For the first question, “How would the dyadic gap of the stance on nuclear policy issues (i.e., dyadic gap of assessments on nuclear risk management, gains from nuclear development, and national strategy of nuclear development) influence the response variables—trustful competitor and distrustful cooperator?”, there are three sub-items. When it comes to the “view gap of nuclear risk management”, it turned out that a focal organization, even if it is a competitor, is more trusted when it has a more negative view on nuclear risk management so the view gap is more negative. Similarly, a focal organization, even if it is a cooperator, is more distrusted when it has a more positive view on nuclear risk management so the view gap has a positive value. In short, a focal organization is considered as more trustful and less distrustful when it has a more prudent and conservative view on nuclear risk management. But for another sub-item of “view gap of nuclear national strategy”, the statistics shows a somewhat opposite pattern. A focal organization is more trusted when it has a more positive view on nuclear development so the view gap has a positive value. In sum, the public institutions in the nuclear policy network have an ambivalence: (1) they trust the more prudent and cautious partners even in competitive relationship, and distrust the less cautious partners even in cooperative relationship; (2) they trust the more enterprising partners for the promotion of nuclear energy and industry.

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As for the second research question, “How would the dyadic gap of the attribution of nuclear policy issues (i.e., dyadic gap of assessments on policy communication, rationality of policy decisions, politics in ministries, political influence on focal organization, and ministry influence on focal organization) influence the response variables—trustful competitor and distrustful cooperator?”, the statistical results shows the unique patterns of the explanatory variables. When it comes to the explanatory variables of trustful competitor, a focal organization in competition is more trusted when: (1) it has a more positive view on the policy communications in terms of diversity, ease to join, transparency and fairness of communication channels in policy process. (i.e., “Yes, the policy communication channels are diverse, easy to join, transparent and fair.”); (2) it has a more critical view on politics in government ministries which oversee the public institutions, (i.e., “Yes, the government ministries are much influenced by political interests.”); (3) it has a more negative view on political influence on the focal organization. (i.e., “No, my organization is not seriously influenced by national politics.”).

For another response variable of distrustful cooperator, the explanatory variables usually show the opposite patterns. A focal organization in cooperation is more distrusted when: (1) it has a more negative view on the rationality of policy decisions in terms of scientific and economic considerations. (i.e., “No, the nuclear policies are made irrationally.”); (2) it has a less critical view on politics in government ministries which oversee the public institutions, (i.e., “No, the government ministries are unlikely influenced by political interests.”); (3) it has a more positive view on political influence on the focal organization. (i.e., “Yes, my organization is seriously influenced by national politics.”); (4) it has a more positive view on ministry influence. (i.e., “Yes, my organization is seriously influenced by ministries that oversee us.”)

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For the third research question, “How would the dyadic gap of the power assessment between pair (i.e., dyadic gap of self-assessments by focal and partner organization, and gap of focal organization’s self-assessment and partner organization’s assessment of focal organization) influence the response variables—trustful competitor and distrustful cooperator?”, the analysis results show two major findings. First, when the view gap of power between focal and partner organization is more positive (i.e., a focal organization is considered more powerful than a partner one), the focal organization is more trusted even in competition, and it is also more distrusted even in cooperation. In other words, trust and distrust co-exist in power imbalance. Second, when the gap between focal organization’s self-assessment of power and partner organization’s assessment of focal organization’s power is more negative (i.e., a focal organization considers itself as less influential than a partner considers the focal organization is.), the focal organization is more distrusted even in cooperation.

As for the last research question, “How would the dyadic gap of the contribution to nuclear policy issues (i.e., dyadic gap of assessments on participation in policy process, and cooperation with other peer organizations in the network) influence the response variables—trustful competitor and distrustful cooperator?”, the analysis results provide two answers to it. First, when the view gap of participation in policy process is more negative (i.e., a focal organization considers itself to have participated in policy process less actively than a partner one), the focal organization is more trusted by the partner one in competition. On the contrary, the focal organization is more distrusted even in cooperation when it considers itself to be more actively participating in policy process than a partner organization. Second, when the view gap of cooperation with other organizations in network is more negative (i.e., a focal organization has an underestimation of its contribution to the policy network than a partner one), the policy

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network actors have an ambivalent attitude because the focal organization is more trusted in competition, and interestingly also more distrusted in cooperation.

Insert Table 4 about here

DISCUSSION AND CONCLUSION

Coopetition might be prevalent in policy networks where multiple organizations cooperate and compete with one another. So it would be natural to think of the presence of two paradoxical relationships: trustful competitor and distrustful cooperator. In this regard, how does the view gap or bias between policy network actors influence the two paradoxes? The findings of this study imply two major points. First, the degrees of assessment bias between nuclear-related organizations in South Korea may lead to trust in competition and also to distrust in cooperation. Second, as the view gaps beget trust in competition as well as distrust in cooperation, what matters in coopetition in policy network is not whether there is a view gap or bias between the network actors but when (or where) such gap exists so it can be beneficial or harmful to the coopetition.

Insert Table 5 about here

In detail, as summarized in Table 5, it turned out that there are similarities and differences in the drivers of trust and distrust in coopetition. And such findings of this study imply several points for “trustworthy coopetition” in policy network in terms of self- and environment assessments. To begin with, there are several characteristics of a focal organization that is more trusted by its competitor. The “trustful competitors” are: (1) balancing analysis and action because they are more cautious of technological risks, but more active in furtherance of

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nuclear industry, (3) introspective because they are less likely attributing policy problems to external environments (i.e., policy communication channels, rationality of policy decisions in policy network, and political influence on focal organizations), and (4) having a realistic and humble assessment of their contributions to policy problems, than their partner organizations in competition. And the “distrustful cooperators” tend to have the opposite characteristics.

Besides such divergent drivers of trust and distrust, there are also common factors. In specific, the likelihood of becoming trustful competitor and distrustful cooperator has risen together in two cases: (1) when there is a significant power imbalance between organizations, and (2) when cooperative effort for partner organizations is perceived as deficient within inner network. In such cases (i.e., power imbalance, and deficient cooperation in close relationships), ambivalence of trust and distrust became more noticeable.

Beyond the findings and implications of this study, there are other research topics to be addressed in the future. For instance, such topics as the impacts on mutual biases between policy network actors on cooperation and the influence of selfish or altruistic motivation on cooperation need to be researched further through follow-up studies.

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TABLES & FIGURES

Figure 1. Research Questions at a Glance

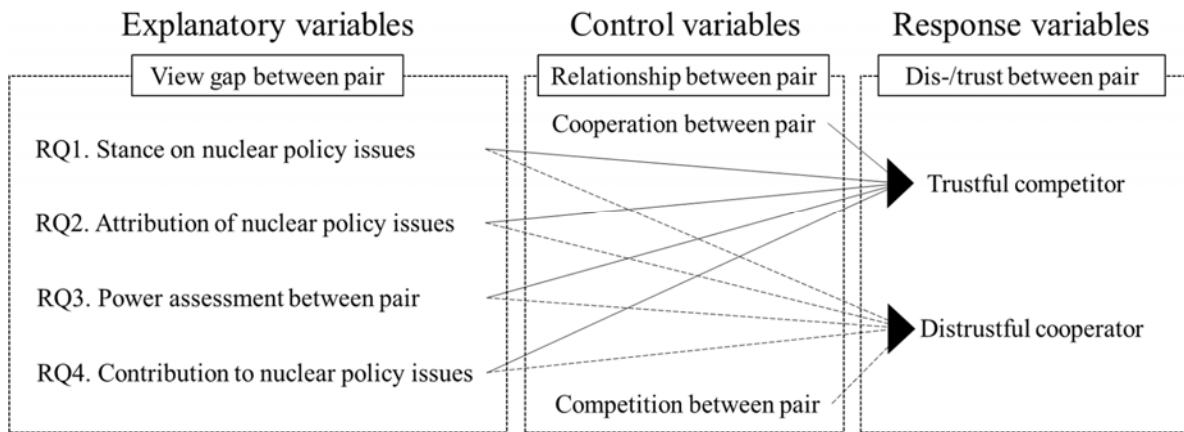


Table 1. Organizations Surveyed in this Study

Function of organization (in the field of nuclear science and industry)	Number of organization
Research	5
Electricity provision	4
Industry association	2
Safety and environment	2
Other (electricity exchange; international relations; material provision; public information)	4
Total number of organizations	17

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Table 2. Variables and Measures

Variables in the models	Basic variables utilized in formula***	$\alpha^{\dagger\dagger\dagger}$
Response variables*		
Dis-/trust between pair (focal and partner organization) <i>trustful competitor</i>	In competitive relationship (i.e., over a critical point of [mean – standard deviation]), partner organization’s trust in focal organization for the three nuclear policy issues.**	0.94
<i>distrustful cooperator</i>	In cooperative relationship (i.e., over a critical point of [mean – standard deviation]), partner organization’s distrust in focal organization for the three nuclear policy issues.**	0.95
Control variables		
Relationship between pair <i>cooperation b/w pair</i>	Degrees of cooperation with partner organization in the three nuclear policy issues.**	0.86
<i>competition b/w pair</i>	Degrees of competition with partner organization in the nuclear policy issues.**	0.87
Explanatory variables†		
RQ1. View gap between pair (1): Stance on nuclear policy issues <i>view gap of nuclear risk management</i>	Technological safety; constant innovation; quality management; quality training; environmental safety	0.86
<i>view gap of nuclear gain</i>	Economic cost efficiency; social cost efficiency; industrial value; national security value	0.85
<i>view gap of nuclear national strategy</i>	Future need for nuclear energy; increasing proportion of nuclear energy	0.73
RQ2. View gap between pair (2): Attribution of nuclear policy issues <i>view gap of policy communications</i>	Diversity; ease to join; transparency; fairness	0.81
<i>view gap of rationality of policy decisions</i>	Technological rationality; economic rationality; industrial rationality; energy-mix rationality	0.88
<i>view gap of politics in ministries</i>	Political influence on ministries; seeking ministries’ own interests	0.75
<i>view gap of political influence on focal org.</i>	Political influence on focal organization	n/a
<i>view gap of ministry influence on focal org.</i>	Ministry influence on focal organization	n/a
RQ3. View gap between pair (3): Power assessment between pair <i>view gap of power b/w focal & partner org.</i>	Degrees of influence of focal organization in nuclear policy	n/a
<i>view gap of power b/w focal & focal by partner org.††</i>	Degrees of influence of focal organization in nuclear policy (perceived by focal organization) – degrees of influence of focal organization in nuclear policy (perceived by partner organization)	n/a
RQ4. View gap between pair (4): Contribution to nuclear policy issues <i>view gap of participation in policy process</i>	Focal organization’s diverse participation; active participation; influential participation in policy process and communication	0.92
<i>view gap of cooperation with network org.</i>	Focal organization’s active cooperation with other nuclear-related organizations for denuclearization; for nuclear industrial development	0.77

Note: *To use the dyadic relations of fairly high competition and cooperation, the data whose values are over [mean – standard deviation] were used. **Three nuclear policy issues: denuclearization; nuclear waste disposal; overseas nuclear business. *** All the basic variables were measured using five-point Likert scale. 1 = very unlikely (negative); 5 = very likely (positive). † Most of the explanatory variables are calculated using this formula: [aggregation of focal organization’s responses to the basic variables – aggregation of partner organization’s responses to the basic variables]. The basic variables are specified in the next right cells.

††The only exceptional formula of explanatory variable is for the variable “view gap of power b/w me & partner to me”. ††† α signifies the Cronbach’s alpha as the reliability of the variables that aggregated the multiple basic variables.

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Table 3. Descriptive Statistics and Correlations of Variables

Variables	Obs.	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1 trustful competitor	289	9.02	3.51	3	15	1.00																
2 distrustful cooperator	289	5.31	2.45	3	13	0.14	1.00															
3 cooperation b/w pair	271	6.12	3.28	3	15	0.59	0.12	1.00														
4 competition b/w pair	271	4.13	1.86	3	12	0.13	0.50	0.31	1.00													
5 view gap of nuclear risk management	272	0.00	4.33	-10	10	-0.07	0.23	0.04	0.05	1.00												
6 view gap of nuclear gain	272	0.00	6.05	-12	12	-0.07	0.24	0.07	0.17	0.86	1.00											
7 view gap of nuclear national strategy	272	0.00	1.77	-5	5	-0.02	0.26	0.12	0.26	0.80	0.87	1.00										
8 view gap of policy communications	272	0.00	4.00	-9	9	0.13	0.23	-0.06	-0.09	-0.08	-0.11	-0.37	1.00									
9 view gap of rationality of policy decisions	272	0.00	6.10	-17	17	0.11	0.13	-0.13	-0.18	-0.11	-0.16	-0.33	0.77	1.00								
10 view gap of politics in ministries	272	0.00	1.74	-5	5	-0.15	-0.27	0.03	0.01	-0.04	0.10	0.08	-0.39	-0.40	1.00							
11 view gap of political influence on focal org.	272	0.00	1.46	-3	3	-0.23	-0.19	0.02	-0.13	0.12	0.23	0.19	-0.23	-0.02	0.55	1.00						
12 view gap of ministry influence on focal org.	272	0.00	0.88	-2	2	-0.07	0.18	-0.01	-0.12	0.27	0.42	0.17	0.17	0.25	0.14	0.28	1.00					
13 view gap of power b/w focal & partner org.	289	0.00	1.75	-4	4	0.01	-0.32	-0.10	-0.23	-0.50	-0.48	-0.57	-0.15	0.11	0.19	-0.03	0.01	1.00				
14 view gap of power b/w focal & focal by partner org.	289	-0.17	1.63	-4	4	-0.20	-0.31	-0.40	-0.28	-0.36	-0.34	-0.44	-0.11	0.00	0.16	-0.05	-0.02	0.70	1.00			
15 view gap of participation in policy process	272	0.00	3.56	-9	9	0.07	0.26	-0.06	-0.01	-0.09	-0.07	-0.28	0.78	0.59	-0.20	-0.41	0.12	0.07	0.06	1.00		
16 view gap of cooperation with network org.	272	0.00	2.07	-6	6	-0.09	0.15	-0.07	-0.08	0.20	0.34	-0.03	0.50	0.38	0.04	-0.04	0.48	0.24	0.20	0.73	1.00	

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Table 4. Models on the Drivers of Trustful Competitor and Distrustful Cooperator

Explanatory and control variables		Response variables	
		Trustful competitor	Distrustful cooperator
Relationship between pair	cooperation between pair	0.59***	
	competition between pair		0.69***
View gap between pair	RQ1. view gap of nuclear risk management	-0.33***	0.27***
	Stance on nuclear policy issues		
	view gap of nuclear gain	-0.14	0.16
	view gap of nuclear national strategy	2.63***	-0.10
	RQ2. Attribution of nuclear policy issues		
	view gap of policy communications	1.53***	0.11
	view gap of rationality of policy decisions	-0.03	-0.40***
	view gap of politics in ministries	0.65***	-1.53***
	view gap of political influence on focal org.	-1.63***	1.45***
	view gap of ministry influence on focal org.	0.49	2.30***
RQ3. Power assessment between pair			
view gap of power b/w focal & partner org.	1.67***	0.96***	
view gap of power b/w focal & focal by partner org.	-0.10	-0.22**	
RQ4. Contribution to nuclear policy issues			
view gap of participation in policy process	-0.61*	1.52***	
view gap of cooperation with network org.	-0.99*	-1.97***	
Observations		271	271
Adjusted R-squared		0.66	0.70

Note: Ordinary Linear Regression model with fixed effect considered. Individual subject' dummies are not presented. Unstandardized coefficients are reported. *p<0.10, **p<0.05, ***p<0.01. Highlighted coefficients represent significantly positive correlations between response and explanatory variable. Coefficients with bold and italic font represent significantly negative correlations between them.

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Table 5. Impacts of Assessment Biases on Trustworthy Cooperation

Explanatory variables (view gap between pair)		Response variables	
		Trustful competitor	Distrustful cooperator
Stance on nuclear policy issues	view gap of nuclear risk management	More negative view on nuclear risk management (i.e., more prudent and conservative)	More positive view on nuclear risk management
	view gap of nuclear gain	n/a	n/a
	view gap of nuclear national strategy	More positive view on nuclear development	n/a
Attribution of nuclear policy issues	view gap of policy communications	More positive view on policy communications (i.e., less external attribution of policy issues)	n/a
	view gap of rationality of policy decisions	n/a	More negative view on rationality of policy decision (i.e., more external attribution of policy issues)
	view gap of politics in ministries	More critical view on politics in ministries	Less critical view on politics in ministries
	view gap of political influence on focal org.	More negative view on political influence (i.e., less external attribution of policy issues)	More positive view on political influence (i.e., more external attribution of policy issues)
	view gap of ministry influence on focal org.	n/a	More positive view on ministry influence (i.e., more external attribution of policy issues)
Power assessment between pair	view gap of power b/w focal & partner org.	More influential than partner organization (i.e., trust and distrust coexist in power imbalance)	
	view gap of power b/w focal & focal by partner org.	n/a	Self-assessment as less influential than what partner organization views the focal organization as (i.e., evasion of responsibility)
Contribution to nuclear policy issues	view gap of participation in policy process	More negative self-assessment of participation in policy process (i.e., underestimation of focal organization's contribution to policy issues)	More positive self-assessment of participation in policy process (i.e., overestimation of focal organization's contribution to policy issues)
	view gap of cooperation with network organizations	More negative self-assessment of cooperation with network organizations (i.e., humble estimation of focal organization's contribution to policy issues might be respected by partner organization; but actually lack of cooperative efforts is also criticized in dyadic and more direct relationships.)	

Note: Highlighted cells represent unique drivers of either of response variables. Bold font represents ambivalent drivers of both response variables.