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The determinants of citizens' preference of policy instruments for environmental policy: Do social trust, government capacity, and state-society relations matter?

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Citation

The determinants of citizens' preference of policy instruments for environmental policy: do social trust, government capacity, and state-society relations matter?

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ABSTRACT

This study aims to investigate the determinants of citizens' preferences for policy instruments. In particular, this study examines the impacts of social trust, government capacity, and the state-society relationship on citizens' preferences for policy instruments. To test the relationships among those variables, the study utilizes data from the ISSP (International Social Survey Program) Environmental III 2010, which includes 32 countries. The results show that regardless of policy target groups, social trust makes citizens prefer market-based policy instruments most, and a high level of government capacity leads citizens to favor indirect policy instruments over regulation. The influence of the state-society relationship is contingent on the social construction of the policy target groups except in the case of East Asian countries, which have a strong preference for suasive policy instruments.

Introduction

In spite of the long-held assumption of rationality underlying public policy studies, there are many differences in the usage of policy instruments among countries. For Jordan, Wurzel, and Zito (2003, 2005) showed that European countries introduced environmental policy instruments in different ways. The German government actively utilizes suasive instruments such as voluntary agreements, eco-labels, and environmental management systems, while the UK relies heavily on market-based policy instruments like tradable permits and eco-taxes. These findings suggest that the process of selecting policy instruments is socio-political rather than rational (Peters, 2005).

Verifying and investigating the contexts of policy instrument selection are key aspects of the study of policy instruments because policy instruments can serve as an empirical ground for the study of governance (Salamon, 1989; Wurzel, Zito, & Jordan, 2013). Each type of policy instrument could represent different modes of governing because policy instruments, which are built upon different types of power and ways of social control, encapsulate the relationship between the governing and the governed (Lascoumes & Le Galès, 2007; Vedung, 1998; Wurzel et al., 2013). Therefore, the study

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of policy instrument selection could shed light on the reason why governments contrive different governance structures in coping with the same policy problems.

Despite the significance of policy instrument selection, our understanding of this subject is still poor because of a lack of empirical research. In particular, policy instrument scholars (Jordan, Wurzel, & Zito, 2013; Lascoumes & Le Galès, 2007; Sager, 2009) have insisted that the study of policy instrument suffers from a dearth of large-N studies. Although comparative research has found that institutional factors such as social norms about the intervention of government influence policy instrument selection (Brukas & Sallnäs, 2012; Knill & Lenschow, 1998; Persson, 2006; Serbruyns & Luyssaert, 2006), it is hard to generalize the results beyond these cases because these researchers compared only two or three countries. For example, when Sweden and Lithuania were compared, Swedish public officers were more likely to choose soft policy instruments including information and market-type policy instruments (Brukas & Sallnäs, 2012), but in comparison to the United Kingdom, Sweden used more direct and coercive policy instruments such as regulation (Persson, 2006). In addition, most previous studies concentrated on Western developed countries. Jordan et al. (2013), Woo (2015), and Mukherjee and Howlett (2016) criticized this tendency and stated that research on policy instrument selection in Asian and other non-Western countries is very limited.

To overcome the limitation of previous studies, this paper investigates the determinants of citizens' preferences for policy instruments through the ISSP (International Social Survey Program) Environmental III 2010 dataset collected from citizens of 32 countries. Even if the factors determining people's perceptions could differ from the determinants for actual policy instruments, we expect this study would provide some useful implications on policy instrument selection in that governments tend to utilize policy instruments corresponding with citizen preferences to gain the general acceptance of policies and legitimacy that are prerequisites for successful public policy (Capano & Lippi, 2017; Rist, 1998).

Among possible determinants of policy instrument selection, this study focuses on the impact of social trust, government capacity, and the state-society relationship on citizen preferences in that policy instrument selection nests in broad socio-institutional contexts (Linder & Peters, 1989; Persson, 2007; Peters, 2005). We expect that as political institutions were meant to prevent opportunistic behaviors (Williamson, 1985), social trust that could reduce uncertainty and external negative effects is closely related to policy instrument selection. Government capacity is a long-neglected factor of policy instrument selection. Although existing studies on public sector reform have stressed that indirect policy instruments were introduced to supplement the lack of capacity to address social problems, they have neglected to provide empirical evidence to support the relationship between policy instruments and government capacity (Koutalakis, Buzogany, & Börzel, 2010, p. 331). Finally, the state-society relationship is a relevant factor because every state has its own policy style that represents its unique tendencies to use certain types of policy instruments that originated from long-standing social norms about the role of government (Howlett, 1991, 2011; Linder & Peters, 1989). This study will investigate the impact of the state-society relationship on policy instrument selection by comparing citizens' policy instrument preferences across five different political traditions.

In particular, this study tries to overcome the limitation of Harring's (2015) study. Harring (2015) showed that social trust and government capacity could be the primary

factors determining citizens' preferences for policy instrument by means of the same dataset this study utilizes. His study contributed to the literature on policy instruments by revealing how citizens' preferences would differ if they have several options at their disposal rather than investigating citizens' compliance with single policy instruments such as eco-tax, regulation, self-regulation, and so forth. This was in contrast to previous research (i.e. Hammar, Jagers, & Nordblom, 2009; Pitlik & Kouba, 2015; Scholz & Lubell, 1998). Nevertheless, he failed to offer comprehensive and relevant explanations for the determinants of policy instruments and for how preferences for policy instruments are determined between information policy instrument and market-type instruments. Furthermore, he did not take into account the state-society relationship, which has been suggested as one of the major factors of policy instrument selection (Howlett, 1991, 2011).

This study proceeds as follows. First, this study describes the concepts of policy instruments and the changing perspectives in the literature on policy instrument selection. Second, it elaborates how the explanatory variables of this study are expected to impact citizens' preferences for policy instruments. Third, the results of empirical analysis are presented and implications of the results are discussed. Finally, this study concludes with a discussion of its overall contributions and limitations.

Policy instruments and policy instrument selection

The term 'policy instrument' refers to myriad methods which governments use to solve social problems (Howlett, 1991). Three main types of policy instruments – the stick (regulation), the carrot (incentives and treasure), and the sermon (public information) – have been suggested to correspond with Etzioni's threefold categorization of power as coercive, remunerative, and normative, respectively (Vedung, 1998). 'Stick' refers to direct government control over behaviors of individuals and organizations, often in the form of regulation. This is the most restrictive form of policy instrument in that it limits people's behavior directly and sets the direction of actions. The government can make standards and punish businesses or people who violate them. 'Carrot' is a market-based policy instrument that prompts people to act in a desirable way by changing the incentive structure rather than by forceful regulations. Although these types of tools are related not only to incentives (i.e. subsidies) but also to disincentives (i.e. pollution tax), negative incentives are designed not to ban but to discourage undesirable behaviors. Finally, the 'sermon' is the least coercive type of policy instrument, given that it is intended to change people's actions through information, persuasion, and negotiation. The sermon has nothing to do with material gains or deprivations, and it is a voluntary decision to accept the information or not (Vedung, 1998). For instance, food labeling provides people with information about the composition of food products and lets them decide whether they will purchase products that are good for their health or not. Vedung's typology can be placed on a continuum that varies by the levels of coerciveness. Sticks are the most coercive and directive policy instruments, carrots are moderate, and sermons are the least coercive instrument (Zehavi, 2012).

This study applies Vedung's policy tool typology to the environmental area. According to Wurzel et al. (2013), environmental policy instruments can be categorized

Table 1. Typology of environmental policy instruments.

Types of environmental policy instruments	Subtypes of environmental policy instrument
(1) Suasive instruments	Eco-labels and environmental management schemes
(2) Market-based instruments	Eco-taxes, emission trading schemes, subsidies, and feed-in-tariffs
(3) Regulatory instruments	Regulation (including traditional 'command-and-control' regulation and innovative smart regulation)

Source: Wurzel et al. (2013, p. 29)

into three groups based on Vedung's typology. Table 1 shows the types of environmental policy instruments and examples of each.

The study of policy instrument selection has transitioned from a rational perspective to an emphasis on various contexts around policy instrument selection (Howlett, 2005). The first generation of policy instrument scholars insisted that it is possible to find an optimal policy instrument to solve social problems and that market-based policy instruments rather than traditional and hierarchical mechanisms do so efficiently and effectively (Howlett, 2005; Zehavi, 2012). However, the second generation of policy instrument studies criticized the first-generation studies as unrealistic because they supposed that public officers have all the information needed to make an optimal and rational choice and failed to consider various contexts around policy instrument selection because they studied policy instruments through a blunt and dichotomous lens that distinguishes between evil (nonmarket) and good (pro-market) policy instruments (Böcher, 2012; Howlett, 2005; Peters, 2005). To overcome the limitations of the previous approach, the second-generation researchers pointed out determinants of policy instruments such as ideologies, policy learning, international organizations, the state-society relationship, policy domain, and so forth (Linder & Peters, 1989; Wurzel et al., 2013). However, the second-generation approach has also suffered from a lack of empirical evidence to support the ideas and failed to suggest elaborated arguments to develop the study of policy instrument selection (Jordan et al., 2013; Lascoumes & Le Galès, 2007; Sager, 2009).

Following the line of reasoning of the second generation, this study tries to suggest that social trust, government capacity, and the state-society relationship are closely related to policy instrument selection, in particular citizens' preferences for policy instruments. At the same time, in order to overcome the limitations of the second-generation research, this study will test hypotheses by means of an international survey instrument after elaborating theoretical arguments.

Determinants of citizens' preferences for policy instruments

Social trust

Trust gives people confidence in others' commitment to cooperate. In particular, generalized trust, as opposed to particularized trust, is the feeling that most people can be trusted based on the moralistic view that people are trustworthy and share fundamental moral values like the goodwill of others. The moral basis of generalized trust allows people to trust others with whom they do not have direct relationships (Uslaner, 2003). Generalized trust has been regarded as an important

variable that leads to socially desirable outcomes such as trust in political institutions, engagement in civic activities, and equality (Rothstein & Uslaner, 2005; Uslaner, 2003). Social trust is thought to prevent collective action problems and opportunistic behaviors as well (Uslaner, 2003). Considering that political institutions are designed to reduce uncertainty and opportunistic behaviors and improve people's commitment to social goals (Williamson, 1985), social trust that reduces the extent of opportunistic behaviors should be related to the selection of policy instrument.

In societies with a low level of social trust, market-based policy instruments such as subsidies and taxes are more likely than regulatory policy instruments to cause negative external effects. For instance, when the government provides welfare services through cash, people tend to misuse public resources more than when welfare services are directly supplied by the government. Under the circumstance of low social trust, public resources are more likely to be used for personal purposes than for social goals, and people try to cheat in order to get more benefits from the government (Bjørnskov & Svendsen, 2013). As market-based policy instruments guaranteeing some level of autonomy are suspected to cause unfair results, citizens prefer direct government activities and expect the government to regulate negative external effects (Aghion, Algan, Cahuc, & Shleifer, 2010; Bjørnskov & Svendsen, 2013; Pitlik & Kouba, 2015). Furthermore, people do not want the government to use information-based policy instruments when they do not trust each other. Because the sermon is the least coercive and directive policy instruments, it is not enough to lead people to work toward common goals. Those who cannot trust other citizens believe that incentives or disincentives are required to get people to comply with the government's intentions. Accordingly, we expect that in circumstances of low social trust, people are more likely to favor stick or carrot types of policy instruments than the sermon, leading to the following hypothesis:

H1: In a society with a higher level of social trust, citizens are more likely to prefer the carrot to the stick, the sermon to the stick, and the sermon to the carrot

Government capacity

The capacity of government refers to the output side of a political institution's quality such as the bureaucracy and the ability of the government to design and implement public policy appropriately (Fukuyama, 2013; Painter & Pierre, 2005; Rothstein & Teorell, 2008). Government capacity would be a major determinant of citizens' preferences for policy instruments because governmental efforts to manage non-state actors (firms, NGOs, interest groups) become important as the number of policy actors involved in policy implementation increases when indirect policy instruments are employed.

According to Börzel and Risse (2010), the utilization of indirect policy instruments is associated with relaxing bureaucrats' controls on public policy. In contrast to command-and-control regulation that confines relevant policy actors mainly to bureaucrats, indirect policy instruments open the policy implementation process. By relying on different modes of social coordination such as price mechanism (the carrot) and collaboration (the sermon) rather than command-and-control (the stick), indirect policy instruments introduce experts and resources of non-state actors (i.e. firms,

NGO, interest groups, etc.) to the policy process (Börzel & Risse, 2010). This increased involvement of non-state actors in the policy process suggests that policy implementation happens beyond the boundary of government and therefore, the possibility of principal-agent problems is increased (Kettl, 2015; Leman, 2002; Salamon, 2002).

The participation of non-state actors in the governing process could lead to moral hazard and adverse selections because of the potentially conflicting relationship between public values and private values (Skelcher & Smith, 2014; Thomann, Lieberherr, & Ingold, 2016). Non-state actors pursue the maximization of benefits instead of creating public values. Thus, when the government induces them to provide public services by means of indirect policy instruments, they end up with two conflicting goals – one public and one private. Private actors that have long been institutionalized under market values are more likely to follow their own interests at the expense of public values when they are disadvantaged by public service delivery without proper monitoring by the governments. In other words, weak government capacity to take control of non-state actors' opportunistic behaviors and rent-seeking activities could cause a waste of public resources and failure of implementation (Buzogány, 2015; Kettl, 2015; Skelcher & Smith, 2014; Thomann et al., 2016).

Furthermore, citizens are likely to perceive that the highest level of government capacity is necessary to utilize suasive policy instruments. Unlike other types of policy instruments, suasive policy instruments do not provide public officers with coercive or economic means to induce non-state actors' behaviors (Margetts, 2009; Zehavi, 2012). This means that if the government does not have enough capacity to monitor non-state actors' behaviors and step in to address their misbehaviors, the effectiveness of suasive policy instruments would be negligible and may even aggravate collective action problems and negative external effects (Zehavi, 2012). In this regard, several studies pointed out that suasive policy instruments work when the government has a high level of capacity to impose a credible threat of government interventions in the case of failure of non-state actors' voluntary behaviors. As non-state actors want to avoid losing their autonomy and influence in public policy, they are more likely to be cooperative when the government has a high capacity (Börzel & Risse, 2010; Héritier & Eckert, 2008). For instance, Héritier and Eckert (2008) found that PVC industries in the UK made voluntary agreements to reduce the amount of chemical pollution because the government was capable enough to monitor their behaviors and threaten them. Bressers, de Bruijn, Lulofs, and O'Toole (2011) also found that Dutch industries are more likely to establish ambitious goals for their voluntary agreements to protect the environment when they perceive the government as competent enough to intervene.

To sum up, in order to utilize indirect policy instruments, the government must be competent to manage and take control of relationships that exceed the boundary of government (Kettl, 2015). In addition, considering the high possibility of collective action problems involved in suasive policy instruments, citizens are expected to indorse suasive policy instruments when the highest level of government capacity is guaranteed (Zehavi, 2012). Thus:

H2: In a society with a high level of government capacity, citizens are more likely to prefer the sermon to the carrot, the sermon to the stick, and the carrot to the stick.

The state-society relationship

Policy instrument selection is contingent on political and administrative tradition. Institutional and historical legacies confine the options governments can utilize because they socialize citizens to have certain preferences and expectations about the role of government and the ways governments operate. Therefore, the state-society relationship that denotes cultural norms about the role of the state has been suggested as a major determinant of 'policy styles,' referring to each country's own distinct and long-term preferences for policy instruments. That is, the state-society relationship formulates citizens' expectation of the way the government exerts its authority to intervene in society (Howlett, 1991, 2005, 2011; Linder & Peters, 1989; Peters, 2005; Wurzel et al., 2013). This study seeks to demonstrate the civil society's degree of autonomy from the state across five different administrative traditions and the relationship between the civil society's degree of autonomy and citizens' preferences for policy instruments.

In Anglo-Saxon countries, the distinction between the state and civil society is clear, and the market and civil society enjoy autonomy from the influences of government. Citizens usually view the government as the product of a social contract and a greater direct role of governments as a threat to civil rights (Howlett, 1991, 2005; Painter & Peters, 2010; Ringeling, 2005). In particular, pervasive concerns about government bureaucracy in the US and the UK classify them as 'stateless societies' (Ringeling, 2005). The negative images of government bureaucracy there are starkly different from the strong belief in the virtue and efficiency of the market and the voluntary forms of government (Painter & Peters, 2010). Due to this historical legacy, Anglo-Saxon countries have long been regarded as having strong preferences for less coercive and authoritative policy instruments like the carrot and the sermon (Howlett, 1991, 2005; Landry & Varone, 2005; Ringeling, 2005).

On the other hand, Continental European and Nordic countries have a more organic view of the state-society relationship compared to Anglo-Saxon countries. Governments of Continental European countries have played a major role in social development, especially in France. Also, corporatism, the strong German tradition that emphasizes a cooperative relationship with non-state actors, contributed to forming the organic view of the state-society relationship (Painter & Peters, 2010; Ringeling, 2005). Not only are Nordic countries influenced by the German tradition, but they also strongly favor social welfare because of their social democratic ideology that stresses the engagement of the government in the market to solve market failures (Howlett, 1991; Painter & Peters, 2010). Based on this discussion, it can be expected that citizens of Continental European countries would accept the government's involvement in society as natural, and citizens of Nordic countries could have even stronger preferences for policy instruments that feature direct government activities compared to citizens of Continental European countries (Howlett, 1991; Landry & Varone, 2005; Ringeling, 2005).

In East European countries and East Asian countries, there has historically been no clear distinction between the state and civil society, and civil society was subordinate to the state (Cheung, 2012; Im, 2014; Meyer-Sahling, 2010). In East European countries, the communist party had control of both civil society and the market, and its rule penetrated into all aspects of society. The party monopolized the entire political power structure, and there was no distinction between politics and public administration. The

qualifications of public officers were defined by politics and ideology rather than competency (Drechsler, 2005; Meyer-Sahling, 2010).

In East Asian countries, Neo-Confucian philosophy has had a lasting impact on the state-society relationship and public administration (Im, 2014; Im, Campbell, & Cha, 2013; Painter, 2010). This philosophy stressed that governing officials must have a high level of ethical standards such as a sense of justice and communal spirit taking in the interests of the majority. It also assumed that publicness is identified as governance by the ruling class and government bureaucracy and private actors have nothing to do with it (Im et al., 2013). In spite of the high level of ethical standards required of political elites, Confucian society is a hierarchical society that emphasizes the individual's prescribed social roles (Frederickson, 2002; Im, 2014). In this vein, Frederickson (2002) suggested that Confucian governance is a kind of social contract that implies only a government 'for the people' without 'of the people' and 'by the people'. Confucian tradition contributed to an underdeveloped civil society, and government autonomy from society has persisted until now in spite of numerous public sector reforms (Cheung, 2012; Im, 2014; Painter, 2010). To sum up, the historical legacy of East European and East Asian countries has resulted in the supremacy of the state over civil society, and citizens in these circumstances have been socialized to take the active and direct activities of the government for granted.

Table 2 presents the state-society relationship and historical legacies of each political and administrative tradition and indicates how citizen's preferences for policy instruments differ depending on these historical legacies. As shown in Table 2, it is expected that as the level of civil society's autonomy from the state increases, citizens are more likely to have preferences for less coercive policy instruments. The following hypothesis is proposed:

H3. Citizens in Anglo-Saxon countries are more likely to prefer indirect instruments like the carrot and the sermon compared to citizens in other categories.

Table 2. Predicted preferences for policy instruments along with the state-society relationship.

Expected preference	Categories	State society relationship	Legacies	Examples from the ISSP dataset
Indirect policy instruments ↑	Anglo-Saxon countries	Stateless	Liberalism	New Zealand, United Kingdom, United States, Canada
	Nordic countries	Organistic + Welfaristic	Social democracy	Denmark, Finland, Norway, Sweden
	Continental European countries	Organistic	Corporatism + Napoleonic	Austria, Belgium, France, Germany
	Eastern European countries	State dominance	Communism	The Czech Republic, Latvia, Lithuania, Slovakia, Slovenia, Bulgaria, Russia
Regulatory policy instrument	East Asian countries		Confucian philosophy	Japan, Taiwan, South Korea

Research design

We used ISSP (International Social Survey Program) Environmental III data, which were collected from citizens of 32 countries in 2010. This survey asked citizens about their perceptions and attitudes toward environmental issues. Although the dataset is outdated, ISSP Environmental III is the latest available version released by ISSP dealing with the environmental issues. Furthermore, it covers a large number of countries, making it suitable for our purpose of investigating whether there are differences in citizens' preferences for policy instruments across state-society relationships. In order to explore the influence of national-level variables, this study combined ISSP Environmental III data with national-level variables from other datasets.

Following Harring (2015), this study used the following questions from the ISSP Environmental III data: 'Which of these approaches do you think would be the best way of getting business and industry in the country to protect the environment?' and 'Which of these approaches do you think would be the best way of getting people and their families in the country to protect the environment?' By taking into account two major policy targets (business and citizens), the analysis is expected to reveal whether the influences of explanatory variables are differentiated by the characteristics of the policy target groups. Respondents can choose one of three options: 'Heavy fines for businesses (citizens) that damage the environment,' 'Use the tax system to reward businesses (citizens) that protect the environment,' and 'More information and education for businesses (citizens) about the advantages of protecting the environment.' These answers are operationalized in accordance with Vedung's (1998) classification of policy tools. In other words, the first option is operationalized as 'stick,' the second option is operationalized as 'carrot,' and the last as 'sermon.' Although there is a varying degree of governmental interventions among the three types of policy instruments, this study utilizes multi-level logistic regression rather than ordered logistic regression to take into account all possible relationships. That is, this study recorded the answers into three dichotomous variables (the stick (0) versus the carrot (1); the stick (0) versus the sermon (1); the carrot (0) versus the sermon (1)).

Independent variables are trust in general, government capacity, and the state-society relationship. Two questions are used to measure trust in general: 'Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?' and 'Generally speaking, do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?' (Cronbach's α = 0.7018).

Government capacity and state-society relationship are independent variables at the state level. To measure government capacity, this study used the Quality of Government index provided by the Quality of Government Institute (Teorell et al., 2013). The index combines three indicators from the International Country Risk Guide's (ICRG) political risk indicators: corruption in political systems (patronage, nepotism, and bribes), the rule of law (the impartiality of the legal system and popular observance of the law), and the quality of bureaucracy (the performance and expertness of public agencies) (Teorell et al., 2013). The index is scaled from 0 to 1; a high value of the index indicates that the country enjoys a less corrupt, more impartial, and more competent public administration and therefore, a high level of government capacity. Although individual countries'

political risks are assessed by foreign investors and business experts, the indicators have been widely acknowledged as a reliable measurement for governmental capacity in the literature on comparative public administration. (Dahlström, Lindvall, & Rothstein, 2013). The state-society relationship is measured as dummy variables that group countries into five categories based on their social norms about state and society relations following Table 2. In the statistical models, Anglo-Saxon countries are set as the reference group.

Control variables are also constructed at the individual and state levels. Political ideology, social class, interest in environmental issues, education level, and sex are considered control variables at the individual level. Political ideology is measured by a question about party affiliation ranked on a left-right scale of 1 to 5. The higher the score, the more conservative the respondent leans. Political ideology is included in the statistical models because several studies have pointed out that those who favor conservative ideas are more likely to prefer indirect policy instruments to direct government regulations (Jordan et al., 2003; Wurzel et al., 2013). Citizens' perception of their socioeconomic status is included in the model because citizens who belong to high-income groups tend to have post-materialist characteristics which lead to favorable attitudes toward environmental protections (Gelissen, 2007). Socioeconomic status is measured on a scale of 1 to 10, with higher scores indicating higher socioeconomic status. Concern for environmental issues makes people prefer coercive government activities like regulation (Jordan et al., 2003). Attitude toward environmental issues is measured by the question, 'Generally speaking, how concerned are you about environmental issues?' Answers are ranked on a 5-point scale; a high score represents a serious concern for environmental protection.

Level of democracy, GDP per capita, and membership in OECD are included as state-level control variables. We included the level of democracy in order to reflect an assumption of policy instrument scholars. According to Howlett (1991), most classifications of policy instruments are based on the presumption that citizens in liberal democratic systems prefer indirect government policy instruments. People who are afraid that increased government activity will harm their civil rights and freedom are in favor of market-based and information policy instruments. GDP per capita is added in the models because the government can easily enact market-based policy instruments when there is more funding (Howlett, 2011). Scholars who focus on international relations and the roles of international organizations have stated that the OECD functions as a facilitator that promotes its members to adopt indirect environmental policy instruments (Busch, Jörgens, & Tews, 2005; Jordan et al., 2003; Tews, 2005; Wurzel et al., 2013) such as eco-taxes, eco-labels, voluntary agreements, and tradable permits. The OECD argues that regulation is so inflexible that it will hamper the market competitiveness of each state's industry. As such, it provides communication channels for states to study new policy instruments and encourages member states to adopt new environmental policy instruments (Tews, 2005).

Results

Table 3 shows how the citizens' preferences toward policy instruments vary by state-society relationships. The one-way ANOVA analyses reveal statistically significant differences in citizens' preferences for policy instruments across state-society

Table 3. Different preferences for policy instruments by state-society relationships.

Policy target	Citizens			Business		
Preferences toward policy instruments(%)	Stick	Carrot	Sermon	Stick	Carrot	Sermon
Anglo-Saxon countries	15	36	49	37	36	27
Nordic countries	10	38	51	25	47	28
Continental European countries	17	39	43	35	41	25
Eastern European countries	39	29	32	48	36	16
East Asian countries	22	24	55	27	37	37

ANOVA analyses of citizens' preferences for policy instruments across state-society relationships show that there are statistically significant differences in the preferences at the $p < 0.01$ level in all the six columns.

relationships at the $p < 0.01$ level. The significant differences exist irrespective of policy target groups. However, the assumptions of the influence of state-society relationship on preferences seem to rarely be supported. It turns out that it is not Anglo-Saxon countries but East Asian countries that have the highest percentage of respondents who prefer the sermon to other types of policy instruments regardless of policy target groups. Continental and Nordic countries' percentages of respondents who favor the carrot most are higher than Anglo-Saxon countries' percentage in both policy target groups as well. It seems that only Eastern European citizens' preferences are in accordance with the expectation; they prefer the stick most regardless of policy targets, and the rates of people who mentioned that they prefer the stick to other types of policy instrument are highest across the political traditions. After all, the descriptive statistics imply that policy instrument choice is not fully explained by the state-society relationship alone and would be different depending on policy target groups. The summary statistics are presented in Table 4.

The results of multilevel logistic regression models including all of the countries in the ISSP dataset except for Taiwan[1] are displayed in Table 5. From model 1 to model 3, the question of how to improve people's commitment to environmental protection is taken into account as a dependent variable, and models 4, 5, and 6 use the question about how to improve businesses' efforts for the environment as a dependent variable. Trust in general, an individual-level independent variable in this study, has statistically significant impacts on citizens' preferences for policy instruments in all models. Regardless of the type of policy target group, trust in general increases citizens' preferences for the carrot and the sermon over the stick as expected. However, when it comes to the relationship between the carrot and the sermon, people in societies with a high level of trust are more likely to prefer the carrot to the sermon, in contrast to our expectation. This reveals that people might be more concerned with the possible

Table 4. Summary statistics.

Level	Variable	Obs	Mean	Std. Dev.	Min	Max
Individual	Trust in general	43837	2.839485	1.092788	1	5
	Concern environmental issues	44387	3.615811	1.121765	1	5
	Conservative	23716	2.977104	0.9838795	1	5
	Education	44685	3.789997	1.477575	1	6
	Social class	41477	5.126962	1.801668	1	10
	Age	44952	47.30321	17.55539	15	99
	Female	45122	0.54151	0.49828	0	1
Country	Quality of government	32	0.717442	0.17595	0.4166667	1
	Level of democracy	32	9.309564	1.099048	4.75	10
	GDP per capital	31	9.964122	0.547316	8.177655	10.7559

Table 5. Results of multilevel logistic regression models without state-society relationships.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Policy target	Citizens			Business		
Baseline	Stick		Carrot	Stick		Carrot
	Carrot	Sermon	Sermon	Carrot	Sermon	Sermon
Individual-level variables						
Trust in general	0.168***	0.098***	−0.033**	0.184***	0.114***	−0.082***
	(0.020)	(0.018)	(0.017)	(0.017)	(0.018)	(0.019)
Concern for environment	−0.078***	−0.050***	0.003	−0.071***	−0.040**	0.007
	(0.019)	(0.017)	(0.016)	(0.016)	(0.017)	(0.018)
Conservative	0.034*	0.000	−0.028*	0.096***	0.087***	−0.008
	(0.021)	(0.019)	(0.017)	(0.017)	(0.019)	(0.019)
Education	0.146***	−0.009	−0.171***	0.164***	−0.090***	−0.240***
	(0.020)	(0.017)	(0.016)	(0.017)	(0.017)	(0.018)
Class	0.006	0.007	0.002	0.000	0.014*	0.012
	(0.008)	(0.008)	(0.007)	(0.007)	(0.008)	(0.008)
Age	−0.011***	0.000	0.014***	−0.004***	0.001	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female	0.037	0.092**	0.122***	−0.071**	0.150***	0.257**
	(0.041)	(0.037)	(0.033)	(0.033)	(0.036)	(0.037)
Country-level variables						
Government capacity	3.738***	3.136***	−0.769	1.941**	2.290**	0.317
	(0.780)	(0.931)	(0.987)	(0.862)	(1.157)	(1.108)
Level of democracy	−0.088	0.010	0.111	−0.031	−0.018	0.025
	(0.087)	(0.105)	(0.113)	(0.097)	(0.133)	(0.127)
GDP per capital	0.010	−0.261	−0.241	0.063	−0.584	−0.634*
	(0.246)	(0.290)	(0.309)	(0.272)	(0.359)	(0.344)
OECD	−0.001	0.181	0.172	−0.074	0.317	0.376
	(0.243)	(0.288)	(0.310)	(0.270)	(0.361)	(0.349)
Cons	−2.351	0.555	2.496	−3.014	3.412	6.127**
	(2.139)	(2.525)	(2.682)	(2.366)	(3.123)	(2.992)
Variance component						
Country intercept	0.361**	0.443**	0.475**	0.411**	0.559**	0.533**
	(0.055)	(0.062)	(0.065)	(0.061)	(0.076)	(0.073)
Number of observations						
Individuals	12058	15025	16801	16115	13995	13636
Countries	30	30	30	30	30	30
Log likelihood	−7323.88	−8980.84	−10698.2	−10441.7	−8949.98	−8554.21

*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$
Standard errors in parentheses.

misusage of public resources by the abuse of market-based policy instruments than the negligible effect of suasive policy instruments on curbing collective action problems when the level of social trust is low.

The government's capacity to deal with relationships beyond the boundary of government for appropriate policy implementation turns out to be important. This capacity increases the probability of citizens' preferences for the carrot and the sermon over the stick without respect to policy target groups. However, as shown in model 3 and model 6, the influence of governmental capacity is not significant when the carrot and the sermon are compared. To sum up, the hypotheses regarding social trust and government capacity are partially supported.

The results for the control variables at the individual level are as follows. Concern for the environment makes citizens prefer the most coercive policy instrument to indirect policy instruments regardless of types of policy target. This supports previous findings that environmentalists are against market-based instruments because they believe that

market-based policy instruments change environmental and ethical issues to economic issues (Jordan et al., 2003; Wurzel et al., 2013). Thus, they believe that market-based instruments are immoral given that they allow the industry to avoid responsibility if they pay some money without making any contributions to improving the environment (Jordan et al., 2003). Conservative-leaning individuals are more likely to be inclined toward market-type policy instruments over the stick and the sermon when the policy target group is ordinary people, but their preference tilts toward indirect policy instruments when the policy target is business. These results also support previous findings that conservatives prefer indirect and less coercive instruments to direct government intervention (Linder & Peters, 1989; Wurzel et al., 2013). Female citizens are more likely to prefer the sermon to other types of policy instruments in comparison to male citizens. Finally, the analysis shows that the carrot is the least-preferred option for older citizens. Although the age variable does not have statistically significant influences in model 2 and model 5 that compared the stick with the sermon, age is related to consistent preferences for the stick and the sermon when those instruments are compared with the carrot.

Among country-level control variables, only GDP per capita has a statistically significant effect in model 6. Howlett (2011) predicted that countries with high GDP are not reluctant to use market-based policy instruments. However, the results show that rich public resources do not always lead citizens to like the carrot. In addition, the results do not really support the assumption underlying policy instrument categories since there is not a significant effect of the level of democracy in the models. Finally, OECD membership is insignificant through all the models as well. The OECD's efforts to disseminate new policy instruments might influence public officers of member states but does not influence citizen preferences for policy instruments.

We conducted an additional analysis to consider the influence of state-society relations for 21 countries in the statistical models. Those countries are classified into 5 different groups based on Table 2, and Anglo-Saxon countries are considered as the reference group. The results of the analysis are displayed in Table 6. The impacts of the other two independent variables are consistent except for the trust in general variable in model 9 and government capacity in model 11. Trust in general lost its meaningful statistical effect on citizens' preference between the carrot and the sermon, and government capacity does not have a statistically significant impact on citizens' preference between the stick and the sermon.

In terms of the state-society relationship, the results are different depending on which policy target groups are considered. When citizens are targets of policy instruments, the empirical results are in accordance with the expectations from the discussion about state-society relationships to some extent. Compared to people of Anglo-Saxon countries, Continental and East European citizens are more likely to prefer the stick to the sermon in model 7 and the stick to the carrot in model 8. However, when policy instruments target business, people in Anglo-Saxon countries do not prefer less coercive instruments more than citizens in other categories. Model 10 suggests that people of Continental European, Eastern European, and East Asian countries are more likely to favor the carrot over the stick than Anglo-Saxon people are.

Table 6. Results of multilevel logistic regression models with state-society relationships.

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Policy target		Citizens			Business	
Baseline	Stick		Carrot	Stick		Carrot
	Carrot	Sermon	Sermon	Carrot	Sermon	Sermon
Individual-level variables						
Trust in general	0.141***	0.157***	0.018	0.148***	0.121***	−0.042*
	(0.024)	(0.022)	(0.019)	(0.019)	(0.022)	(0.022)
Concern for environment	−0.082***	−0.084***	−0.021	−0.084***	−0.093***	−0.019
	(0.023)	(0.022)	(0.019)	(0.019)	(0.022)	(0.021)
Conservative	0.025	0.010	−0.020	0.113***	0.113***	−0.001
	(0.024)	(0.022)	(0.019)	(0.019)	(0.022)	(0.022)
Education	0.129***	0.000	−0.155***	0.157***	−0.082***	−0.232***
	(0.019)	(0.018)	(0.015)	(0.015)	(0.017)	(0.017)
Class	0.009	0.012	0.001	0.000	0.018*	0.016*
	(0.010)	(0.009)	(0.008)	(0.008)	(0.009)	(0.009)
Age	−0.014***	0.001	0.018***	−0.005***	0.005***	0.012***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female	0.077	0.159***	0.142***	−0.038	0.222***	0.276***
	(0.048)	(0.046)	(0.038)	(0.038)	(0.045)	(0.043)
Country-level variables						
Nordic countries	−0.264	−0.055	0.239	0.264	0.212	−0.040
	(0.194)	(0.280)	(0.285)	(0.171)	(0.356)	(0.342)
Continental European countries	−0.160	−0.432*	−0.220	0.347**	0.012	−0.325
	(0.175)	(0.256)	(0.261)	(0.156)	(0.326)	(0.313)
Eastern European countries	0.122	−0.148	−0.290	1.147***	0.507	−0.623
	(0.324)	(0.468)	(0.486)	(0.293)	(0.606)	(0.583)
East Asian countries	−0.486**	0.383	0.824**	1.009***	1.548***	0.535
	(0.243)	(0.344)	(0.352)	(0.218)	(0.439)	(0.419)
The government capacity	3.820***	3.446***	−0.557	3.319***	2.700	−0.552
	(0.994)	(1.430)	(1.487)	(0.899)	(1.850)	(1.781)
Level of democracy	−0.022	0.044	0.078	0.037	0.066	0.037
	(0.058)	(0.086)	(0.091)	(0.054)	(0.113)	(0.109)
GDP per capital	0.548	0.262	−0.316	0.954***	1.051	0.074
	(0.399)	(0.577)	(0.591)	(0.356)	(0.739)	(0.709)
OECD	−0.354	−0.235	0.119	−0.997***	−0.922	0.050
	(0.310)	(0.442)	(0.460)	(0.271)	(0.573)	(0.551)
Cons	−7.549*	−5.129	2.781	−13.202***	−14.106*	−0.820
	(4.023)	(5.800)	(5.948)	(3.598)	(7.442)	(7.133)
Variance component						
Country intercept	0.185**	0.296**	0.312**	0.173**	0.391**	0.375**
	(0.039)	(0.053)	(0.053)	(0.034)	(0.066)	(0.063)
Number of observations						
Individuals	8972	10322	12546	12071	9522	10151
Countries	21	21	21	21	21	21
Log likelihood	−5320.89	−5901.27	−8180.47	−7952.271	−5911.981	−6308.32

$*p < 0.1$, $**p < 0.05$, $***p < 0.01$
Standard errors in parentheses.

These results may be attributed to the fact that the impact of state-society relationship is contingent on the socially constructed images of the target population. That is, Anglo-Saxon people might view the government's direct intervention as a threat when the government tries to intervene with ordinary citizens rather than businesses; businesses are not socially regarded as positively as citizens and therefore do not deserve to be protected as citizens (Ingram, Schneider, & DeLeon, 2007; Schneider & Ingram, 1993). Other survey instruments included in the ISSP can support this point. Table 7 shows the survey answers about whether the government should pass a law to make citizens or business protect the environment even if it interferes with their rights. The

Table 7. Rates of agreement about the government's role to make law to protect the environment even at the expense of people's or business's rights to make their own decisions.

	Anglo-Saxon countries	Nordic countries	Continental European countries	Eastern European countries	East Asian countries
Citizens (%)	66.09	74.66	74.38	77.32	72.11
Business (%)	89.18	93.72	91.36	89.61	85.69

ANOVA analyses of citizens' perceptions across the state-society relationships show that there are statistically significant differences in the response rates regardless of whether policy targets are citizens ($p < 0.01$) or businesses ($p < 0.01$).

one-way ANOVA analyses indicate that the response rates approving the governmental interventions in environmental issues across country groups are significantly different at the $p < 0.01$ level without respect to the policy target groups. When the subject of the government's law is ordinary people, the percentage of people in Anglo-Saxon countries who agreed with the statement is the lowest among the 5 types of state-society relationships. However, in the case of business, the agreement rates in Anglo-Saxon countries are not the lowest and the gap in the agreement rates across the state-society relationship categories is substantially reduced because the rate of the agreement with the government's law targeting business in Anglo-Saxon countries rises to about 23%. This implies that as Ingram et al. (2007) and Schneider and Ingram (1993) pointed out, even faced with the same policy problems, policy instruments chosen for solving social problems could differ across countries according to the general images and social constructions of policy target populations in each society.

Finally, the probability that East Asian citizens will prefer the sermon to the carrot in model 9 and the sermon to stick in model 11 is higher than that for Anglo-Saxon people. East Asian people's consistent preference for the sermon compared with Anglo-Saxon countries might be attributed to the fact that although the government often reigns supreme over the civil society in East Asian countries, it has been regarded as a moral leader rather than an authoritarian. Under the influence of Confucian philosophy, governments in East Asian countries have taken the role of moral leaders that determine the directions of countries for their general wellbeing and have significant persuasive power to guide and transform citizens' behaviors according to the government's vision (Im et al., 2013). This value-driven and elite-led relationship between the government and people might lead to the preference for the sermon.

Conclusions

This study investigated the determinants of citizen's preferences for policy instruments. Considering the fact that empirical and statistical analyses of policy instruments are very limited in the governance literature (Jordan et al., 2013; Lascoumes & Le Galès, 2007; Sager, 2009), this study contributes by empirically examining the determinants of citizens' preferences for policy instruments based on surveys of citizens from 32 countries. This study aimed to offer policy implications by answering an increasingly important question: 'Why do governments introduce different policy instruments and governance structures in coping with the same policy problems?'

The findings of the study show a robust influence of social trust on policy instrument selection in comparison to the impacts of other explanatory variables. Irrespective of

the policy target groups, social trust consistently induces citizens to prefer the carrot to the sermon, the carrot to the stick, and the sermon to the stick. This implies that the primary criterion for determining preferences for policy instruments is whether people consider the probability that negative external effects such as abuse of public resources and free-riders occur during the policy process. The findings are consistent with the previous results showing that well-functioning public-private partnerships are built upon social trust that reduces costs for transactions and monitoring. When trust is present, the actors do not need to calculate possible negative outcomes because they could believe that there would be mutual commitments to policy goals between actors. On the other hand, the actors try to introduce detailed contrasts and measures for punishing opportunistic behaviors in the case of the absence of social trust (Bovaird, 2004; Warsen, Nederhand, Klijn, Grotenbreg, & Koppenjan, 2018).

The relationship between the capacity of government and citizens' preferences for policy instruments has similar patterns with social trust. A high level of government capacity leads citizens to prefer indirect policy instruments over the stick. This might be attributed to the point that indirect policy instruments function well under a high level of government capacity in that the government is required to manage the relationships with non-state actors that go beyond the boundary of governments in order to achieve policy goals. (Kettl, 2015). However, we could not find evidence for whether a high level of government capacity leads to citizens' preference for the sermon over the carrot or not.

This study also found that the state-society relationship exerts limited influence on citizens' preferences for policy instruments and its influences depend on the socially constructed images of the target population. Future researchers should further investigate the association between the state-society relationship and preference for policy intruments because there has been scant empirical research on this topic despite the importance of the linkage between the two variables (Jordan et al., 2013; Lascoumes & Le Galès, 2007; Sager, 2009).

We note that this study has the following limitations. First, this study investigated policy instruments based not on actual policy instruments initiated by governments but on citizen preferences. Although governments often try to be responsive to the preferences of citizens in order to attain legitimacy during the implementation (Capano & Lippi, 2017; Rist, 1998), we acknowledge that there is often discrepancy between governments' actual policy instrument choices and citizens' preferences because policy-makers often refer to different rationales for policy instrument choices than their citizens do. This suggests that future researchers need to further investigate actual policy instrument adoption and policy-makers' preferences. Second, we also note the possibility that the model specification and empirical results might vary depending on policy areas. In other words, model specification of citizens' preferences for policy instruments in other policy domains such as social welfare, labor, and education need to incorporate their own policy contextual factors. Future studies should examine the determinants of policy instrument peferences and choices in various policy domains as well as compare these determinants among them (Hood, 2007; Peters, 2005). Finally, we also acknowledge the possibility of common method bias in the analyses, as preferences for policy instruments (the dependent variables) and social trust (one of the main explanatory variables) are harvested from the single survey which might cause potential measurement errors stemming from systematic tendencies (i.e. social desirability bias) (George & Pandey, 2017; Jakobsen & Jensen, 2015).

However, this does not mean that using a single survey always leads to biased results. It should be noted that the ISSP Environmental III survey has several characteristics limiting the probabilities of common method bias. Not only did it utilize different Likert scales across questionnaires, but it also did not present all variables on the same page of the survey (George & Pandey, 2017; Warsen et al., 2018). Furthermore, this study includes variables from other sources than the ISSP Environmental III including GDP per capita, the level of democracy, government capacity, and the state-society relationship.

Note

1. Taiwan is excluded from the statistical analysis because it is impossible to find country-level variables for Taiwan, especially GDP per capita, from the World Bank.

Disclosure statement

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