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Citizen-right Awareness and Environmental-related Factors on Pro-environmental Behavior: Some Evidence from China*

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Abstract

This study explores the underdeveloped concept of citizen-right and environmental awareness in the context of authoritarian China. Facing environmental degradation, the Chinese people have engaged in environmental protection in different ways. Against this background, this study examines the attitudes and perceptions among the Chinese people on environmental issues using the China General Social Survey (CGSS) in 2013. The study not only shows the views of Chinese people on environmental protection when Xi Jinping became the president of China in 2012 but also reveals that in the context of authoritarian regimes-perhaps due to compliance with or faith in the accountability of the governing system-citizen rights awareness during collective decisions undermines citizens' willingness to make individual contributions. Both institutional friction and structural constraints have made Chinese citizens silent towards environmental actions.

Key Words: citizen rights awareness, pro-environmental behavior, environmental citizenship, China, institutional trust

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I. Introduction

Global warming, deforestation, and different types of pollution from the local to the international level are some of the environmental problems that have been challenging ecosystems for multiple generations of human beings. As concerns about global environmental issues mount, the responsibilities for protecting the environment have also increased. In the report, "Our Common Future" (1987) and at the Rio Earth Summit in 1992, for instance, calls for action were taken to protect the environment, further extending the concept of environmental citizenship. The United Nations Environment Programme (UNEP) defines the concept of environmental citizenship as awareness and responsibility to protect the environment and to participate actively through partnerships with the government and other stakeholders. In addition, the government is responsible for making citizens understand both their rights to enjoy a clean and safe environment and exercise their duties to protect environmental sustainability.

The appeals from the international community have brought further discussions on the concept of environmental citizenship. Dobson defines environmental citizenship as a behavior to protect the environment in both public and private spheres, a belief in the right to fairness in the distribution of environmental goods, and the responsibility to achieve a sustainable society through participation (Dobson, 2003, 2007). The concept of environmental citizenship extends beyond time and space, regardless of gender, race, and class; it also extends beyond territorial constraints and across generations (Horton, 2006; Barry, 1999; Dobson, 2007); fellow citizens engage in securing the environmental common good (Fan, 2008, p. 382). In addition, environmental citizens may debate, take action, protest, and demand to protect the environment (Dobson, 2007, p. 282; Barry, 1999, pp. 231-233).

Since the economic reforms in the late 1970s, the Chinese government has implemented a series of laws and regulations on environmental protection; however, environmental degradation remains a challenge in the country. Environmental problems such as air and water pollution, deforestation, and soil erosion are generating environmental disasters across the country. Meanwhile, urbanisation and industrialisation further degrade the natural environment. Unregulated factories and unwanted facilities (such as

incinerators) have serious negative effects on the environment and health and have caused people's discontent with polluting infrastructures. Angry Chinese people have launched environmental protests to express their grievances and their dissatisfaction at being excluded from the decision-making process (Chen, 2012). This environmental activism has put serious pressure on the party-state.

Severe environmental deterioration and growing environmental activism are a challenge to social stability and a threat to the rule of government, but it requires further thought to understand the perceptions and attitudes of Chinese people with regard to environmental consciousness and to examine their relationship with other stakeholders to participate in environmental activities. Against this background, the concept of environmental citizenship in the context of China is raised with the question: To what extent does the idea of environmental citizenship reflect the patterns of environmental action among the Chinese people? Deploying the data from Chinese General Social Survey (CGSS), this preliminary study aims to explore the environmental participation of Chinese people and the dynamics with their government in combating environmental challenges; and to examine the concept of environmental citizenship in the context of China. In addition, the attitudes and perceptions of the Chinese people on environmental issues are important to better understand how these environmental concerns will affect the country in the future.

The rest of this paper is structured as follows. The following section describes the conceptual framework and the hypotheses. Section 3 presents data sources and research methods, including measurements and analytical strategy. Section 4 presents the statistical results and the discussion of this empirical study, including the descriptive statistics, pair-correlation analysis, and regression analysis. The final part of this paper concludes the research findings and discusses the theoretical contribution and implications.

II. Environmental citizenship and the research framework

This study attempts to propose a theoretical framework to examine the influence of

environmental citizenship on pro-environmental behavior. First, we introduce the concept of citizen rights awareness during collective decisions and its relationship with individual pro-environmental behavior. Second, we hypothesize that environmental awareness (specific to awareness of environmental problems and experience with environmental risks in this study) and institutional trust (confidence in environmental efforts by the government) have relationships with environmental behavior (i.e., donations to promote environmental protection), which provides a framework to understand the existing environmental attitudes among the Chinese people and their pro-environmental behavior. Most of the existing research on environmental citizenship and pro-environmental behavior is conducted in developed countries, while similar research is lacking in China; thus, it is clearly a very important task to explore this relationship through the use of nationally representative data from the country.

This study selected citizen rights awareness during collective decisions, environmental awareness, the self-consciousness of trust in the government, and environmental behavior to establish an analytical framework to examine the mechanism of the motivations of being an environmental citizen who engages in pro-environmental behavior. Previous studies have discussed how individuals' environmental behavior is positively shaped by environmental consciousness (Frick et al., 2004) and by institutional trust (Taniguchi & Marshall, 2018). The roles of citizen rights awareness, environmental consciousness and institutional trust in citizens' environmental behavior in China are examined within the framework based on the following hypotheses.

A. Citizen rights awareness during collective decisions

The concept of citizenship includes three dimensions: political participation, rights and obligations, and membership in modern political society (Cohen, 1999). Later, the rights also extend into different aspects, such as gender, race, ethics and ability groups (Janoski, 1998). Obligations are an essential aspect of citizenship. Generally, the idea of good citizenship encourages some form of participation to build tolerance and attachment in communities (Theiss-Morse & Hibbing, 2005, p. 227), and personal- and local-level environmental actions might press businesses and the government to change environmental behavior (Chen, 2021a, 2021b, 2022).

Nevertheless, the awareness of citizen rights in China is embedded in the specific

context of authoritarian regimes and institutional friction (Nathan, 2003; He & Thøgersen, 2010; Teets, 2013; Truex, 2017; Tsai & Xu, 2018; Kuo & Ding, 2018). On the one hand, citizenship awareness arises from the development of community identity and encourages civic participation (Cunningham, 1972; Keller, 2003). On the other hand, structural constraints and individual rational choice (Coleman, 1990; Zhong & Chen, 2002; Coleman, 2014) result in the emergence of "the silent majority" phenomenon, according to which citizens would rather be compliant with collective decisions and do nothing, adopting the appearance of political apathy (Aberbach, 1969; Salamon & Evera, 1973). Citizens' choice preference assumes faith in (or compliance with) the accountability and responsiveness of governmental decisions. Through anticipating the exercise of citizen rights through speaking, decision-making, voting and discussing public affairs, individuals with citizenship awareness believe that the governance systems have already been accountable for individual concerns and maximized collective benefits, so further individual actions towards common interests are unnecessary. Consequently, the effect of "citizen rights awareness during collective decisions" upon "individual-level environmental actions" is unclear and needs to be shown with empirical evidence in the Chinese context. The effect direction could be either be positive (encourage participation) or negative (keep silent). Nevertheless, the pro-environmental behavior could be identified as a reaction to obligation of environmental citizenships.

Attitudes, awareness, and the faith values reflect individuals' perceptions of and their reactions to the surrounding environment. As such, attitudes, awareness, and values are essential elements of environmental citizenship (Ahmad et al., 2012, p. 86; Hawthorne & Alabaster, 1999, p. 26; Barr, 2003). Hawthorne and Alabster (1999, pp. 27-29) further elaborated that attitudes, awareness and values towards the environment are shaped by personality and education. Personality forms a sense of environmental responsibility, which is determined by economic input and religious affiliation, while education shapes environmental literacy to understand environmental needs and make a contribution to sustainable development. There are no standardized indicators for virtues of ecological citizens, but fighting for environmental justice, protecting environmental rights and assuming duties are the principles for good ecological citizenship (Hayward, 2006; Melo-Escrihuela, 2008).

Indeed, education as well as the institutional-political training background in China

shape people's perception in terms of what they should do and should not do in the circumstance. The reflection of citizen right awareness during collective decisions would emerge with the silence in society as it was perceived with the normal phenomenon in the routine. While fighting against environmental inequality and protecting environmental rights are the pursuits of environmental citizenships, the silent atmosphere seems to exist in the opposite side. Silence keeping would stand for the tolerance of the governance body and the great awareness of citizens' roles in the society as well as the anti-traditional appearance of citizen rights.

H1: Citizen rights awareness during collective decisions demonstrates a significant effect on individual pro-environmental behavior.

B. Environmental awareness and experience in environmental risks

Environmental awareness refers to "the understanding of the impacts of human behavior on the environment" and may be specified with cognitive and affective components (Kollmuss & Agyeman, 2002). Environmental awareness is considered one of the major variables in explaining the actions of environmental citizenship (Stern et al., 1985; Newhouse, 1990; Klandermans, 1992; Grob, 1995; Stern, 2000).

Environmental citizenship emphasizes individual rights and obligations with the environment, for example, the right to have fresh air to breathe and clean water to drink, as well as individual responsibility to protect the environment (Schild, 2016). Awareness of environmental citizenship is shaped by structure and self-consciousness and could be enhanced by actual experience with environmental risks. Structural factors, for example, fiscal policy, provide incentives to enhance environmentally friendly attitudes and behaviour (Dobson, 2007). Pro-environmental behavior selection should be facilitated by the growing awareness of environmental issues and the perception of risk problems. Here, citizenship refers to the privilege of an entitled legal status with awareness of rights and duties, while a citizen is an exact environmental action taker in a community (Barbalet, 1988, p. 18). It is reasonable to have an awareness of environmental citizenship in authoritarian regimes, such as China. Previous studies on citizenship in China related to political citizenship, such as village elections (O'Brien, 2001) and the legal basis of

migrants for receiving welfare benefits (Smart & Smart, 2001), but little research has discussed individual pro-environmental participation under the idea of citizenship in the country. Heberer (2009, p. 491) asserted that neither civil society is lacking nor citizen status achieved in China, where the Chinese government continues to play a manipulating role in political processes. However, the emergence of voluntary associations in different sectors, the growing number of protests, and the change of attitudes towards public affairs has returned to the debates of citizens participating in public issues in China.

The idea of environmental citizenship in the context of China is rarely discussed in the previous literature; thus, this study aims to contribute to the idea of environmental citizenship, which has been formed by linking the awareness and experience of the Chinese people to drive behavior towards environmental protection in the country. Based on the above discussion, this paper proposes the following hypothesis:

H2: Awareness of environmental issues demonstrates a significant positive effect on individual pro-environmental behavior.

The perspectives of social cognitive theory state the consequence from the experience in environmental sufferings and further the influence of awareness on behavior selection (Bandura, 1999; Paton, 2003; Ding et al., 2021). It is the matter of cognition, emotion and psychological that affects the belief values of environmental participation. In particular, the experience with environmental risks (i.e., pollution) would further the effect of citizen right awareness during collective decisions and the awareness on individual behavior selection. The sufferings from environmental risks, drives the awareness of personal norms or moral obligations to protect the environment (Nordlund & Garvill, 2003). Currently, environmental experience of risks drive Chinese people to take part in environmental debates, such as green consumers (Martens, 2006; Liu et al., 2012), which has formed the primary outlook on environmental citizenship in this country; however, a systematic study on environmental attitudes among Chinese people, in general, is still lacking.

H3: Experience in environmental risks generates a moderating effect.
H3a: Experience with environmental risks moderates the effect of H1.
H3b: Experience with environmental risks moderates the effect of H2.

C. Institutional trust

Taniguchi and Marshall (2018) categorize trust into generalized trust and institutional trust to examine the relationship with environmental citizenship actions. Generalized trust indicates trust in others, such as friends, family and neighbours, while institutional trust refers to confidence in government, media, and business. Economic and political performances become the source of institutional trust among the people (Yang & Tang, 2010). Both have a positive relationship with the collective interests such as environmental citizenship actions (Ibid). In contrast, the general public reacts negatively when it loses confidence in the government (Liu, Xiao, Li, & Wu, 2021). This research focuses on the popular trust of the governing system, in particular the support and confidence in the effort of Central government on environmental issues, as a response to citizen right and environmental awareness.

The operational measurement of the conceptual variable "institutional trust" relies on the Chinese perception of the central government's effort on environmental protection, instead of local governments', according to the following reasons: (A) the theoretical perspective of "hierarchical government trust" and the turnover effects of local politics (Shi, 2001; Li, 2004, 2012; Dong et al., 2021); and (B) the collective-action tendency and boundary limitations of local environmental protection matters (Chen, 2013, 2019, 2021a; Chen & Kuo, 2022).

First, Chinese citizens' perception of the trust of government could be based on the central instead of the local one because citizens clearly aware the hierarchical power as well as the control capacity of the central government. It is the fact that political centralization phenomenon dominates the policy arenas. The local governments may have the discretionary power when implementing policies (Bai et al., 2019; Li & Zhou, 2005) and the central government, ideally, should be "neutral" in the field (Jia et al., 2015; Li et al., 2006). However, in reality, the main policy decisions and the implementation instruments emphasize the control power of the central-hierarchical bureaucracy and the politics (Shi, 2001; Li, 2004, 2012). The turnover effects of local leaderships further shift the influential power from local policy entrepreneurships to a more powerful one (Dong et al., 2021). Thus, the aims are captured by the upper-level policy outcomes instead of a lower-level performance. The theoretical perspective of "hierarchical government trust"

states a more apparent Chinese citizens' trust upon a higher-level hierarchical government (central) than the lower-level positions (local) (Li, 2012, p. 108).

Second, externality and spill-over effects describe the patterns of environmental actions adopted by local governments (Steinacker, 2004; Ostrom, 2005; Feiock & Scholz, 2010; Chen, 2013; Chen & Kuo, 2022). Due to boundary limitations, individual local governments would not deal with environmental problems alone, such as pollution risks, without the collaboration with other levels of governments. It is so-called institution collective actions (ICA) perspective (Feiock, 2009; Feiock & Scholz, 2010; Chen, 2013, 2019, 2021a) that states the needs to look at environmental movement with an extended scope when discussing the governmental effort issues. It would not rely on a single local governmental performance but is better on a regional collaboration or the central-governmental integrated actions in response to the boundary limitations, which means, the external effects beyond individual jurisdictions (Chen, 2019). To the extent, when asking citizens' perception of governmental trust in terms of the environmental policy outcomes, it is reasonable to be better captured as the central governmental effort instead of the local one. The image of trust in local governments' environmental efforts is inevitably involved in the effects from the neighbouring local governments or the other jurisdictions in the region (Chen, 2013).

A positive relationship between public trust and the anticipating government's response has been discussed in antecedent literature (Osborne & Gaebler, 1992). Song et al. (2019) point out that good trust of the government encourages the public to take pro-environmental actions. With the trust of governmental response, citizens would like to contribute to collective interests as a feedback to the sound cycle of good governance. If the trust is enhanced in the field of public affairs, the effects of individual awareness of rights and environmental issues would be furthered to encourage the support to environmental actions as the reactions toward collective interests (Meyer & Liebe, 2010; Ding, 2019). The hypothesis emphasizes the moderating effect of institutional trust on the effect of citizen rights awareness and awareness of environmental issues on individual pro-environmental behavior.

H4: Institutional trust generates a moderating effect.
H4a: Institutional trust moderates the effect of H1.

H4b: Institutional trust moderates the effect of H2.

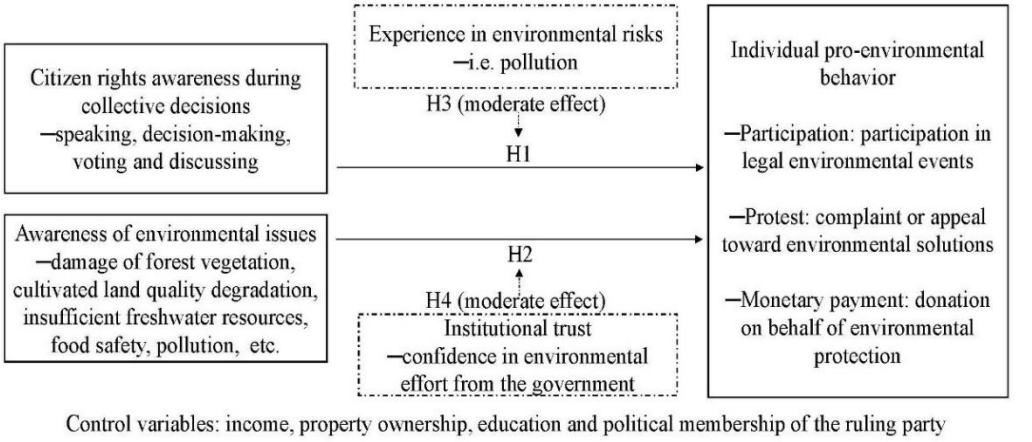
D. Individual pro-environmental behavior and the controls

Neuteleers (2010) urged that pro-environmental behavior is part of citizens' duty for showing civility and virtue of citizens, and the aggregation of individual acts is a criterion for achieving sustainability (Melo-Escrihuela, 2008). Citizen participation behavior in China could take the form of organized association participation, contentious participation (Boland & Zhu, 2007; Wu, 2012; Kuo & Ding, 2018) and fiscal behavior, such as making a donation towards environmental protection issues (Carrico et al., 2018), which could be perceived as being a type of environmental citizenship behavior (Larson et al., 2015). Organized association participation emerges from involvement in community public affairs and is mobilized by legal events (Zhu, 2015; Huang & Gui, 2011). Citizens participate in environmental events under the supervision of the governing body, and pro-environmental behavior has the safeguard of legitimacy. Contentious participation, which could be a complaint or appeal towards environmental solutions, comes from the patterns of contentious politics (Chen, 2012; Chen, 2016; Yu, 2010). To protect self-interests or local environmental well-being, citizens engage in defensive actions instead of compliance (Yang, 2007). Fiscal behavior refers to monetary payment-donations-on behalf of environmental protection issues. Dobson (2007) indicated the influence of fiscal policy on environmental action motivation. Based on fiscal considerations, the outcomes of rising environmental citizenships would reflect directly on feedback in the form of monetary payments and would provide resources to facilitate environmental movements.

Moreover, social labels, for example, political identity and structural positions, as well as socioeconomic status, inevitably affect decisions to engage in individual pro-environmental activities, such as donations (Eby et al., 2019). Individuals with higher income, ownership status or better education would prefer different pro-environmental behavior than others. In the Chinese authoritarian regime context, party membership in the ruling party can have a great impact on individual behavior selection.

This research proposed the following conceptual framework according to the above hypotheses:

Figure 1
Conceptual Framework



Source: The authors.

III. Data collection and measurement

A. The research population and sample

This research attempted to demonstrate the environmental-citizenship behavior under the context of authoritarian regimes in 2013 and to some extent to see what the government can do for good governance in the future. It should be noticed this study only employed a single year of data (the so-called cross-sectional data); however, it represents the immediately responses on environmental behavior after Xi Jinping came to power in 2012. The idea of of ecological civilization was initiated in the 18th CPC National Congress in 2012 and Xi has further emphasised the idea of ecological civilization and pushed for energy transition and has implemented stricter policies to strengthen environmental capacity in a meeting of Politburo of Chinese Community Party (Zhong, 2016). These new environmental policies may affect perceptions of environmental protection and environmental behavior among Chinese people, as reflected in the data in 2013. In addition, the findings of these environmental actions could correspond to previous research observations of Chinese people's political participation and further contribute to theoretical

and empirical implications for the feasibility of environmental actions. The data were taken from the 2013 Chinese General Social Survey (CGSS), which is a national-wide survey administered by Renmin University of China and Hong Kong University of Science and Technology. Using the method of multistage stratified sampling, more than 10,000 respondents participated in this survey. The CGSS covers 5,900 urban households and 4,100 rural households across 30 provinces in China (Xinjiang and Hainan are excluded). Respondents were between 18 and 95 years of age. Valid questionnaire responses were collected from 11,438 respondents. The questionnaires not only included standard background questions but also consisted of 11 topics: social demography, health, lifestyle, migration, social attitude, class identity, political attitude and behavior, cognitive ability, labour market participation, social welfare, and family. This study inserted the average value to replace the missing data in order to ensure the sample representativeness to the CGSS data set.

Previous studies have deployed CGSS to explore environmental issues and perceptions among Chinese people, for example, the relationship between gender identity and environmental concerns (Xiao & Hong, 2010), the relationship between environmental knowledge and environmental behavior (Liu et al., 2020), and the relationship between internet use and environmental behavior (Liu, Han, & Teng, 2021). This was the first time that we used these data to examine how citizen rights awareness during collective decisions, environmental awareness and institutional trust shape individual pro-environmental activities.

B. Measurement of variables

(A) Citizen rights awareness during collective decisions

The operational measurement of the variable of “citizen rights awareness during collective decisions” consisted of three questions: “citizens should have the right to speak to and decide on public affairs in a democracy”, “citizens should have the right to vote for representatives to discuss public affairs in a democracy” and “every citizen has an equal right to discuss public affairs regardless of their background diversity”-with the answer options and the coding of “agree”=1 and “disagree”=0. The frequency of the answer “agree” defined the score of the “citizen rights awareness during collective decisions” variable.

(B) Environmental awareness and experience

The operational measurement of "awareness of environmental issues" and "experience in environmental risks" were specified with 12 indices: air, water and noise pollution; industrial waste; domestic waste; lack of green coverage; deterioration of forest vegetation; loss of cultivated land quality; insufficient freshwater resources; pollution of food; desertification; and devastation of wildlife species. "Awareness of environmental issues" was measured by the question, "Are you aware of the following environmental issues?"-with the answer options and the coding of "yes"=1 and "no"=0. The frequency of the answer "yes" defines the score of the "awareness of environmental issues" variable. "Experience in environmental risks" was measured by the question, "How serious do you think the following risks around you are?"-with the answer options and the coding of "very serious & serious"=1 and "not so serious, not serious, neutral, don't care/hard to say and not a problem at all"=0. The frequency of the answers "very serious" and "serious" defined the score of the "experience in environmental risks" variable.

(C) Institutional trust

The operational measurement of the "institutional trust" variable was reflected by support and confidence in environmental efforts from the government and was measured by the following question: "What do you think of the effort of the central government on environmental protection over the past five years?"-with the answer options and the coding of "merely emphasizes economic development, but ignores environmental protection"=1; "involvement in environmental protection is far from enough"=2; "try its best but with an inferior outcome"=3; "try its best with certain achievement"=4; "obtains significant achievement"=5.

(D) Individual pro-environment behavior

There were three dimensions in the measure of the "individual pro-environmental behavior" variable: 1. Participation: participation in legal environmental events; 2. Protest: complaint about or appeal towards environmental solutions; and 3. Monetary payment: donation on behalf of environmental protection. The question asked: "Did you participate in the following activities in the previous year?" and the measurement for the

"participation" dimension is the answer "proactively participate in the environmental protection events organized by government and such organizations"; the measurement for the "protest" dimension is the answer "proactively participate in complaints and appeals related to the solution of environmental issues"; and the measurement for the "monetary payment" dimension is the answer "make donations to environmental protection issues"-with the answer options and the coding of "never"=1; "sometimes"=2; and "frequently"=3.

(E) The controls: socioeconomic status and party membership

This research adopted three items to identify respondents' socioeconomic status in the country: annual personal income from the occupation held last year (with the answer of numbers), property ownership (ownership=1; non-ownership=0) and educational background (high academic qualification=1; low academic qualification=0). In addition, the "membership in the Communist Party" variable was adopted in this research as well: "what is your current political context?"-member of the Communist Party-with the answer options and the coding of "yes"=1 and "no"=0.

Table 1 summarizes the measurement and data coding of the variables in this research.

Table 1
Measurement of Variables

Questionnaire (measures)	Answer options and coding
Citizen rights awareness during collective decisions=B18(2)+B18(3)+B18(4)	
B18(2) Citizens should have the right to speak to and decide on public affairs in a democracy.	Agree=1; disagree=0
B18(3) Citizens should have the right to vote for representatives to discuss public affairs in a democracy.	Agree=1; disagree=0
B18(4) Every citizen has an equal right to discuss public affairs regardless of their diverse backgrounds.	Agree=1; disagree=0
Awareness of environmental issues=frequency of the answer "Yes" in B21 (A)	
B21(A) Are you aware of the following environmental issue?	
Air pollution/water pollution/noise pollution/industrial waste/domestic garbage/insufficient green coverage/loss of forest vegetation/cultivated land quality degradation/insufficient freshwater resources/food safety problems/desertification/the devastation of wild animal or plants	Yes=1; no=0
Experience with environmental risks= frequency of the answers "Very serious" and "serious" in B21 (B)	

Table 1 （continued）

B21 (B) How serious do you think the following risks around you are?	
Air pollution/water pollution/noise pollution/industrial waste/domestic garbage/insufficient green coverage/loss of forest vegetation/cultivated land quality degradation/insufficient freshwater resources/food safety problems/desertification/the devastation of wild animal or plants	Very serious, serious=1; not so serious, not serious, neutral, don't care/hard to say, not a problem at all=0
Institutional trust	
B23 What do you think of the effort of the Central Government on environmental protection over the past five years?	Merely emphasizes economic development, but ignores environmental protection=1; the involvement in environmental protection is far from enough=2; try its best, but inferior outcome=3; try its best with certain achievement=4; obtains significant achievement=5
Individual pro-environmental behavior (Participation: participation in legal environmental events)	
B22 (7) Did you participate in the following activities in the previous year? —Proactively participate in the environmental protection events organized by government and such organizations.	Never=1; sometimes=2; frequently=3
Individual pro-environmental behavior (Protest: complaints or appeals for environmental solutions)	
B22 (10) Did you participate in the following activities in the previous year? —Proactively participate in makings complaints and appeals related to the solution of environmental issues.	Never=1; sometimes=2; frequently=3
Individual pro-environmental behavior (Monetary payment: donation on behalf of environmental protection)	
B22 (5) Did you participate in the following activities in the previous year? —Make donations to environmental protection.	Never=1; sometimes=2; frequently=3
Control variables: income, property ownership, education and party membership of the ruling party	
A8b What was your annual personal income from your occupation last year (2012)?	Please describe the exact number
B7 (d) People are generally defined by different categories in contemporary societies; which of the following best describes you? (Ownership)	Ownership=1; non-ownership=0
B7 (f) People are generally defined by different categories in contemporary societies' which of the following best describes you? (Education)	High academic qualification=1; low academic qualification=0
A10 (b1a) What is your current political context? (Member of Communist Party)	Yes=1; other=0

Source: The authors.

IV. Statistical analysis and discussion

Descriptive statistics were employed to depict the mean, standard deviation, minimum value and maximum value of each of the variables. The method of pair correlation was adopted to detect the associated effect between each pair of the variables, each with the statement of the significance level. Moreover, nine Multivariate regression models were employed to examine the effects of the explanatory variables on the dependent variables. The first models under each of the dependent variable sections (Models 1-1, 2-1, and 3-1) presented the effect of the main independent variables, the second models (Models 1-2, 2-2, and 3-2) included the moderator variables, and the third models (Models 1-3, 2-3, and 3-3) showed how the interaction terms affected the relationships among the variables.

A. Descriptive statistics

Individual pro-environmental behavior consists of three action patterns: participation, protest and monetary payment. On the 3-point scale, the mean frequency of individual participation in environmental events is 1.27 (s.d.=0.52), while it is 1.11 (s.d.=0.36) for protests and 1.20 (s.d.=0.44) for monetary payments. Participating in legal environmental events organized by the government and organizations was the most common choice that individuals selected to facilitate environmental citizenship. In contrast, protests as complaints or appeals towards environmental solutions were not common for Chinese citizens. Individuals would rather keep silent than take action against government decisions. Chinese citizens had a high degree of citizen rights awareness during collective decisions with a mean score of 2.45 (s.d.=0.83) on a 3-point scale and a high level of institutional trust with a mean score of 3.23 (s.d.=1.02) on a 5-point scale. They were aware of environmental issues with a mean score of 8.77 (s.d.=3.72) on a 12-point scale, with little experience in environmental risks (mean=2.72, s.d.=2.85, 12-point scale). Table 2 shows the descriptive statistics of the variables and the samples.

Table 2
Descriptive Statistics

Description of the variables				
	Mean	Std. Dev.	Min.	Max.
Participation	1.27	0.52	1	3
Protest	1.11	0.36	1	3
Monetary payment	1.20	0.44	1	3
Citizen rights awareness during collective decisions	2.45	0.83	0	3
Awareness of environmental issues	8.77	3.72	0	12
Experience with environmental risks	2.72	2.85	0	12
Institutional trust	3.23	1.02	1	5
Description of the samples				
	Mean	25%	50%	75%
Annual personal income from occupation last year (2012) (CNY)	26888.4	8000	20000	33000
	Yes	%	Not Yes	%
White-collar class	656	5.74	10782	94.26
Resident in urban areas	3831	33.49	7607	66.51
Property ownership	1779	15.55	9659	84.45
High academic qualification	923	8.07	10515	91.93
Member of Communist Party	5672	49.59	5766	50.41

Source: The authors.

B. Pair correlation

Pearson correlation analysis was employed to detect bivariate correlations between variables. Table 3 presents the statistical results with the state of the significance level. Three patterns of individual pro-environmental behavior were positively and significantly correlated with each other (correlation coefficients were from 0.34 to 0.42), which means that an increase of one could be associated with an increase of the other. Awareness of environmental issues and experience in environmental risks had positive and significant correlations with the three pro-environmental behavior (correlation coefficients ranged from 0.08 to 0.20). We could tell that individuals with a better awareness of environmental issues or more experience in such risks would be associated with more experience in environmental actions. However, citizen rights awareness during collective decisions had negative but significant correlations with the three patterns of environmental behavior (correlation coefficients ranged from -0.07 to -0.10). Institutional trust had a positive and significant correlation with participation in legal environment events (correlation

coefficient was 0.04) but was negative for protests and making monetary payments (correlation coefficients were -0.07 and -0.05, respectively). The correlation results showed that the more individuals believed in the governing system as well as in collective decisions, the more silence they maintained. Chinese citizens at most participated in legal events under the supervision of the governing system when they had confidence in the government's effort. Generally, when individuals were aware of their citizen rights and had institutional trust, they were likely to rely on the government to do something instead of taking individual actions in response to environmental interests.

Table 3
Pair Correlation between Variables

	1	2	3	4	5	6	7
1. Participation	1.00						
2. Protest	0.36***	1.00					
3. Monetary payment	0.42***	0.34***	1.00				
4. Citizen rights awareness during collective decisions	-0.10***	-0.07***	-0.07***	1.00			
5. Awareness of environmental issues	0.18***	0.08***	0.13***	-0.04***	1.00		
6. Experience with environmental risks	0.18***	0.17***	0.20***	-0.04***	0.36***	1.00	
7. Institutional trust	0.04***	-0.07***	-0.05***	0.03**	-0.06***	-0.23***	1.00

Note: p*<0.05; p**<0.01; p***<0.001.
Source: The authors.

C. The effects on individual pro-environmental behavior

Nine regression models were employed to examine the effects of the explanatory variables on the three patterns of individual pro-environmental behavior. Model 1 treated the dependent variable (DV) as individual participation in legal environmental events (participation), while the DV in Model 2 is a complaint or appeal towards environmental solutions (protest), and in Model 3 the DV is making a donation on behalf of environmental protection (monetary payment). We used stepwise regressions, which first looked at the effects from the main independent variables (i.e., see Model 1-1), second, we added moderating variables (i.e., see Model 1-2), and finally, the interaction terms were included to see if the moderating effect exists.

(A) Participation: participation in legal environmental events

Table 4 shows that "awareness of environmental issues" (EI) and "experience in environmental risks" (ER) generated positive and significant effects (coefficient= 0.02***/0.01*** and 0.02***, respectively) on Chinese citizens' participation in legal environmental events, while "citizen rights awareness during collective decisions" (CR) was negative but significant (coefficient=-0.04*** and -0.04***) (see Model 1-1 and Model 1-2). The moderating effects were partially corroborated by the regression results because in Models 1-3, there was one interaction term (CR*ER) associated with a significance level (coefficient=0.00*). This means that experience with environmental risks weakens the negative effect of citizen rights awareness on individual participation in legal events. Indeed, the perception of factual environmental sufferings would stimulate the participation in actual organized association events with the regard to protect individual environmental rights. China's governance mode emphasizes a top-down manner under the context of authoritarian regime (Nathan, 2003; He & Thøgersen, 2010; Teets, 2013), so the available approaches to overcome the suffering situation is to participate in the legal events under the safeguard hats of loyalty and the compliance with the ruling class. Although the silence majority phenomenon (Noesselt, 2014) is still dominant in the society, the only exit for the population who suffering from environmental inequality is to participation in the legal environmental event, instead of selecting to appeal or protest.

In addition, it is worth noting that the variable "institutional trust" (IT) was not significant across all the models. As a result, Hypotheses 1 and 2 were corroborated with the significant effects from the CR and EI independent variables, Hypothesis 3a was corroborated when looking at the moderating effect of ER, and Hypothesis 4 was not corroborated due to the nonsignificance of the IT interaction terms.

The statistical results provided evidence that environmental awareness and perception indeed enhanced behavior towards environmental citizenship. However, in the context of the Chinese authoritarian regime, citizen rights awareness contributed to "the silent majority" phenomenon. Institutional trust and awareness of citizen rights did not facilitate individual behavior regarding environmental affairs. The reasons may be due to the political apathy driven by individual rational choices; or that individuals maintained their faith in (or compliance with) the manipulating role of the governing system and believed

that the best collective decisions had already been made by the authorities, so further individual actions were not necessary for the common good.

Table 4
The Effects on Individual Pro-environmental "Participation" Behavior

Model 1: Participation (Participation in legal environmental events)			
Variables	Model 1-1 Coefficient (s.e.)	Model 1-2 Coefficient (s.e.)	Model 1-3 Coefficient (s.e.)
Citizen rights awareness during collective decisions (CR)	-0.04*** (0.01)	-0.04*** (0.01)	-0.01 (0.02)
Awareness of environmental issues (EI)	0.02*** (0.00)	0.01*** (0.00)	0.00 (0.00)
Experience in environmental risks (ER)		0.02*** (0.00)	0.01 (0.01)
Institutional trust (IT)		0.01 (0.00)	0.00 (0.02)
CR*ER			0.00* (0.00)
CR*IT			-0.01 (0.01)
EI *ER			0.00 (0.00)
EI*IT			0.00 (0.00)
Income	0.07*** (0.00)	0.06*** (0.00)	0.06*** (0.00)
Property ownership	0.06*** (0.00)	0.06*** (0.00)	0.06*** (0.01)
Education	0.25*** (0.02)	0.25*** (0.02)	0.24*** (0.02)
Party membership	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Intercept	0.55*** (0.05)	0.59*** (0.05)	0.58*** (0.08)
Number of observations	11438	11438	11438
F value	F(6, 11431) = 181.50	F(8, 11429) = 146.71	F(12, 11425) = 98.70
P value	0.00	0.00	0.00
R-squared	0.09	0.09	0.09

Note: p*<0.05; p**<0.01; p***<0.001.
Source: The authors.

(B) Protest: complaints or appeals towards environmental solutions

Table 5 shows that EI and ER generated positive and significant effects (coefficient= 0.00***/0.00 and 0.02***, respectively) on Chinese citizens' selection of complaints or appeals to environmental solutions, while CR was still negative but significant (coefficient=-0.03*** and -0.02***) (see Model 2-1 and Model 2-2). The moderating effects were partially corroborated by the regression results because in Models 2-3, there was one interaction term (CR*ER) associated with a significance level (coefficient=-0.00**). This means that experience in environmental risks (for example, pollution) would strengthen the negative effect of citizen rights awareness on individual engagement in protests for environmental solutions. It was the fact of having suffered that made those individuals with citizen rights have more faith in, be more compliant with, more silent and even less likely to make complaints or appeals. Putting together the Model 1-3 (Table 4) and Model 2-3 (Table 5) statistical results, we provide the empirical evidence to depict the protection motivation theory (Rogers, 1983). Individual selection of behavior is based on the evaluations from action costs, feedback effectiveness, and the prediction of the reaction from the surroundings (Michelson, 2007; Ding, 2019; Ding et al., 2021). For those population who experience in environmental risks, their decisions of action-taken is full of compromise between the predicted reactions from the upper-class ruling party (government) and the costs of individual actions. It is obvious that the costs of individual appealing or protesting actions are high. But, on the contrary, the predicted governmental reaction is more likely to become less-advantaged for those individuals, especially under the authoritarian regime context. The rational-choice considerations drive the negatively moderate effect from the experience in environmental risks upon the awareness-behavior relationships. Correspondingly, the variable IT was negative but significant in Model 2-2 (coefficient=-0.01*). Taking protest actions was indeed a type of individual action, fighting against the governing authority. It was likely that vulnerable or disadvantaged groups-who suffered from pollution but still had no choice to insist in faith in governmental accountability-were even more compliant with the governing decisions.

Hypotheses 1 and 2 were corroborated with significant effects from the CR and EI independent variables, Hypothesis 3a was corroborated with the negative effect of the CR*ER interaction term, and Hypothesis 4 was not corroborated due to the nonsignificance of the IT's interaction terms in Models 2-3.

Table 5
The Effects on Individual Pro-environmental "Protest" Behavior

Model 2: Protest (complaint or appeal towards environmental solutions)			
Variables	Model 2-1 Coefficient (s.e.)	Model 2-2 Coefficient (s.e.)	Model 2-3 Coefficient (s.e.)
Citizen rights awareness during collective decisions (CR)	-0.03*** (0.00)	-0.02*** (0.00)	-0.02 (0.01)
Awareness of environmental issues (EI)	0.00*** (0.00)	0.00 (0.00)	-0.01 (0.00)
Experience with environmental risks (ER)		0.02*** (0.01)	0.04*** (0.01)
Institutional trust (IT)		-0.01* (0.00)	-0.03 (0.00)
CR*ER			-0.00** (0.00)
CR*IT			0.00 (0.00)
EI*ER			0.00 (0.00)
EI*IT			0.00 (0.00)
Income	0.03*** (0.00)	0.02*** (0.00)	0.02*** (0.00)
Property ownership	0.04*** (0.01)	0.04*** (0.01)	0.04*** (0.01)
Education	0.03* (0.01)	0.02 (0.01)	0.02 (0.01)
Party membership	-0.01 (0.01)	0.00 (0.01)	0.00 (0.01)
Intercept	0.84*** (0.03)	0.95*** (0.04)	0.97*** (0.06)
Number of observations	11438	11438	11438
F value	F(6, 11431) = 43.99	F(8, 11429) = 59.77	F(12, 11425) = 41.07
P value	0.00	0.00	0.00
R-squared	0.02	0.04	0.04

Note: p*<0.05; p**<0.01; p***<0.001.
Source: The authors.

The statistical results provided evidence that corresponded to the findings of Model 1s. Environmental awareness and experience enhanced the individual selection of protective actions towards environmental protection. However, structural constraints from the Chinese authoritarian regime context undermined the willingness of individuals to take action, especially for those with trust as well as confidence in governmental efforts on environmental interests. The high degree to which they trusted in the governing system consolidated their faith in compliance with the authorities.

(C) Monetary payment: donation on behalf of environmental protection

Table 6 shows that EI and ER generated positive and significant effects (coefficient= 0.01***/0.00** and 0.21***, respectively) on Chinese citizens' selection to donate on behalf of environmental protection, while CR was still negative but significant (coefficient=-0.02*** and -0.02***) (see Model 3-1 and Model 3-2). The moderating effects were partially corroborated by the regression results because in Model 3-3, there was one interaction term (CR*IT) associated with a significance level (coefficient=-0.01*). This means that trust in government would strengthen the negative effect of citizen rights awareness on individual donations on behalf of environmental protection. Indeed, individuals would rely more on the authority's behavior than individual contributions if they had confidence in governmental efforts towards environmental protection. As a result, Hypotheses 1 and 2 were corroborated with significant effects from the CR and EI independent variables, Hypothesis 4a was corroborated with the negative effect of the CR*IT interaction term, and Hypothesis 3 was not corroborated due to the nonsignificance of ER's interaction terms in Models 3-3.

Similarly, the statistical results provided evidence that corresponded to the findings of Model 1-1 to 1-3, and Model 2-1 to 2-3. Environmental awareness and experience enhanced individual selection of donations on behalf of environmental protection. However, institutional friction imposed constraints on Chinese citizens, so individual functional actions were not preferred under conditions of apathy. They did not have to donate to or make additional payments for environmental benefits. Keeping silent and waiting for somebody else to contribute would be the optimal behavior as a result of individual rationality.

Table 6
The Effects on the Individual Pro-environmental "Monetary Payment" Behavior

Model 3: Monetary payment (donation on behalf of environmental protection)			
Variables	Model 3-1 Coefficient (s.e.)	Model 3-2 Coefficient (s.e.)	Model 3-3 Coefficient (s.e.)
Citizen rights awareness during collective decisions (CR)	-0.02*** (0.00)	-0.02*** (0.00)	0.01 (0.02)
Awareness of environmental issues (EI)	0.01*** (0.00)	0.00** (0.00)	0.00 (0.00)
Experience with environmental risks (ER)		0.21*** (0.00)	0.03** (0.01)
Institutional trust (IT)		0.00 (0.00)	0.03 (0.02)
CR*ER			0.00 (0.00)
CR*IT			-0.01* (0.00)
EI*ER			0.00 (0.00)
EI*IT			0.00 (0.00)
Income	0.06*** (0.01)	0.04*** (0.00)	0.04*** (0.00)
Property ownership	0.06*** (0.01)	0.06*** (0.01)	0.06*** (0.01)
Education	0.18*** (0.02)	0.16*** (0.02)	0.16*** (0.02)
Party membership	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Intercept	0.63*** (0.04)	0.71*** (0.04)	0.63*** (0.07)
Number of observations	11438	11438	11438
F value	F(6, 11431) = 121.68	F(8, 11429) = 116.23	F(12, 11425) = 77.96
P value	0.00	0.00	0.00
R-squared	0.06	0.08	0.08

Note: p*<0.05; p**<0.01; p***<0.001.
Source: The authors.

The effect of socioeconomic status (the control variables in the models) was proven by the results to have the greatest significance. In Model 1-1 to 1-3 and Model 3-1 to 3-3, income, property ownership and education generated positive and significant effects on individual pro-environmental behavior of participation and monetary payments. In Model 2, income and property ownership were still positive and significant, while education was only significant in Model 2-1. Membership in the Communist Party, however, did not generate any significant effect on individual pro-environmental behavior. It sometimes has a negative effect but would never be experienced at a significant level, which did not correspond with the findings from Yang and Wiepking (2021). Alternative understandings emerged from the speciality of environmental behavior instead of depicting general donation behavior. Organizational mobilization (based on individual party membership) may not appear during the environmental action era. The influence of authoritarian regimes influenced citizens' recognition of their rights and compliance paths, not individual party membership backgrounds.

The following Table 7 summarized the research findings and the discussion from the statistical results. It is the silence majority phenomenon-resulting from political apathy under the context of authoritarian regime-that is dominant the China society. As a contrast to the traditional Western-style democratic society, citizen right awareness generates the negative effects on individual-action taken because of the faith that the governing system could take care of everything. Besides, in some extent, the moderating effects from environmental experience and institutional trust would even strengthen the negative effect of citizen right awareness. As a result of individual-rational choice, citizens would rely more on the government or somebody else even if they are indeed in need to do something to cope with the less-advantaged situation.

Table 7
Summary of Research Findings

Hypotheses	Research findings toward the pro-environmental behavior	Summary of the discussion
H1: Citizen rights awareness during collective decisions demonstrates a significant effect on individual pro-environmental behavior.	Negative	Loyalty and compliance with authoritarian regime generate the "silence majority phenomenon" that is dominant in the society, as a contrast to the traditional Western-style democratic society.
H2: Awareness of environmental issues demonstrates a significant positive effect on individual pro-environmental behavior.	Positive	Perception and understandings of environmental issues indeed facilitate individual adoption of participation, protest and monetary payment toward pro-environmental behavior.
H3: Experience in environmental risks generates a moderating effect.	1. Weakening the negative effect of H1 in the "participation" model (1-3) 2. Strengthening the negative effect of H1 in the "protest" model (2-3)	1. The actually environmental sufferings would stimulate the "participation" in legal environmental events, so the negative effect from "silence majority phenomenon" would be mitigated. 2. It is the rational-choice considerations that drives the negative effect from environmental-risk sufferings. The predicted reactions from the upper-class ruling party make the less-advantaged individuals less likely to take the "protest" behavior to against the government, so the negative effect from "silence majority phenomenon" would be even more critical.
H4: Institutional trust generates a moderating effect.	Strengthening the negative effect of H1 in the "monetary payment" model (3-3)	With the trust of the governing systems, individuals would rely more on governmental efforts than self-contribution to environmental protection. The awareness of citizen rights would even keep individual silent and rather waiting for somebody else to contribute, as a result of individual-rational choice considerations.

Source: The authors.

V. Conclusion

Citizens have the responsibility for environmental protection through taking individual actions involving participation, protest or monetary payment. How far does the idea of environmental citizenship reflect the patterns of environmental action among the Chinese people? This research attempted to answer this question by examining the effects of awareness of citizen rights as well as environmental issues and institutional trust on individual selection of pro-environmental behavior.

The research findings indicated that individual awareness and experience with environmental risks influenced their engagement in pro-environmental behavior to a great extent. Environmentally friendly attitudes, perceptions and awareness enhanced individual selection of participation in legal environmental events, complaints or appeals towards environmental solutions and donations on behalf of environmental protection. However, under the context of authoritarian regimes-perhaps due to compliance with or the faith in the accountability of the governing system-citizens' rights awareness during collective decisions implies the equality between Chinese citizens and the rulers based on the constitution (Li, 2009; Johnson, 2010). As such, the citizens' trust to the rule-enforcers to enforce the laws, which undermines citizens' willingness to make individual contributions. Institutional frictions and structural constraints made Chinese citizens keep silent about environmental actions.

Regarding the theoretical contribution of this research, as contrast to the Western-style citizen participation, authoritarian resilience and the stability of the ruling power (Truex, 2017, p. 330) are the main concerns embedded into the China governing system. It would be relatively limited and sensitive with the regard to the allowed-citizen-participation into public affairs, compared to the Western-style concerns of public interests, civic rights, citizenships and civil society (Rifkin, 2014; Cornwall, 2002). For example, Chinese citizens rather deployed legal means to call on the officials to carry out the existing rules and fulfil the obligations within the current system (O'Brien & Li, 2006; Li, 2009; Johnson, 2010) than took actions to protest against the situation. This is corresponsive to the research findings that "participation" in the legal events organized by government and such organizations is the most available options individuals would like to carry out when they

encounter environmental risks in reality, instead of protest or monetary payment. To a certain extent, they relied heavily on environmental efforts by the government instead of making individual contributions because they believed that individual concerns had already been taken into account by the governing system. In particular, disadvantaged groups (for example, those who suffered from environmental inequality) who simultaneously believe in government efforts decide to do nothing and wait for the government to implement environmental solutions. They would be even more compliant with the decisions of the authorities.

In other words, the power of political regime as well as collectivism are dominant over the China context so the willingness of individual contribution is limited, especially in case with the political party identification. The research findings corroborate to Kuo and Ding's (2018) depiction of organized-association participation and contentious participation in the China communities. It may not be optimistic regarding the contemporary empowerment to citizens and responsiveness of the governing authority in China, on behalf of environmental-citizenship development. The future designs of public participation processes emerge as the concerns for governmental accountability as well as a civic-environmental sound society.

Research limitations and future directions: This preliminary study provides a framework for environmental citizenship in China by examining the correlations between environmental perceptions, institutional trust and individual environmental behavior. However, one weakness of our study is that we only obtained a single year of data to examine. In this study, we used the CGSS data in 2013 to analyse environmental citizenship in China that may not have represented the situation as a whole, but it reveals the most recent perceptions of respondents' on environmental protection since Xi Jinping took power in 2012. The idea of ecological civilization was initiated in the 18th CPC National Congress in 2012; Environmental management was remarkably strengthened once Xi's came to power; for instance, the idea of ecological civilization has been further emphasised and the central government implemented new policy for controlling PM2.5 air pollutant in nationwide and set the target to reduce the amount of coal consumption (Wang et al., 2013). These measures gained trust and credibility among the Chinese people. In this study, we found that the standard deviation of trust is 1.02 and showed that the respondents have a high degree of trust in the Chinese government in general, but it also reveals the

consequence of social desirability bias among authoritarian countries.

Nevertheless, the concept of citizenship remains debatable in authoritarian China, and we suggest a longitudinal study for this topic to have long-term observations of the development of environmental citizenship in China. Finally, more variables of environmental behavior, such as recycling, are suggested to be added to the survey to better understand the various environmental behavior in the country.

References

Aberbach, J. D. (1969). Alienation and political behavior. *American Political Science Review*, *63*(1), 86-99.

Ahmad, A. L., Rahim, S., Pawanteh, L., & Ahmad, F. (2012). The understanding of environmental citizenship among Malaysian youths: A study on perception and participation. *Asian Social Scienc*e, *8*(5), 85-92.

Bai, C., Hsieh, C., & Song, Z. (2019). Special deals with Chinese characteristics. In M. S. Eichenbaum, E. Hurst, & J. A. Parker (Eds.), *NBER macroeconomics annual* (pp. 341-379). University of Chicago Press.

Bandura, A. (1999). Social cognitive theory: An agentic perspective. *Asian Journal of Social Psychology*, *2*(1), 21-41.

Barbalet, J. M. (1988). *Citizenship: Rights, struggle and class inequality*. University of Minnesota Press.

Barr, S. (2003). Strategies for sustainability: Citizens and responsible environmental behaviour. *Area*, *35*(3), 227-240.

Barry, J. (1999). *Rethinking green politics*. Sage.

Boland, A., & Zhu, J. G. (2007). Public participation and the production of the community public sphere: Case study of the green community program in Guangzhou. *Sociological Studie*s, (4), 118-136.

Carrico, A.vR., Raimi, K. T., Truelove, H. B., & Eby, B. (2018). Putting your money where your mouth is: An experimental test of pro-environmental spillover from reducing meat consumption to monetary donations. *Environment and Behavi*or, *50*(7), 723-748.

Chen, J. (2016). *Useful complaints: How petitions assist decentralized authoritarianism in China*. Lexington Books.

Chen, X. (2012). *Social protest and contentious authoritarianism in China*. Cambridge University Press.

Chen, S. H. (2013). U.S. interlocal energy collaboration on energy efficiency, sustainability and climate protection. *EurAmerica: A Journal of European and American Studies*, *43*(3), 455-536.

Chen, S. H. (2019). Collective action perspectives on interlocal collaboration, perception of action support and action outcomes: A study of local government energy saving and carbon reduction movement. *Journal of Public Administration*, (56), 1-39.

Chen, S. H. (2021a). Municipal carbon reduction policy in Taiwan: A collective action perspective. *Journal of Urban Affairs*, *43*(8), 1100-1117.

Chen, S. H. (2021b). Factors influencing urban environmental sustainability actions—An investigation on urban public space in the study area. *International Journal of Urban Sustainable Development*, *13*(3), 631-658.

Chen, S. H. (2022). Perception of organizational constraints and local implementation of sustainability policies. *Journal of Asian Public Policy*, *15*(3), 431-452.

Chen, S. H., & Kuo, W. C. (2022). County-city consolidation and sustainability: Empirical evidence from Taiwan's local experience in the 2010s. *Journal of Urban Affairs*. https://doi.org/10.1080/07352166.2022.2050919

Cohen, J. L. (1999). Changing paradigms of citizenship and the exclusiveness of the demos. *International Sociology*, *14*(3), 245-268.

Coleman, E. A. (2014). Behavioral determinants of citizen involvement: Evidence from natural resource decentralization policy. *Public Administration Review*, *74*(5), 642-654.

Coleman, J. (1990). *Foundations of social theory*. Harvard University Press.

Cornwall, A. (2002). Locating citizen participation. *IDS bulletin*, *33*(2), i-x.

Cunningham, J. V. (1972). Citizen participation in public affairs. *Public Administration Review*, *32*, 589-602.

Ding, T. (2019). Environmental governance structure and risk perception-A comparative study on the environmental action across the Taiwan strait. *Taiwan Research Journal*, *161*(1), 85-96.

Ding, T., Liu, X., & Liu, G. (2021). Types and logic of residents' environmental participation from the perspective of risk perception. *The Journal of Shanghai Administration Institute*, *22*(1), 69-82.

Dobson, A. (2003). *Citizenship and the environment*. Oxford University Press.

Dobson, A. (2007). Environmental citizenship: Towards sustainable development. *Sustainable Development*, *15*, 276-285.

Dong, Z., Wang, X., Zhang, T., & Zhong, Y. (2021). The effect of local government leadership turnover on entrepreneurial behavior. *China Economic Review*, *71*. https://doi.org/10.1016/j.chieco.2021.101727

Eby, B., Carrico, A. R., & Truelove, H. B. (2019). The influence of environmental identity labeling on the uptake of pro-environmental behaviors. *Climatic Change*, *155*, 563-580.

Fan, M. F. (2008). Environmental citizenship and sustainable development: The case of waste facility siting in Taiwan. *Sustainable Development*, *16*, 381-389.

Feiock, R. C. (2009). Metropolitan governance and institutional collective action. *Urban Affairs Review*, *44*(3), 356-377.

Feiock, R. C., & Scholz, J. T. (2010). Self-organizing governance of institutional collective action dilemmas. In R. C. Feiock & J. T. Scholz (Eds.), *Self-organizing federalism: Collaborative mechanisms to mitigate institutional collective action dilemmas* (pp. 3-32). Cambridge University Press.

Frick, J., Kaiser, F. G., & Wilson, M. (2004). Environmental knowledge and conservation behavior: Exploring prevalence and structure in a representative sample. *Personality and Individual Differences*, *37*(8), 1597-1613.

Grob, A. (1995). A structural model of environmental attitudes and behavior. *Journal of Environmental Psychology*, *15*(3), 209-220.

Hawthorne, M., & Alabaster, T. (1999). Citizen 2000: Development of a model of environmental citizenship. *Global Environmental Change*, *9*(1), 25-43.

Hayward, T. (2006). Ecological citizenship: Justice, rights and the virtue of resourcefulness. *Environmental Politics*, *15*(3), 435-446.

He, B., & Thøgersen, S. (2010). Giving the people a voice? Experiments with consultative authoritarian institutions in China. *Journal of Contemporary China*, *19*(66), 675-692.

Heberer, T. (2009). Evolvement of citizenship in urban China or authoritarian communitarianism? Neighborhood development, community participation, and autonomy. *Journal of Contemporary China*, *18*(61), 491-515.

Horton, D. (2006). Demonstrating environmental citizenship? A study of everyday life among green activists. In A. Dobson & Derek Bell (Eds.), *Environmental citizenship* (pp.127-150). MIT Press.

Huang, R.-H., & Gui, Y. (2011). Collective social capital and its effect on community participation: A multilevel analysis. *Chinese Journal of Sociology*, *31*(6), 1-21.

Janoski, T. (1998). *Citizenship and civil society: A framework of rights and obligations in liberal, traditional, and social democratic regimes*. Cambridge University Press.

Jia, R., Kudamatsu, M., & Seim, D. (2015). Political selection in China: The complementary roles of connections and performance. *Journal of the European Economic Association*, *13*(4), 631-668.

Johnson, T. (2010). Environmentalism and NIMBYism in China: Promoting a rule-based approach to public participation. *Environmental Politics*, *19*(3), 430-448.

Keller, S. (2003). *Community: Pursuing the dream, living the reality*. Princeton University Press.

Klandermans, B. (1992). The social construction of protest and multi-organizational fields. In Aldon Morris & Carol Mueller (Eds.), *Frontiers in social movement theory* (pp, 77-103). Yale University Press.

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, *8*(3), 239-260.

Kuo, M. F., & Ding, T. P. (2018). An analysis of citizens' rationality on community participation in China. *Taiwanese Journal of Political Science*, (77), 65-112.

Larson L. R., Stedman, R. C., Cooper, C. B., & Decker, D. J. (2015). Understanding the multi-dimensional structure of pro-environmental behavior. *Journal of Environmental Psychology*, *2015*(43), 112-124.

Li, H., & Zhou, L. (2005). Political turnover and economic performance: The incentive role of personnel control in China. *Journal of Public Economics*, *89*(9-10), 1743-1762.

Li, H., Meng, L., & Zhang, J. (2006). Why do entrepreneurs enter politics? Evidence from China. *Economic Inquiry*, *44*(3), 559-578.

Li, L. (2004). Political trust in rural China. *Modern China*, *30*(2), 228-258.

Li, L. (2009). *Rights consciousness and rules consciousness in contemporary China* [Conference presentation]. 2009 Annual Meeting of the American Political Science Association, September 2-6, Toronto, Ontario, Canada.

Li, L. (2012). Hierarchical government trust. *Twenty-first Century*, *June*, 108-114.

Liu, B., Xiao, J., Li, L., & Wu, G. (2021). Do citizen participation programs help citizens feel satisfied with urban redevelopment policy in China? *Journal of Chinese Governance*. https://doi.org/10.1080/23812346.2021.1974221

Liu, P., Han, C., & Teng, M. (2021). The influence of internet use on pro-environmental behaviors: An integrated theoretical framework. *Resources, Conservation, and Recycling*, *164*. https://doi.org/10.1016/j.resconrec.2020.105162

Liu, P., Teng, M., & Han, C. (2020). How does environmental knowledge translate into pro-environmental behaviors?: The mediating role of environmental attitudes and behavioral intentions. *Science of the Total Environment*, *728*. https://doi.org/10.1016/j.scitotenv.2020.138126

Liu, X., Wang, C., Shishime, T., & Fujitsuka, T. (2012). Sustainable consumption: Green purchasing behaviours of urban residents in China. *Sustainable Development*, *20*, 293-308.

Martens, S. (2006). Public participation with Chinese characteristics: Citizen consumers in China's environmental management. *Environmental Politics*, *15*(2), 211-230.

Melo-Escrihuela, Carme. (2008). Promoting ecological citizenship: Rights, duties and political agency. *ACME: An International Journal for Critical Geographies*, *7*(2), 113-134.

Meyer, R., & Liebe, U. (2010). Are the affluent prepared to pay for the plant? Explaining willingness to pay for public and quasi-private environmental goods in Switzerland. *Population and Environment*, *32*(1), 42-65.

Michelson, E. (2007). Climbing the dispute pagoda: Grievances and appeals to the official justice system in rural China. *American Sociology Review*, *2007*(3), 459-485.

Nathan, A. J. (2003). China's changing of the guard: Authoritarian resilience. *Journal of Democracy*, *14*(1), 6-17.

Neuteleers, S. (2010). Institutions versus lifestyle: Do citizens have environmental duties in their private sphere? *Environmental Politics*, *19*(4), 501-517.

Newhouse, N. (1990). Implications of attitude and behavior research for environmental conservation. *The Journal of Environmental Education*, *22*(1), 26-32.

Noesselt, N. (2014). Microblogs and the adaptation of the Chinese party-state's governance strategy. *Governance*, *27*(3), 449-468.

Nordlund, A. M., & Garvill, J. (2003). Effects of values, problem awareness, and personal norm on willingness to reduce personal car use. *Journal of Environmental Psychology*, *23*(4), 339-347.

O'Brien, K. J. (2001). Villagers, elections, and citizenship in contemporary China. *Modern China*, *27*(4), 407-435.

O'Brien, K., & Li, L. (2006). *Rightful resistance in rural China*. Cambridge University Press.

Osborne, D., & Gaebler, T. (1992). *Reinventing government: How the entrepreneurial spirit is transforming the public sector*. Addison-Wesley.

Ostrom, E. (2005). *Understanding institutional diversity*. Princeton University Press.

Paton, D. (2003). Disaster preparedness: A social-cognitive perspective. *Disaster Prevention and Management*, *12*(3), 210-216.

Rifkin, Susan B. (2014). Examining the links between community participation and health outcomes: A review of the literature. *Health Policy & Plan*, *2*(29), 98-106.

Rogers, R. W. (1983). Cognitive and physiological processes in fear-based attitude change: A revised theory of protection motivation. In J. Cacioppo & R. Petty (Eds.), *Social psychophysiology: A source book* (pp. 153-176). Guilford Press.

Salamon, L. M., & Evera, S. Van. (1973). Fear, apathy, and discrimination: A test of three explanations of political participation. *American Political Science Review*, *67*(4), 1288-1306.

Schild, R. (2016). Environmental citizenship: What can political theory contribute to environmental education practice? *The Journal of Environmental Education*, *47*(1), 19-34.

Shi, T. (2001). Cultural values and political trust: A comparison of the people's republic of China and Taiwan. *Comparative Politics*, *33*(4), 401-419.

Smart, A., & Smart, J. (2001). Local citizenship: Welfare reform urban/rural status, and exclusion in China. *Environment and Planning A: Economy and Space*, *33*(10), 1853-1869.

Song, Z., Daryanto, A., & Soopramanien, D. (2019). Place attachment, trust and mobility: Three-way interaction effect on urban residents' environmental citizenship behavior. *Journal of Business Research*, *105*, 168-177.

Steinacker, A. (2004). Game-theoretic models of metropolitan cooperation. In R. C. Feiock (Ed.), *Metropolitan governance: Conflict, competition, and cooperation* (pp. 46-66). Georgetown University Press.

Stern, P. C. (2000). Psychology and the science of human-environment interactions. *American Psychologist*, *55*(5), 523-530.

Stern, P. C., Dietz, T., & Black, J. S. (1985). Support for environmental protection: The role of moral norms. *Popul Environ*, *8*, 204-222.

Taniguchi, H., & Marshall, G. A. (2018). Trust, political orientation, and environmental behavior. *Environmental Politics*, *27*(3), 385-410.

Teets, J. (2013). Let many civil societies bloom: Regional ideational variation in China. *The China Quarterly*, *213*, 19-28.

Theiss-Morse, E., & Hibbing, J. (2005). Citizenship and civic engagement. *Annual Review of Political Science*, *8*(1), 227-249.

Truex, R. (2017). Consultative authoritarianism and its limits. *Comparative Political Studies*, *50*(3), 329-361.

Tsai, L., & Xu, Y. (2018). Outspoken insiders: Political connections and citizen participation in authoritarian China. *Political Behavior,* (40), 629-657.

Wang, J., Wang, X., & Xu, N. (2013). *Beijing's neighbours hesitate at pollution cuts*. China Dialogue, August 9. https://chinadialogue.net/en/cities/6279-beijing-s-neighbours-hesitate-at-pollution-cuts/

Wu, F. (2012). Neighborhood attachment, social participation, and willingness to stay in China's low-income communities. *Urban Affairs Review*, *48*(4), 547-570.

Xiao, C., & Hong, D. (2010). Gender differences in environmental behaviors in China. *Population and Environment*, *32*, 88-104.

Yang, M. (2007). Community as state governance unit: A Case study on residents' community participation and cognition in the process of community building Campaign. *Sociological Studies*, *4*, 137-164.

Yang, Y., & Wiepking, P. (2021). Party membership and charitable giving in China: The mediating role of resources, networks, prosocial values and making compulsory donations. *Voluntary Sector Review*, *12*(2), 167-187.

Yang, Q., & Tang, W. (2010). Exploring the sources of institutional trust in China: Culture, mobilization, or performance? *Asian Politics & Policy*, *2*, 415-436.

Yu, J.-R. (2010). *Contentious politics: Fundamental issues in Chinese political sociology*. People's Publishing House.

Zhong, Y. (Ed.) (2016). *Blue book of environmental protection attitude among the Chinese citizens in 2013-2015 (Zhongguo chengshi jumin huanbao taidu lanpishu, 2013-2015)*. Shanghai Renmin Chubanshe.

Zhong, Y., & Chen, J. (2002). To vote or not to vote: An analysis of peasants' participation in Chinese village elections. *Comparative Political Studies*, *35*(6), 686-712.

Zhu, Y. (2015). Toward community engagement: Can the built environment help? Grassroots participation and communal space in Chinese urban communities. *Habitat International*, *46*, 44-53.

公民權利意識與環境相關因素對利環境行為的影響：中國大陸的實證研究*

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摘 要

本研究探討威權體制下的中國大陸，其公民與環境意識如何面對環境污染問題的發展，進而採取保護行動。此為初探性研究，使用 2013 年的中國社會變遷調查資料庫，分析在面臨環境問題日益嚴重的情況下，公民的態度或感知如何影響其利環境的參與保護行動。本研究發現，在 2012 年習政府上任時，威權體制下的公民環境保護行動，係將牽涉到對治理系統的信仰與順服，當公民愈相信當權體制運作本身已能充分對公民負責，個人的利環境行為便不再那麼必須。制度及結構上的限制，使得中國公民對環境行動選擇寧願保持沉默。

關鍵詞：公民權利意識、利環境行為、環境公民精神、中國大陸、制度信任

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