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Antecedents of citizens' environmental complaint intention in China: An empirical study based on norm activation model

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ABSTRACT

In this paper, we explore antecedents of citizens' self-reported environmental complaint intention in China by drawing on the norm activation model, and test the plausibility of the norm activation model to predict public-sphere pro-environmental intention/behavior. We evaluate the applicability and strength of the three alternative interpretations of the norm activation model: the moderator model and two mediator models. The models were empirically tested using survey data collected from twenty-nine cities at the prefecture and provincial levels in northern China. The results of structural analysis demonstrate that both of the two mediator models of norm activation model can adequately be employed to explain self-reported environmental complaint intention. Personal norm is the most immediate and influential predictor of environmental complaint intention. Personal norm also significantly mediates the relationship between ascribed responsibility and environmental complaint intention. Awareness of consequences is found to either directly trigger personal norm or to indirectly influence personal norm through the mediation of ascribed responsibility. The findings verify the plausibility and applicability of the norm activation model in explaining public-sphere pro-environmental intention/behavior.

1. Introduction

China has achieved rapid economic growth and undergone great social changes since the reform and opening up in 1978. However, this rapid development has been accompanied by increasing levels of environmental pollution and deteriorating ecological conditions. Environmental complaint, as the most widely-used mechanism for environmental public participation in China, has been recognized by Chinese environmental regulators since 1990s as an important policy instrument to alleviate those environmental problems because it has comparatively lower cost in obtaining pollution information than direct monitoring. Chinese citizens have also become more and more concerned with environmental pollution. Most citizens, who are damaged by or expected to suffer from various forms of pollution or show high concern about environmental quality and biodiversity, usually prefer to invest time and effort to make environmental complaint letters or visits to the central or local regulators rather than choose other avenues such as environmental administrative review and litigation in order to protect their environmental interests, because it is less time-consuming and regulators are generally very responsive to their complaints (Dasgupta

and Wheeler, 1997).

Environmental complaint refers to the behaviors of citizens lodging complaints about various environmental pollution problems or making comments and suggestions regarding ecological conservation to the authorities in the form of writing letters, sending emails, using online submission system, dialing complaint hotline, or going to the complaint reception office. According to the National Bureau of Statistics in China, the total number of citizens' environmental complaint filed through letters or mails rose markedly from 67,268 in 1996 to 701,073 in 2010 with declines since 2011, averaging 352,728 letters per year between 1996 and 2014. The number of citizens' environmental complaint visit, which is made to the authorities face to face, fluctuates a lot, with an annual average of 56,043 visits. A total of 1,797,565 persons got involved in making environmental complaint visits from 1996 to 2014. Chinese citizens' environmental complaints relate to a variety of environmental domains, including water pollution, air pollution, solid waste pollution, noise contamination, radiation contamination, and ecological damage. Citizens complain most about air pollution, followed by noise and water contamination.

Chinese citizens' environmental complaint has demonstrated a

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significant impact on environmental quality. Zhao et al.'s (2008) empirical analysis based on provincial-level panel data revealed that environmental complaint behavior had significantly negative effect on environmental pollutant emissions. Zhang (2010) used the national-level time series data between 1988 and 2007 to identify the determinants of environmental quality in China. His findings indicated that a 1% increase in environmental complaint could promote a 1.24% decrease in environmental pollution emissions. Wu et al.'s (2016) results also demonstrated that citizens' environmental complaints were significantly negatively related to the emission levels of industrial sewage, industrial waste gas, industrial sulfur dioxide, and chemical oxygen demand. Thus, complaint is an effective policy tool for citizens as well as government to improve environmental quality. However, environmental regulators often face the problem that some citizens show high intention to complain and repeatedly write or go directly to the environmental agency to make complaints while most of citizens demonstrate low intention and choose to stay silent, preferring to be free-riders. Therefore, it is important to understand factors that impact citizens' environmental complaint intention or behavior.

A careful review of environmental complaint literature demonstrates that very few studies have explored what drives Chinese citizens' intention to file environmental complaint and their actual behaviors (Brettell, 2003; Dasgupta and Wheeler, 1997; Qi et al., 2013; Zeng and Hu, 2015; Zhang et al., 2017). Moreover, most of the existing analyses are at the aggregate level, comparing environmental complaints across political jurisdictions. They identify some important socioeconomic and situational determinants of environmental complaint, such as economic development, income, salience or severity of environmental threats, educational level, population size, environmental pollution control investment, state capacity to implement environmental policy, and development of non-governmental organizations. Only Zhang et al.'s (2017) study is on the individual level, addressing social psychological factors that influence environmental complaint intention by integrating the theory of planned behavior and norm activation model (NAM).

However, Zhang et al.'s (2017) analysis does not use the full model of NAM. It drops the role of ascription of responsibility. In addition, it interprets the NAM as a mediator model, without comparing different interpretations of the relationships between NAM variables. In order to enhance our understanding of the antecedents of citizens' environmental complaint in China, we use the full norm activation model (NAM) and operationalize the variables in Chinese context. Furthermore, in contrast to most of the previous studies that interpret the NAM as either a mediator model or a moderator model, we compare the two kinds of models in our analysis and try to find the model that can best explain Chinese citizens' environmental complaint.

2. Theoretical framework and research hypothesis

The NAM is a social-psychological model proposed by Schwartz (1973, 1977) to explain altruistic intention or behavior in affluent industrial societies, such as blood or bone marrow donations (e.g., Schwartz, 1973), volunteering (e.g., Schwartz and Howard, 1980) and helping in emergency situations (Schwartz and David, 1976). The original NAM and its extensions have been later successfully applied to study various types of pro-environmental intentions or behaviors, among which yard burning (Van Liere and Dunlap, 1978), recycling (Vining and Ebreo, 1992; Wan et al., 2014; Wang et al., 2018), green phone purchasing (Nnorom et al., 2009), use of public transportation (Bamberg et al., 2007), electricity saving (Zhang et al., 2013), willingness to pay for environmental protection (Guagnano, 2001), and intentions to attend an environmentally responsible convention (Han, 2014), since pro-environmental intention or behavior can be regarded as a specific form of altruistic or prosocial intention or behavior. People engaging in pro-environmental behavior benefit others, whereas often, no direct individual benefits can be received (De Groot and Steg, 2009). NAM has become one of the most influential models for predicting pro-

social and pro-environmental intention/behavior (Han et al., 2015). Many researchers engaging in pro-environmental intention/behavior research have taken NAM as an indispensable theoretical framework because of its strong explanatory and predictive power (e.g., Bamberg et al., 2007; De Groot and Steg, 2009; Han, 2014; Onwezen et al., 2013).

Environmental complaint can not only be regarded as a kind of self-interested behavior motivated by self-concern including minimizing one's environmental risks, but also be regarded as a type of pro-environmental or pro-social behavior stimulated by the concern for other people and the wider environment (Zhang et al., 2017). Therefore, NAM, as a model of altruistic or pro-social behavior, should be an applicable theoretical framework to study citizens' environmental complaint intention/behavior in China.

There are three key variables in NAM: personal norm (PN), awareness of consequences (AC), and ascription of responsibility (AR). Personal norm is referred to as feeling a "moral obligation to perform or refrain from specific actions" (Schwartz and Howard, 1981, p. 191). Awareness of consequences is defined as "whether someone is aware of the negative consequences for others or for other things one values when not acting prosocially" (De Groot and Steg, 2009). Ascription of responsibility is described as someone's personal feeling of whether he or she is responsible for the negative consequences of not acting prosocially (De Groot and Steg, 2009).

Although there are a considerable number of studies in the pro-social as well as pro-environmental domain supporting the NAM, the relationships between the key variables are not fully clear (De Ruyter and Wetzels, 2000). At least three model interpretations of the relationships between the variables of NAM have appeared in the literature: (1) Moderator Model in which the relationship between PN and intention/behavior is moderated by AC and AR (e.g., Hopper and Nielsen, 1991; Schultz and Zelezny, 1998; Schwartz, 1973, 1977; Vining and Ebreo, 1992, see Fig. 1). This means that the relationship between PN and prosocial intention/behavior is strong among people with high awareness of the negative consequences of not acting prosocially and people with feelings of high responsibility for the negative consequences of not acting prosocially, while the relationship is weak when AC and AR are low; (2) Mediator Model A in which both AC and AR influence PN, while PN in turn influences intention/behavior (e.g., Bamberg and Schmidt, 2003; Harland et al., 2007, see Fig. 2). This means people will be motivated to engage in prosocial behaviors when they develop high PN, which is activated by both AC and AR; (3) Mediator Model B in which AC influences AR, AR influences PN, and PN influences intention/behavior (e.g., Gärling et al., 2003; Han and Hwang, 2015; Steg and De Groot, 2010; Steg et al., 2005; Stern et al., 1999; Zhang et al., 2013, see Fig. 3). This means only when people are aware of the negative consequences are they likely to assign these negative consequences to themselves and develop ascription of responsibility (Zhang et al., 2013), which then activates their moral obligation to enhance their prosocial intention or act prosocially. The difference between the two mediator models is that AC directly influence PN in Mediator Model A while AC indirectly influence PN through AR in Mediator Model B.

The competing interpretations of the relationships between the variables of NAM provide three alternative models for researchers to study various prosocial intentions/behaviors. In order to better explain prosocial intention/behavior in the social and environmental contexts, some researchers (Zhang et al., 2013) combine the two mediator

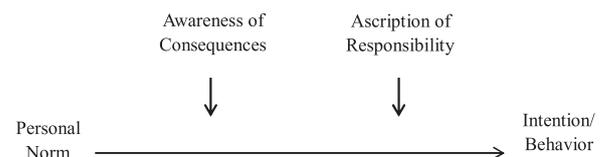


Fig. 1. Moderator Model of NAM.

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