

# **Study on the Influence of Social Norms and Public Orientation on Domestic Waste Classification Behavior-Taking Beijing's Garbage Classification as an Example**

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## **Abstract**

Social norms and correct public orientation are the internal norms and motivation of garbage classification behavior for residents. From the perspective of government's daily public of living garbage classification management and the public orientation entering into government supervision, which is divided into different norms and their expressing types; and study management-oriented social norms, its expression type and direct influences through public opinion and publicity, threshold effect and superimposition effect on how to affect the community residents' living garbage classification. The conclusion is drawn the management-oriented social norms and the public orientation should be coordinated systematically and cooperate with each other to maximize the impact. More extensive the coverage of public opinion or information is, more positive role it can play in promoting garbage classification behavior by management-oriented social norms. The coordination between positive descriptive norms and injunctive norms, together with public orientation are very important. The key starting point is to form a situation in which public opinion and propaganda and management-oriented social norms work together to form a joint force.

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**Keywords:** Management-oriented social norms, Garbage classification behavior, Public orientation, Threshold effect, Influence mechanism.

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## 1. Introduction

It has been a long time that garbage persistently becomes accumulative pollution load along with massive recyclable source. Garbage classification management is of great significance for advancing economic and social development and full-ground green transition, however, current measures for environmental management more focus on economic, administrative, and legal means, and ignore impact of social norms (Dong Fei et al. 2021). It is worth emphasizing that social norms may affect garbage classification through behavior, meanwhile, avoid unnecessary wasting on environmental management and stimulate internal motivation of personal garbage classification. Since social norms are embedded in ideology in forms of morality, concept, habit, and value; urge relevant policies, others' behavior, surrounding environment, and other factors form behavior impetus and then have wide and remarkable effects on garbage classification.

Social norms can be described as a social navigation tool for decision-making, guiding individuals to behave in socially appropriate ways (Morris et al. 2015). In social psychology, social norm is defined as "the rule and standard understood by group members" (Blanton et al. 2008). Social norm means behavior criterion that adjusts social relations between people, which take certain social relations as content and aim to maintain certain social order, including manners and customs, religious norm, morals norm, articles of association and legal norm, etc. The emergence and development of social norms are derived from the needs of people's common production and life and are also the regular manifestations of people's common production and life activities. Different kinds of social norms play different roles in adjusting social relations (Eric A. Posner, 2004).

More specifically, the definition of social norm can be divided into:

A. Unwritten norms, which RE internalized and institutionalized norms for social groups, including manners and customs, religious norm, morals norm and articles of association, etc.,

B. Written norms, which are codes of conduct (e.g., mandatory laws, decrees, rules and regulations) for social administration formulated or conformed by the nation, and ensure to be carried out by state agencies.

As garbage classification is at the stage of developing residents' conscious activity, and institutionalized environmentally friendly social norms are still weak, we analyze daily method in public administration from the perspective of social norm, and combine with the public orientation; then try to study influence that effect of social norms due to supervision and inspection under the public orientation having on residents' environmentally friendly behavior, in order to provide a reference for further improvement on relevant actions for public management and public orientation.

Since social norms are regarded as the effective method to promote sustainable and environmentally friendly behavior (Poškus, 2016), it is an emerging topic in the academic world that whether and how that social norms will affect garbage classification; relevant literature mainly focus on social norms affecting

environmentally friendly behavior. Farrow (et al. 2017) have summarized large amount of literature showing that social norms having significant effects on environmentally friendly behavior; and have analyzed that degrees of influence may be affected by various factors, including personal characteristics, focus theory, hidden reference group and the scene when behavior decision-making. Alberts et al. (Alberts et al. 2016) also consider that social norms promote environmentally friendly behavior such as reduce energy consumption, however, external incentive factors may counteract internal motive of changing behavior. With the rapid development in network times, the effect of public opinion and propaganda cannot be ignored, therefore it is necessary to analyze the how and what influences that social norms and public orientation will have on environmentally friendly behavior of garbage classification.

Management-oriented social norms refer to institutionalized and compulsive norms on the premise of official laws and regulations playing a compulsive role, in order to promote them to become unwritten norms consciously abided by the society and achieve social governance. Social norms normally are classified into descriptive norms and injunctive norms, so during process of implementing management-oriented social norms, it can also be regarded that two types of expression will be displayed. Injunctive norms mean compulsory codes of conduct of criterion; descriptive norms mean typical practice with description, which is vividly and easier to guide people to perform imitation behavior. Both types of expression can give good explanation to effect on social norms (Cialdini et al. 1990).

Existing researches show that different types of social norms have diversified influences on environmentally friendly behavior (Manning, 2009). Descriptive norms mostly refer to others' common behaviors that people perceive in specific situations by observing others' behaviors (Gerber and Rogers, 2009; Reno et al. 1993; Smith and Louis, 2008), and possibly imitation behavior will happen. On this occasion, it is easier for descriptive norms to have direct effects on garbage recycling than that for injunctive norms, and it can be treated as osmotic effect on neighborhood behavior, that is, if some people are convinced, others will follow (Nigbur et al. 2010). It is more possible for descriptive norms to lead to behavior change in long term (Burger and Shelton, 2011); however, injunctive norms and descriptive norms usually together exist in real world and descriptive norms are barely positive (Larimer and Neighbors, 2003). Some scholars think that on environmentally friendly behavior, injunctive norms are more effective and widely used than descriptive norms. Once injunctive norms work, it will go beyond the limits of situation and play a guiding role in social behavior (Cialdini et al. 2006; Cialdini et al. 1990; Reno et al. 1993). Further, it is worthy to explore the effect that injunctive norms and descriptive norms simultaneously have on garbage classification behavior under the same situation. Scholars have proven that if both injunctive norms and descriptive norms are positive, the effect will be the best when these two norms work simultaneously. When two norms have conflicts, the effect will be similar with that of low norms (Hamann et al. 2015). Another study also supports the opinion that the effect will be worse when two norms are inconsistent

(Smith et al. 2012). From that, when two norms are inconsistent, the effect that injunctive norms having on environmentally friendly behavior will be weak.

The purpose of this paper is to deeply study the influence of management-oriented social norms and public orientation having on residents' garbage classification behavior from three aspects, consisting of direct effects, threshold effect and internal mechanism. First, will different types of management-oriented social norms and public orientation have significant and direct effects on residents' garbage classification behavior? Second, when the coverage of public opinion or information is variable, will different types of management-oriented social norms and public orientation have threshold effect on residents' garbage classification behavior? Third, what is the internal mechanism that social norms and public orientation affect residents' garbage classification behavior? The study on the above questions will not only have use for reference, but also expand relevant policies and methods for control of garbage classification.

In order to study direct effects, threshold effect and internal mechanism of residents' garbage classification behavior from management-oriented social norms and public orientation, we use hot news to reflect indexes of public orientation for residents' garbage classification behavior, and use row number to present the coverage of public opinion or information, as more row number from various media appears, wider coverage of public opinion or information is; then normative indexes for supervision and inspection normally used by government are treated as management-oriented social normative information which will continuously affect the public, that is, analysis is performed using data of government's supervision and inspection to study its social norms' effect. This study uses fixed-effect model, instrumental variable regression model, threshold effect regression model, mediating effect, and moderating effect analysis to inspect the influence effect and mechanism of residents' garbage classification behavior led by management-oriented social norms and public orientation.

## **2. Research Hypothesis**

### **2.1 Relevant hypothesis**

Garbage classification is a complex system engineering, involving thousands of households, multiple departments, different body duties and complicated workflows; in which, it is of great importance to design complete path to implement garbage classification and mode of action. General Secretary Xi Jinping indicates that "to carry out garbage classification, it is the key to strengthen scientific management, form long-term mechanism and put the habit into practice."

Under specific social situation, when facing the situation of choosing regulate behavior, people always subconsciously prefer to treat descriptive norms as themselves' guidance (Nolan et al. 2008); generally speaking, most people will often choose the most reasonable or safest behavior or behavior style (Falzer and Garman, 2010), because "conformity" is widely spread, descriptive norms have effect of descriptive norms in some degrees and may have more direct influence on

garbage classification behavior. It is more beneficial for positive descriptive norms to let individual perform garbage classification and promote the formation of ecological values, and negative descriptive norms has potential self-reinforcement effect on reverse environmental behavior, which is easier to form descriptive norms and then inhibit the formation of individual's ecological values (Zhang, 2016). Although crowd behavior has significant laggard quality, externa information will continuously work imperceptibly and gradually change individual's awareness, attitude, and behavior.

The motivation of obeying injunctive norms is that individual will easier gain social recognition. Individual will get or maintain social recognition through group behavior, to get self-motivation and self-evaluation to further satisfy their positive connection with society and own qualification (HOGG et al. 1995). The explanation on injunctive norms' promotion on garbage classification by theory of planned behavior (Ajzen 1991) is that if individual is more supportive to garbage behavior classification, she/he will feel more stress from injunctive norms and will be easier to perform garbage classification. When both descriptive norms and injunctive norms play roles in garbage classification behavior, social formulate information may be opposite to the negotiator's intention, so only combining these two norms can be of optimization and standardization (Cialdini, 2003).

Public orientation will be of greater importance in information era. Marx used to call public opinion as one kind of "common, hidden but impulsive strength." Public opinion often changes people's subconsciousness and penetrate all aspects and affect people's behavior without limits of time and location. It is so easy for public opinion to grow into a wave and generate resonance effect in society and lead to public discussion and guide people's behavior and decision.; moreover. The level of garbage behavior will be higher when the coverage of public opinion is wide. Based on the above deduction, the hypothesis is proposed as below:

**H1a:** Descriptive norms have significant effects on garbage classification behavior. Positive descriptive norms will have positive effects on garbage classification behavior, vice versa.

**H1b:** Injunctive norms have positive effects on garbage classification behavior, that is, when injunctive norms have more support, the effect from norms will be stronger and the public will easier perform garbage classification.

**H1c:** public orientation has positive effects on garbage classification behavior, that is, when the stronger effect public orientation has, it is easier for the public to perform garbage classification.

**H1d:** Under the background of public opinion having wider coverage, it is easier for management-oriented norms and public orientation to perform effects on garbage classification.

## **2.2 Hypothesis of effects on the internal mechanism**

Though it has been verified that social norms can affect recycling and waste deduction by relevant experience and studies (Jones et al. 2010), some scholars still

take the opposite attitude to it (Eisenberg and Wechsler, 2003). The inter mechanism still need more explanation because besides direct influences and threshold effect, intervening mechanism and moderating effect may also exist to affect garbage classification behavior. There have been studies showing that injunctive norms will interfere effects descriptive norms having on individual behavior (Göckeritz et al. 2010; Lee et al. 2007), and positive descriptive norms forward modulates that effect on individual behavior from injunctive norms (Smith and Louis, 2008). We will further deduct the effects social norms having on garbage classification behavior from public orientation and the hypothesis is proposed as below:

**H2a:** Positive descriptive norms adjust the effects injunctive norms having on garbage classification behavior positively; Negative descriptive norms adjust the effects injunctive norms having on garbage classification behavior negatively.

### 3. Data and Methodology

#### 3.1 Definition of variable and data source

Indicators are determined based on the above theoretical basis. See the main indicators and sources in Table 1. More information in the Supplementary File.

**Table 1: Definition of variable and source**

Variable name	Variable description	Symbol	Unit	Data source
Amount of household kitchen waste treatment	Intermediate variable	<i>AOHKWT</i>	tons/day	Government data
Amount of garbage treatment		<i>AOHRT</i>	tons/day	
Separation rate of kitchen waste	$\frac{AOHKWT}{AOHRT}$	<i>SROKW</i>	ratio	Formula calculation
Coverage of public opinion or information	Row number	<i>COPOOI</i>	pieces/month	gsdata hot (gsdata)
Public orientation	Hot issues	<i>PO</i>	degrees /month	
Negative descriptive norms	Number of non-standard phenomena	<i>NDN</i>	pieces / month	Analysis Report for Supervision and Inspection on Situation of Household Rubbish Classification
Injunctive norms	Yield of billboard for garbage classification	<i>IN</i>	ratio	
Positive descriptive norms	Cleaning rate of community's garbage can and station	<i>PDN</i>	ratio	

### 3.2 Methodology

Combine the basis of fixed effect model with public opinion, use empirical research method such as instrumental variable regression model and threshold effect model; inspect the ways that different types of expression and public orientation from management-oriented social norms affect garage classification behavior; verify direct influences on environmentally friendly behavior from social norms and public orientation; attempt to disclose function and threshold effect of the public orientation and different types of expression of management norms; analyze interactions and their transmission mechanisms; broaden studies related to how management-oriented social norms affecting environmentally friendly behavior. More information in the Supplementary File.

## 4. Results

### 4.1 Baseline regression and robustness test

To verify the effects on *SROKW* (separation rate of kitchen waste) from social norms, the metering equation is set as below:

$$SROKW_{it} = \gamma_0 + \gamma_1 IN_{it} + \gamma_2 \ln COPOOL_{it} + \gamma_3 \ln PO_{it} + \gamma_4 \ln NDN_{it} + \gamma_5 PDN_{it} + \gamma_6 AR_i + \varepsilon_{it} \quad (1)$$

In which, logarithm have been taken for some indexes is to eliminate values' absolute differences and influences on data fluctuation due to changes on government's indexes. Subscript  $i$  represents the dimension of administrative region;  $t$  represents time dimension;  $AR_i$  represents regional fixed effect and  $\varepsilon_{it}$  means error term.

During building baseline regression, this paper first time uses LSDV method, LM test, Hausman test together with the supportive regression verification to judge and estimate that if data is suitable for model of fixed effect. After taken the estimation of individual heterogeneity to  $AR_i$ , LSDV method is used to estimate baseline regression. The column (1) in Table 2 are test results of impact and effect on *SROKW* from *IN* (injunctive norm), and from columns (2) to (5) are results of stepwise regression with gradually adding variables. The result shows that *IN* has positive influences on *SROKW* and the influence coefficient is basically stable and of certain stability, which offers important experimental evidence for verifying positive influences on residents' garbage classification from *IN*, that is hypothesis H1b has been verified. The result of baseline regression in column (5) shows that influences on *SROKW* from  $\ln COPOOL$ ,  $\ln PO$ ,  $\ln NDN$  and  $PDN$  do not pass significance test and it can be explained that during the initial implementation of regulation on garbage classification, the laggard quality of public attention, recognition and behavior is significant, moreover, it affect the lack of emphasis of presentation for *DN*, short of degree of synergy between the expression of *IN* together with *DN* and public opinion or information, etc. Compared with the result of baseline regression, Estimation by instrumental variable method again verifies

the positive influences *IN* having on residents' garbage classification behavior. More information about Instrumental variable estimation in the Supplementary File.

**Table 2: Regression results of LSDV estimation**

	(1)	(2)	(3)	(4)	(5)
	SROKW	SROKW	SROKW	SROKW	SROKW
IN	0.137***	0.134***	0.133***	0.134***	0.122***
	(0.023 5)	(0.022 2)	(0.022 9)	(0.022 5)	(0.018 1)
lnCOPOOI		0.011 7	0.011 8	0.011 7	0.011 8
		(0.009 23)	(0.009 17)	(0.009 51)	(0.009 43)
lnPO			0.001 91	0.002 08	0.002 05
			(0.006 64)	(0.007 21)	(0.006 90)
lnNDN				0.000 353	0.001 80
				(0.006 17)	(0.005 13)
PDN					0.075 8
					(0.084 1)
_cons	0.078 1***	0.048 8	0.038 4	0.036 7	-0.019 8
	(0.011 8)	(0.032 4)	(0.039 4)	(0.040 1)	(0.063 8)
Regional fixed effect	control	control	control	control	control
N	128	128	128	128	128
Overall R2	0.636	0.646	0.647	0.647	0.653

Note: Standard errors in parentheses.

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

## 4.2 Verification of threshold effect

The series of measurement models verify the positive influences *IN* having on residents' garbage classification behavior. It's easy to indicate that with changes on *COPOOI* will lead to means of expression for different social norms and influences on residents' garbage classification behavior by *PO*. Furthermore, the above-mentioned non-linear relationship is verified using panel threshold regression model carried out by Hansen (Hansen, 1999). *COPOOI* is set as threshold variable, and then the non-linear threshold effect is found and analyzed between *SROKW* and management-oriented social norms together with *PO*. The panel threshold regression model is set as below.

$$SROKW_{it} = \mu_i + \beta_1 x_{it} I(\ln COPOOI_{it} \leq \eta_1) + \beta_2 x_{it} I(\ln COPOOI_{it} > \eta_1) + a' Z_{it} + \varepsilon_{it} \quad (2)$$

Among which,  $I(\blacksquare)$  is indicative function; when the expression in “ $(\blacksquare)$ ” is true, the value will be 1, otherwise, it will be 0. Whether  $\ln COPOOI_{it}$  is larger than to-be-estimated threshold value  $\eta_1$ , samples can be divided into two intervals;  $\beta_1$  and



$\beta_2$  separately display estimated coefficients.  $x$  can represent one mean of expression chosen from management-oriented social norms and  $PO$  and then be treated as key variable, that is  $IN$ ,  $PDN$ ,  $\ln NDN$  and  $\ln PO$ .  $Z$  means control variable. After determining the key variable, the rest variables are considered as control ones to estimate value of estimated coefficient more accurately. The principle of threshold regression estimation is mainly performing the estimation based on minimum of residual sum of squares.

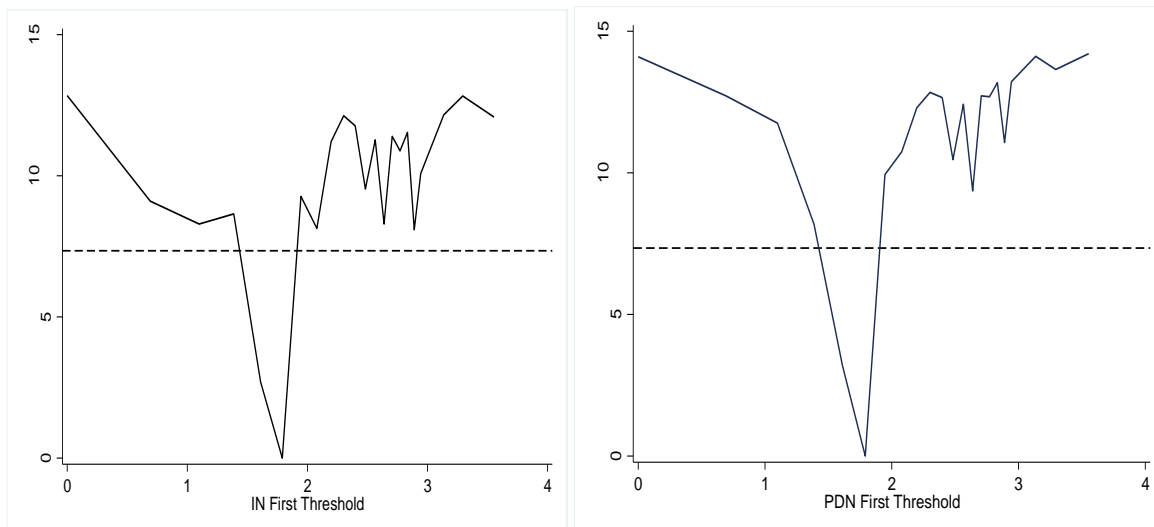
Based on the basic principle and method of threshold regression of verifying panel fixed effect by Wang Qunyong (Wang, 2015), this paper uses Stata 14.0 statistical software, and then repeatedly performs sampling for 1,000 times to calculate the P value corresponding to statistics and in order to judge that if threshold effect exists; and perform estimation on threshold value and regression coefficient. Finally, it verifies that regarding  $COPOOI$  as threshold variable, both  $PDN$  and  $IN$  have threshold effects on garbage classification behavior, and the results are shown in Table 3 below.

**Table 3: Estimation on threshold effect verification, threshold value and regression coefficient**

Variables	Single threshold		Estimated threshold value		Estimated regression coefficient	
	F value	P value	$\eta_1$	Confidence interval	$thres \leq \eta_1$	$thres > \eta_1$
$IN$	13.450**	0.014	1.792	(1.498,1.946)	0.076***	0.132***
$PDN$	14.820**	0.027	1.792	(1.498,1.946)	0.055	0.101*

Note: \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Thus, when  $IN$  and  $PDN$  are key variables, and  $\ln COPOOI$  is threshold variable, the conclusion can be drawn that in single threshold model, at least it is obvious at level of 5%, that is P values are less than 0.05, so the threshold value 1.792 exists in this model. Corresponding to Table 3, estimated threshold value is the corresponding  $\eta$  value when LR statistic close to 0 according to the principle of threshold model. Two graphs showed in Figure 1 respectively are LR function graphs under 95% confidence interval when  $IN$  and  $PDN$  being treated as key explanatory variables, and single threshold value of  $\ln COPOOI$  is 1.792. In Figure 1, the lowest point of LR statistics is corresponding actual threshold value; Dashed line means that critical value is 7.35. Since the critical value 7.35 is larger than these two threshold values, it can be considered that threshold values are true and effective.



**Figure 1: Single threshold estimation results of social norm coverage**

While estimating threshold values, the regression results can be obtained and refer to Figure 2:

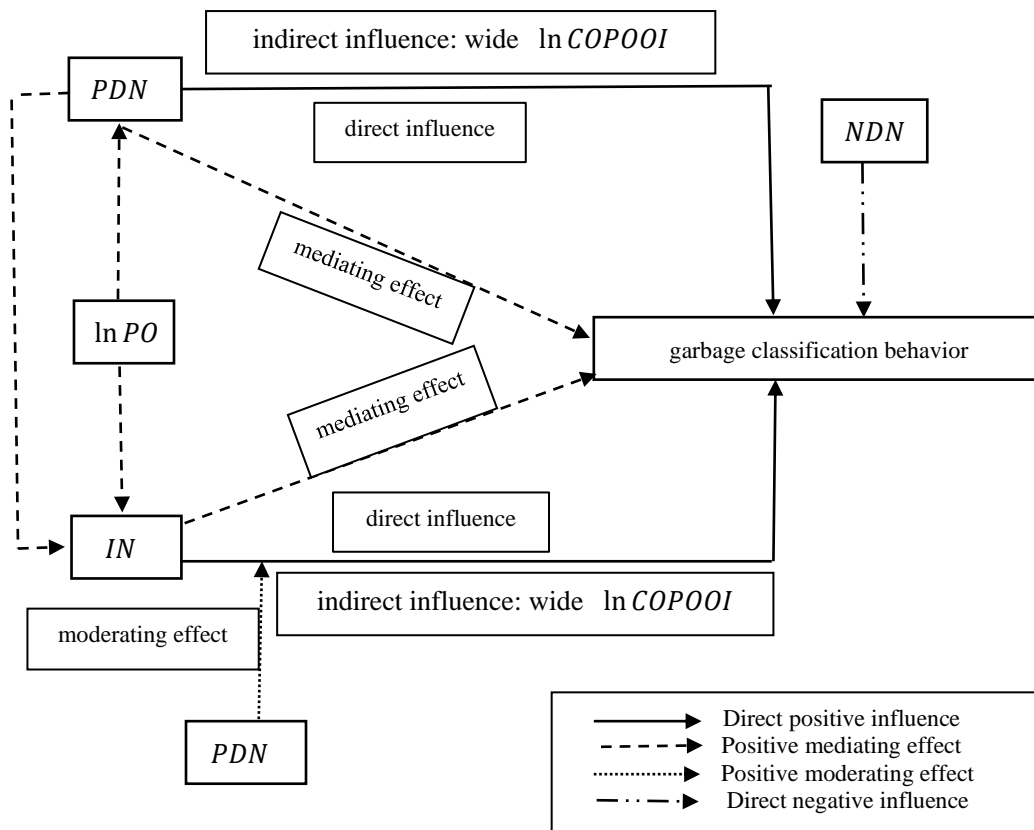
First, when  $\ln COPOOI$  is the threshold variable, different values of  $IN$  will cause great difference to influence on  $SROKW$ . If the  $\ln COPOOI$  is low ( $\ln COPOOI \leq 1.792$ ), the influence coefficient of  $IN$  affecting  $SROKW$  is 0.076; if the  $\ln COPOOI$  is high ( $\ln COPOOI > 1.792$ ), the influence coefficient of  $IN$  affecting  $SROKW$  is 0.132 and these two regression coefficients are obvious at level of 1%. Second, when  $\ln COPOOI$  is the threshold variable, if the  $\ln COPOOI$  is low ( $\ln COPOOI \leq 1.792$ ), the influences that  $PDN$  having on  $SROKW$  is not obvious; if the  $\ln COPOOI$  is high ( $\ln COPOOI > 1.792$ ), the influence coefficient of  $PDN$  affecting  $SROKW$  is 0.101, and these two regression coefficients are obvious at level of 10%. It shows that the bigger  $\ln COPOOI$  is, the greater positive influences  $IN$  and  $PDN$  having on  $SROKW$ ; so part of H1d is verified. This is because that if the  $\ln COPOOI$  is wide, it will all-round promote people's focus on garbage classification and cognitive and then increase the intensity of feeling for  $PDN$  and  $IN$ , gradually be consistent with judgement of self-value and belief and further with own behavior. At this time, the effectiveness that  $PDN$  and  $IN$  motivate individual behavior will be stronger. To sum up, if expressions of social norms converge and generate superimposition effect, the activation level will be high and become the motivation of driving good social order.

### 4.3 Analysis on transmission mechanism

As garbage classification is environmental-friendly behavior, it will be affected by interaction among different kinds of social norms (Larimer and Neighbors, 2003; Rimal and Real, 2003; Smith and Louis, 2008). Based on mediating effect and theory of moderating effect, the internal mechanism that *IN*, *PDN* and *PO* affect residents' garbage classification behavior. According to Figure 2 in the Supplementary File., *PO* has positive indirect effect on *SROKW* through and ; *PO* has positive indirect effect on *SROKW* through *IN*, so H2a has been verified. *PDN* positively affect the influences on rubbish classification by *IN*, and the influences on *SROKW* from *IN* negatively adjusted by *NDN*, so part conclusion of H2b has been verified.

### 4.4 Influencing mechanism of garbage classification behavior

The final research frame is as Figure 2 combing the above conclusions and analyzing direct influences, threshold, and internal mechanism of garbage classification behavior. Comparing influences on garbage classification behavior by different types of social norm with  $\ln PO$ , this section describes the influencing mechanism of garbage classification behavior. First, when the  $\ln COPOOI$  is larger than the threshold value 1.792, the positive influencing coefficient that *PDN* having on garbage classification behavior is greater than that *IN* having on garbage classification behavior. It is obvious that when  $\ln COPOOI$  is wide, the influences on residents' classification behavior by *PDN* is significant. Second, as  $\ln COPOOI$  is mediating variable, it affects the positive effects on residents' garbage classification behavior by positive management-oriented social norms and has been verified and regarded as complete mediating variable; it means that the indirect positive influences on garbage classification behavior is related to management-oriented social norms. *PDN* is also the complete mediating variable and it means that the positive influences on garbage classification by *PDN* depends on *IN*. So, it also explains that in reference model, only the direct positive influences *IN* having on garbage classification behavior is obvious; in order to affect garbage classification behavior positively by *PDN* and  $\ln PO$ , it is necessary for *IN* to play a role lying in connecting the preceding and the following. Finally, *PDN* adjusts the influences on garbage classification behavior by *IN*, fully plays a part in it and the positive influences on residents' garbage classification behavior by *IN* is of greater significance. At the same time, the negative influences on residents' garbage classification behavior by *NDN* also cannot be ignored.



**Figure 2: Effective ways social norms affecting garbage classification behavior**

### 5. Discussions and Policy Recommendations

Stress on synergistic superposition effect between management practices and publicity. Flexibility, diversification and their co-channel and resonance effects of management method should be focused on. Government supervision and management are the main methods for directly affecting residents' garbage classification behavior, and both injunctive and positive descriptive norms shall cooperate without bias, then combine with publicity to perform these two kinds of norms' positive superposition effects and form a multi-pronged approach, complementarity and joined force and then improve the effectiveness of supervision and management for garbage classification, and be beneficial to motivate forming residents' habit for garbage classification behavior.

Focus on correct use of information from descriptive norms. With features of being vivid and accessible, it is easy for descriptive norms to play an exemplary role and that is why positive descriptive norms can significantly strengthen the effectiveness

of injunctive norms. Otherwise, negative descriptive norms will weaken and counteract the effectiveness of injunctive norms. Currently, residents' garbage classification is at early stage and the habit for garbage classification has not formed and there are much feedback of negative descriptive information from the public; all these will easily result in the conflict between actions on supervision and management for garbage classification issued by government and descriptive information, and then reduce the importance of government. The key problem is to focus on weakening and eliminate negative descriptive information and improve the activation level of positive descriptive information.

Firstly, based on strict management and control of garbage classification for governments at all levels, more social subjects shall participate in it; party members and retired employees may supervise garbage classification voluntarily; garbage transportation and cleaning staff perform secondary classification as examples; Instructors for garbage classification should set the example; their working style shall be more visual and kinder; developing a more comprehensive coverage of network containing community assistant and volunteer, timely communicating and notify the community for each unit or building's garbage classification progress, advanced person, and conducting timely door-to-door guidance to correct improper or unmatched behavior, targeting to improve and enlarge the effect of descriptive normative information, forming into a pattern of government-led multi-body participation and have positive superposition effects on garbage classification behavior. Secondly, while strengthening positive descriptive normative information, we should also pay attention to real-time elimination of negative descriptive information, such as timely cleaning sanitation dead angle around garbage stations, maintenance of standardization, cleanliness and high efficiency of hardware facilities such as garbage bins, collection and transportation facilities, and try to eliminate non-standard phenomena and improve the positive experience and feelings of the public, etc.

Stress on synergistic superposition effects of public orientation. The publicity of garbage classification needs to be continuously and widely disseminated, synchronized, and coordinated with the expression of injunctive norms and positive descriptive norms of government supervision and management. We should pay attention to continuously expand the coverage of public opinion or information, make publicity on public opinion more extensive, timely and specific, attach importance to the timely update, notification and communication of progress information around residents, give residents more immediate experience, and highlight more vivid and direct directionality by means of management social norms. The negative countervailing effect of negative descriptive information when implementing garbage classification should be minimized.

We shall improve the pertinence of publicity on public opinion according to local conditions. For different places for public activities such as companies, factories and schools, positive publicity and education, incentive information and action for illegal punishment should be delivered to individual through as many channels and ways as possible, accelerate the garbage classification from "passive participation -

semi-active participation - active participation" voluntary way to complete, strengthen the information disclosure and communication, create the atmosphere of " being influenced by what one constantly sees and hears ", build information bridge as a family as a unit and construct three information exchange center through the construction of intra-community, inter-community, inter-administrative regions, form large environment information and spread to small environment and small environmental information gathering in the environment of closed loop flow, ensure spread of information with instantaneity and no difference. We shall particularly emphasize on performing publicity through popular ways, such as regularly organizing assessment awards, red list and black list, progress reporting, garbage classification tea party; strengthen the information communication among communities, set up exemplar service for excellent residents, learn from each other and others. These propagandas will strengthen the specific image of the descriptive normative information and subtly improve residents' garbage classification behavior.

## 6. Conclusions

This paper studies the influences on garbage classification behavior by management-oriented social norms and during garbage treatment and manages to offer new perspective for learning the problem of form the habit of garbage classification behavior.

Necessity of synergistic and superposition effects on different types of expression of publicity and management for garbage classification. It is relatively weak for the public forming the habit only relying on the encouragement from and publicity. Both injunctive and descriptive norms can mutually reinforce and promote, but they may also cause conflict and counteraction and weaken positive promotion. Therefore, while the types of expression for management-oriented social norms is enriching, we cannot only focus on implementing; the effects on residents' garbage classification behavior by shall also be observed. The Beijing government pays attention to supervision and administration and publicity during the management of garbage classification, but the effective cooperation is not enough. The attention on the expression of supervision and management and the effective cooperation together with positive superposition effect with are effective methods to promote management performance, form internalize individual norm and solve the problem of garbage classification management.

The mechanism of action that management-oriented social norms and public orientation affecting garbage classification behavior. The mechanisms of action mainly embody in the following three aspects:

First, in general, injunctive norms have direct positive influences on residents' garbage classification behavior.

Second, positive management-oriented social norms exist threshold effect. When the coverage of public opinion or information is wide, injunctive norms have more significant positive influences on residents' garbage classification behavior than

positive descriptive norms; when the coverage is narrow, that influence by positive descriptive norms is not obvious and so does injunctive norms.

Third, the internal mechanism that management-oriented norms and public orientation effecting residents' garbage classification behavior have two parts.

One is that public orientation positively affects residents' garbage classification behavior through two mediating variables, injunctive norms and positive descriptive norms; another is that positive descriptive norms affect residents' garbage classification behavior through adjusting injunctive norms, that is, positive descriptive norms affect residents' garbage classification behavior through adjusting injunctive norms positively and negative norms does that in negative ways and it is obvious. Besides, positive descriptive norms may also indirectly affect residents' garbage classification behavior through injunctive norms.

The mechanism of action that management-oriented social norms and public orientation affecting garbage classification behavior. At present, compared to the management method of injunctive norms, the type of expression of positive descriptive norms is weak, such as one-to-one instruction, demonstration and experience, home notification and negotiation, these kinds of expression are vivid and detailed and need more improvement and unavoidably have shortage of asymmetric information, and even some part exists obvious situation of negative descriptive norms, which becomes one of the important factors that weakening the effectiveness of supervision and management in early stage for garbage classification treatment. Information about supervision and management of garbage classification are mainly issued through official documents by government and information through community bulletin, media, network publicity, however, the ways of publicity is relatively macroscopic and extensive; coverage of public opinion or information is still not wide and deep enough; and asymmetric information, short of aim, not synchronous enough between publicity and action promotion and other problems still exist.

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