Do motivations contribute to local residents' engagement in pro-environmental behaviors? Resident-destination relationship and pro-environmental climate perspective

Abstract: Local residents play an indispensable role in environmental conservation at tourist destinations. To facilitate the sustainable development of tourism, it is of great significance to explore and identify the antecedents of residents' pro-environmental behaviors. Though prior research has begun to explore the relevant antecedents, the underlying mechanism through which the various antecedes affect residents' pro-environmental behaviors and the circumstances under which such effects are enhanced or impaired are insufficiently investigated. To bridge the research gap, this research aims to examine the effects of motivations (i.e., felt obligation and altruistic concern) on residents' engagement in pro-environmental behaviors, and explore the underlying mechanism that associated motivations to behaviors and the boundary condition to the relationships. Data from 566 local residents in the Ancient Villages Xidi and Hongcun in Southern Anhui suggested that the motivations have direct and positive effects on residents' engagement in pro-environmental behaviors, and the effects are positively moderated by pro-environmental climate. Meanwhile, motivations also indirectly affect residents' engagement in pro-environmental behaviors through the variables of resident-destination relationship (i.e., pro-environmental identification and pro-environmental commitment). This research uncovered how and when motivations affect local residents' engagement in pro-environmental behaviors. According to the research findings, several theoretical and managerial implications were derived.

Keywords: Motivations; Resident-Destination Relationship; Pro-environmental identification; Pro-environmental commitment; Pro-environmental climate; Pro-environmental behaviors

1. Introduction

There is little argument about the importance of tourism industry in promoting economic growth (Oh, 2005; Nunkoo & So, 2016). Protecting the environment of destinations is of great concern to the sustainable and steady development of tourism industry, which requires stakeholder groups to work together collaboratively (Kiatkawsin & Han, 2017). Local residents in tourist destinations constitute a key role among stakeholders because of their close connections with destinations (Ribeiro et al., 2018). They live in or near the tourist destinations and their day-to-day living activities carry out direct influences on the natural environment of tourist destinations. Therefore, pro-environmental behaviors of residents in tourist destinations are worthy of attention and should be the focus of scholars and tourist destination managers. However, previous research has not contributed much to consider the role of local residents in protecting the natural environment of tourist destinations but mainly on the roles of tourists and exploring their pro-environmental behaviors (Han & Hyun, 2018; Huang & Liu, 2017). To narrow the research gap, enrich the literature on the environmental protection of tourist destinations and expand the research perspective, this research aims to select local residents in tourist destinations as the research objective and explore their pro-environmental behaviors.

Pro-environmental behaviors refer to preventative measures and actions taken by individuals to protect the natural environment and reduce environmental damages (Park et al., 2018). Pro-environmental behaviors range from conclusive definition of social responsibility to site-specific practices (Koo, 2000; Zhang et al., 2014). Regarding to tourist destinations, pro-environmental behaviors of residents include voluntarily addressing environmental issues caused by daily life and empathizing environmental quality of the destinations (Zhang et al., 2014). To some extent, residents' pro-environmental behaviors are voluntary. According to the behavioral decision theory, individual's voluntary behavior can often be triggered by specific motivations (Einhorn and Hogarth, 1981). Starting from the driving forces of residents to conduct pro-environmental behaviors, this research selected the theory of motives, which was proposed by Batson in 1991 and often used in pro-social behavior

research, as the theoretical foundation to explore the effects of motivations (i.e., egoistic and altruistic motivations) on residents' pro-environmental behaviors.

Furthermore, the environmental issues are largely caused by human daily activities. There is a paradox between the Chinese traditional culture with non-anthropocentrism as the center and the unreasonable eco-friendly behaviors of human beings (Zhang et al., 2014). Fundamentally, human-environment relationship are needed to rethink so that the dominant meanings of natural resources stewardship should move away from the driver to control and manage the environment to the commitment that is living in harmony with the ecosystems we inhabit (Hall, 2019). The resident-destination relationship is the typical representative of the human-environment relationship, which is worth to rethink. Therefore, from the perspective of resident-destination relationship, this research aims to explore the underlying mechanisms through which the motivations affect residents' pro-environmental behaviors. Specifically, the current research divided the resident-destination relationship into pro-environmental identification and pro-environmental commitment, examined how motivations affect residents' pro-environmental behaviors via pro-environmental identification and pro-environmental commitment and thus to explore the underlying mechanisms.

Additionally, behaviors are not only completely dictated by the motivations, but also influenced by external context factors (Liu, Liu, & Jiang, 2019). The effects of motivations on behaviors depended on external context factors. It is known that as a contextual factor, pro-environmental climate can exert a subtle and profound influence on individual's pro-environmental behavior. Accordingly, pro-environmental climate of tourist destinations can also affect local residents' pro-environmental behaviors and the relationships between motivations and pro-environmental behaviors. However, little research has been performed to explore the roles of pro-environmental climate of tourist destinations and examine the combined effects of motivations and pro-environmental climate on local residents' pro-environmental behaviors. To respond to the gaps, this research aims to examine the effect of pro-environmental climate of tourist destinations on residents'

pro-environmental behaviors and judge whether the effect of motivations on residents' pro-environmental behaviors is contingent on pro-environmental climate of tourist destinations.

Overall, the purpose of this research is to examine the effects of motivations on residents' pro-environmental behaviors, explore the boundary conditions to these effects and understand the underlying mechanisms and processes through which these motivations affect residents' pro-environmental behaviors. This research presents several contributions: (1) Batson's theory of motives is firstly introduced into the tourism research context to study pro-environmental behaviors of residents in tourist destinations, which expands the application of theory of motives in the field of pro-environmental behavior and enriches the research on the sustainable tourism. (2) This research rethinks the resident-destination relationship, examines how motivations affect residents' pro-environmental behaviors via pro-environmental identification and pro-environmental commitment and thus to explore the underlying mechanisms through which motivations affect residents' pro-environmental behaviors. (3) This research explores the boundary condition to the relationships between motivations and residents' pro-environmental behaviors, and examines how pro-environmental climate of tourist destinations affects the relationships between motivations and residents' pro-environmental behaviors. (4) This research focuses on local residents in the tourist destinations and explores their pro-environmental behaviors, which enriches the literature on sustainable tourism from the lens of local residents.

The rest of this paper is arranged as follows. The next section is mainly related to the conceptual framework and the research hypotheses. Then, the section about measurement scale and data collection is presented. Next, the process of the data analysis and the research results are reported. Lastly, result discussions, theoretical and managerial implications, limitations and the directions for the future research are provided.

2. Conceptual framework and hypotheses development

2.1. Theory of motives

Given the positive consequences of local residents' pro-environmenta behaviors on tourism destinations (Cheng & Wu, 2015; Han, Nelson, & Kim, 2015; Tonge et al., 2015), research aims at uncovering the motivations of residents to conduct pro-environmental behaviors is important. Theory of motives proposed by Batson in 1991 provides a framework for identifying categories of motives of individuals to conduct certain behaviors especially pro-social behaviors (Batson et al., 1991). Though theory of motives is often used to explore individuals' pro-social behaviors, it is also appropriate to use this theory to explain individuals' pro-environmental behaviors. This is because that pro-environmental behavior is often considered as a special case of pro-social behavior. Individuals who conduct pro-environmental behaviors can benefit others, whereas often, no direct individual benefits are received by engaging in these behaviors (De Groot & Steg, 2009).

According to the theory of motives, egoistic motivation and altruistic motivation are the two main motivations affect individual's behavior. Accordingly, egoistic motivation and altruistic motivation are taken into account in this research to examine their effects on residents' pro-environmental behaviors. Felt obligation, defined as the egoistic motivation in this research, refers to a perspective belief regarding whether a resident should care about the well-beings of the tourist destinations and should help the destinations to reach their goals stems from the desire to reduce one's own unpleasant/guilty emotional arousal (Basit, 2017; Lemmon & Wayne, 2015). Altruistic motivation is largely invoked by altruistic concern for other person, such as valuing the welfare of other person or identifying with them (Batson & Powell, 2003). Altruistic concern, defined as the altruistic motivation in this research, refers to a motivational state of residents to protect the destination environment and achieve the environmental goals from the perspective of increasing other's welfare (Batson, 2011).

Felt obligation is widely confirmed as being an underlying driver of behaviors in various disciplines (Twigg, Fuller, & Hester, 2008; Cantor, Morrow, & Montabon,

2012; Wu et al., 2016; Zhu & Akhtar, 2017). In a related vein, when local residents of tourist destinations prioritize the natural well-beings and environmental protection goals of the destinations from the perspective of reducing the guilt of environmental damage caused by their daily life activities, they tend to be more active in participating in pro-environmental behaviors to protect the destination environment they rely on. Furthermore, altruistic concern also is an important driver of behaviors (Story & Forsyth, 2008; Steg et al., 2011; Te Velde, 2018). In this research, when local residents of tourist destinations value the welfare and interests of others and the destinations, they are more willing to devote their time and energy to engage in pro-environmental behaviors to protect the destination environment. As both felt obligation and altruistic concern are becoming increasingly important in forging local residents to conduct pro-environmental behaviors, this research proposes the following hypotheses:

H1: Felt obligation toward the tourist destination positively affects residents' pro-environmental behaviors.

H2: Altruistic concern for the tourist destination positively affects residents' pro-environmental behaviors.

2.2. Resident-Destination relationship

Few researches have considered pro-environmental identification and pro-environmental commitment simultaneously to explore the resident-destination relationship (Su, Huang, & Pearce, 2019). This research chooses these two variables to measure the resident-destination relationship. Pro-environmental identification emphasizes that the residents and the destinations are unified entity and there are connections and even overlap between residents' self-conception and the destinations, while pro-environmental commitment argues that the residents and the destinations are separate ones which highlights the contributions of the residents' efforts on the environment (Van Knippenberg& Sleebos, 2006). The process from the identification to the commitment is gradual, which shows the variation process of the resident-destination relationship. Therefore, measuring the resident-destination

relationship from two dimensions of pro-environmental identification and pro-environmental commitment can make this research more complete and scientific.

Pro-environmental identification is a relationship construct that may play significant role in motivating residents' pro-environmental behaviors, which conceptualized as the residents' psychological involvements to the destination environment reflecting their sense of connection between nature and the destination (Unanue et al., 2016). Pro-environmental identification is an indispensable part of self-identity and is important for the connection between a resident and the location environment. A resident linking or identifying with a destination demonstrates that there is a connection between a resident's self-identify and the destination environment (Su, Swanson, & Chen, 2018). If local residents are concerned about the well-beings of the destinations and willing to help the destinations to achieve their environmental goals, whether are driven by alleviating personal guilt feelings or considering the benefits of others, they will be more closely connected with the destination environment. Therefore, improving the level of residents' felt obligation and altruistic concern toward the destination environment will contribute to their strong pro-environmental identification. Based on the above discussions, the following hypotheses are posited:

H3: Felt obligation toward the destination positively affects pro-environmental identification.

H4: Altruistic concern for the destination positively affects pro-environmental identification.

Furthermore, high-quality relationships between residents and tourist destinations will elicit positive extra-role behaviors, such as discretionary service behaviors and pro-environmental behaviors (Su, Huang, & Pearce, 2019). Hence, the closer the connection between residents' self-identity and the destination environment, the more likely residents will be to foster their pro-environmental behaviors to protect the destination environment. As such, it can be proposed that pro-environmental identification of residents may play a vital role in triggering their pro-environmental

behaviors. According to previous literature, several studies deemed that individual's environmental identity is related to environmentally friendly behaviors. For example, Unanue et al. (2016) dictated that environmental identification is positively linked with pro-environmental behaviors. Su & Swanson (2017) indicated that tourist-destination identification significantly impacts tourist's environmentally responsible behavior. Su, Swanson, & Chen (2018) investigated the impact of tourists' identification with the destination on their environmentally responsible behaviors and suggested that the identification is an important predictor. From this perspective of view, the following hypothesis is formulated:

H5: Pro-environmental identification positively affects residents' pro-environmental behaviors.

Pro-environmental commitment is another theoretical construct to examine resident-destination relationship, which refers to the perceived feelings of obligation toward the destination environment that are associated with residents' propensity to engage in environmentally friendly behaviors, even if these behaviors may forfeit their personal current self-interests to support environmental well-beings, such as buying green products with an environmental cause that costs more (Su, Tung, & Baird, 2017; Yu et al., 2019). What individuals acknowledge and believe in directly influences what they are willing to commit to. The process of commitment is regarded as a transformational process of motivations (Su, Huang, & Pearce, 2019). That is to say, residents who believe that they should concern about the environmental well-beings of the destinations they live in will be more willing to commit to practicing pro-environmental behaviors to protect the destination environment, whether the concern is activated by egoistic or altruistic motivations. With the enhancement of the motivations, these motivations will be transformed into commitments about protecting the destination environment. Therefore, enhancing the level of local residents' felt obligation and altruistic concern for the destination will elicit a high degree of pro-environmental commitment. Accordingly, the following hypotheses are proposed:

H6: Felt obligation toward the destination positively affects pro-environmental commitment.

H7: Altruistic concern for the destination positively affects pro-environmental commitment.

Generally, individuals attempt to be as consistent as possible in their commitments (Terrier& Marfaing, 2015). Thus, when residents commit to prioritize the environmental well-beings of the destinations, they are willing to actively engage in pro-environmental behaviors to fulfill their environmental commitments. As such, pro-environmental commitment is a key construct that may have influence on predicting pro-environmental behaviors of residents. Previous research has argued that individuals' pro-environmental commitment may lead to corresponding environmentally friendly behaviors. For instance, Terrier & Marfaing(2015) identified that the effectiveness of commitment has a positive effect on guests' pro-environmental behaviors. Rahman & Reynolds (2016) utilized the theory of environmental commitment to predict consumers' behavioral decisions for staying in green hotels. He et al. (2018) suggested that environmental commitment positively impacts tourists' environmentally responsible behaviors. In light of the above discussions, this research presents the following hypothesis:

H8: Pro-environmental commitment positively affects residents' pro-environmental behaviors.

2.3. Pro-environmental climate

Individuals are often motivated to implement pro-environmental behaviors, but these desirable behaviors may be constrained when the contextual support is lacking in a given context (Leung& Rosenthal, 2019). Therefore, contextual factors are indispensable for the research about environmentally friendly behaviors (Ertz, Karakas, & Sarigöllü, 2016; López-Mosquera, Lera-López, & Sánchez, 2015). Prior literature indicated that pro-environmental climate may serve as a kind of contextual factor when exploring individuals' environmentally friendly behaviors (Russell and

Griffiths, 2008; Ertz, Karakas, & Sarigöllü, 2016). Thus, pro-environmental climate has been taken into account in this research. In the current research, pro-environmental climate refers to the environmental protection atmosphere in the tourist destinations. Residents' pro-environmental behaviors may often be supported or praised when the pro-environmental climate of the destinations is strong. Destinations with a strong pro-environmental climate are more likely to appeal to local residents to engage in environmentally friendly activities. That is to say, pro-environmental climate may have a direct effect on residents' pro-environmental behaviors. Therefore, this research proposes the following hypothesis:

H9: Pro-environmental climate positively affects residents' pro-environmental behaviors.

Pro-environmental climate is a perceptive construct, which can allow tourist destinations to obtain desirable environmental outcomes through motivating local residents to conduct pro-environmental behaviors (Schneider& Reichers, 1983). Pro-environmental climate may influence the relationships between psychological states of individuals and their environmentally friendly behaviors. The stronger the pro-environmental climate, the more the support perceived by residents from the destination to conduct the environmentally friendly behaviors. As such, residents for the sake of protecting their own benefits or considering the interests of others may hold high level of motivations to concern about the environmental well-beings of the destinations, which in turn, the residents will be more willing to put more effort into their pro-environmental behaviors. On the contrary, when the pro-environmental climate of the destinations is weak, residents may perceive less support from the destinations which may weaken the effects of motivations on their pro-environmental behaviors and make them less likely to participate in conducting pro-environmental behaviors. To sum up, the effects of motivations on residents' pro-environmental behaviors are contingent on the level of pro-environmental climate of tourist destinations, namely, pro-environmental climate moderates the effects of motivations on residents' pro-environmental behaviors. According to the above discussions, the

following hypotheses are formulated:

H10: Pro-environmental climate positively moderates the effect of felt obligation on residents' pro-environmental behaviors.

H11: Pro-environmental climate positively moderates the effect of altruistic concern on residents' pro-environmental behaviors.

Figure 1 summarizes the research framework.

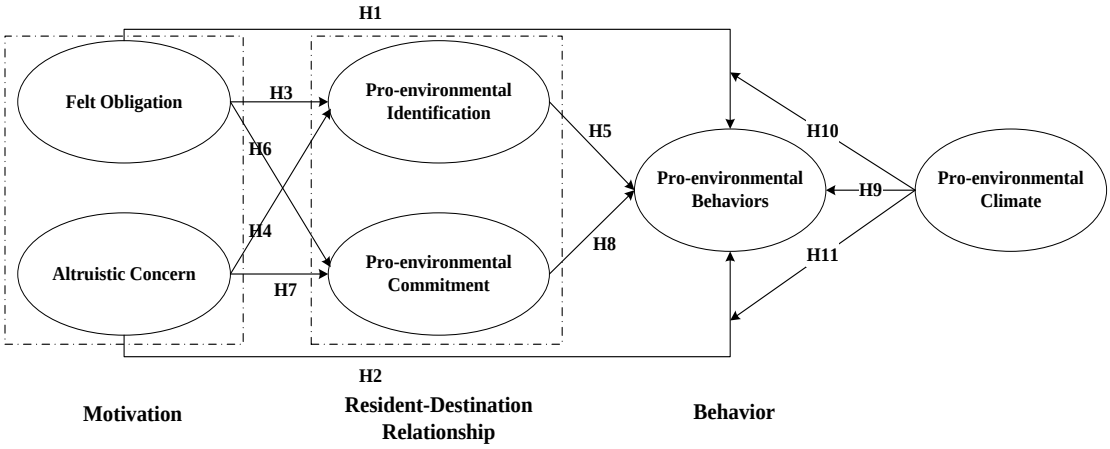

Fig.1 Research framework

3. Methodology

3.1. Measurement scale

A self-administered questionnaire survey was conducted to collect survey data. The measurement items of the hypothesized constructs in this research were developed from previous research. Some of the wordings of the item-scale were slightly modified to fit the research context. A scale of 4 items measuring felt obligation toward the destination were adapted from the studies of Kiatkawsin & Han (2017) and Zhang et al. (2014). To measure altruistic concern for the destination, 3-item scales were adapted from Albayrak, Aksoy, & Caber (2013) and Schultz (2000). Pro-environmental identification was measured by 3 items modified from Mael& Ashforth (1992) and Su, Huang, & Pearce (2019). 3 items adapted from Davis, Le, & Coy (2011) and Su, Tung, & Baird (2017) were used to measure pro-environmental

commitment. Pro-environmental behavior was measured by 4 items modified from Zhang et al. (2014) and Liu et al. (2014). To measure pro-environmental climate, a scale of 3 items was adapted from Russell & Griffiths (2008) and Zhang, Wang, & Zhou (2013).

The measurement items of pro-environmental behavior were measured on a 5-point Likert scale ranging from 1 (“Never”) to 5 (“Always”). The rest of items were also measured on a 5-point scale from 1 for “strongly disagree” to 5 for “strongly agree”. The initial version of the questionnaire was reviewed and pre-tested by four experts and four tourist destination managers. Several minor amendments were made based on their suggestions and feedback. Afterwards, a pilot survey with 50 respondents was conducted and suggestions and comments from the respondents were considered.

3.2. Data collection

Data for this research was collected from a survey of local residents lived in the Ancient Villages Xidi and Hongcun in Southern Anhui Province, China. Xidi and Hongcun are the only ancient village-style World Cultural Heritage sites in China and are famous for their cultural and natural landscapes. Closely surrounded by mountains, Xidi and Hongcun are connected to the outside via the entrances formed by breaks in the hills on both sides creating passes. The flowing water and abundant resources in the mountainous area provided natural conditions that enabled the local residents to live a peaceful and prosperous life (Huadong, 2013).

The sample frame of this research consisted of residents who lived in Xidi and Hongcun. As the investigators had no access to the household list of these villages, the systematic sampling approach was chosen. Every second household on each street in the villages were selected as samples. Four graduate students were divided into four groups to distribute questionnaires door-by-door on the streets. The investigators first asked the respondents whether they are local residents of the village and whether they are willing to participate in the survey. When the answer is yes, the investigators would give the printed questionnaires to the respondents, wait for them to fill out the

questionnaires and then recycle the questionnaires. If necessary, the investigators would also provide relevant explanations and answer the questions raised by respondents. All respondents in this research were voluntary and anonymous. The data were collected from mid-September to mid-October 2018. A total of 600 questionnaires were sent out and 593 were returned to the investigators. Among them, 566 were valid responses.

4. Data analysis and results

4.1. Sample profile and common method variance analysis

Respondents' demographic profiles were shown in Table 1. As presented in Table 1, male and female respondents accounted for 56.54% and 43.46%, respectively. Most respondents are middle-aged adults, 44.00% of respondents are in age of 31-50 years old, while 27.7% of them are in the group of more than 50 years old. In general, respondents have a low level of education, 27.8% of respondents have completed less than high school, while 62.7% of them have completed high school or technical school. More than a half of the respondents (55.7%) earn ￥5,001-￥8,000 a month.

Table 1 Profile of respondents

Demographic characteristics		Frequency	Percentage (%)
Gender	Male	320	56.54
	Female	246	43.46
Age	Less than 18	61	10.8
	18-30	99	17.5
	31-50	249	44.0
	More than 50	157	27.7
Educational level	Less than high school	157	27.8
	High school/technical school	355	62.7
	Associate/bachelor's degree	44	7.7
	Master's or higher degree	10	1.8

Monthly income	Less than ¥3,000	31	5.5
	¥3,000-¥5,000	176	31.10
	¥5,001-¥8,000	315	55.7
	¥8,001-¥10,000	37	6.5
	More than ¥10,000	7	1.2

4.2. Measurement model analysis

Confirmatory factor analysis was performed to test the measurement model. As shown in Table 2, all the fit indices of the measurement model were up to the criteria, which suggested that the measurement model is acceptable. The reliability of the construct was measured by Cronbach's Alpha values and composite reliability. Results in Table 3 stated the Cronbach's Alpha values of the constructs ranged from 0.77 to 0.89, which were all above the benchmark value of 0.70 (Fornell and Larcker, 1981). The composite reliability values of the constructs ranged from 0.87 to 0.93, which were higher than the threshold value of 0.70 (Fornell and Larcker, 1981). Thus, the reliability of each construct was well.

The validity of the construct was measured by convergent validity and discriminant validity. The convergent validity was measured by average variance extracted (AVE) and factor loadings. Results in Table 3 showed that the AVE values of the constructs were all higher than the threshold value of 0.50 and ranged from 0.64 to 0.82. The threshold value of factor loading was 0.70. As indicated in Table 3, all items shown reasonable factor loadings expect for the item of FO3 (the factor loading was 0.55). To examine the discriminant validity, square roots of AVE values and correlations of the constructs were compared. If the square roots of AVE values were higher than the correlations between any pair of constructs, the discriminant validity was satisfied (Fornell and Larcker, 1981). As shown in Table 4, the square roots of AVE values were higher than the correlation coefficients, indicating satisfactory discriminant validity. Hence, the validity of the construct was supported.

Table 2 Model fitness of the measurement model

Index	Criteria	Actual value	Judgment
χ^2/df	<3.00	2.62	Yes
GFI	>0.90	0.93	Yes
NFI	>0.90	0.94	Yes
IFI	>0.90	0.95	Yes
TLI	>0.90	0.93	Yes
CFI	>0.90	0.95	Yes
RMSEA	<0.08	0.07	Yes

Note： GFI=Goodness of fit index, NFI=Normed fit index, IFI=Incremental fit index, TFI=Tucker-Lewis index, CFI=Comparative fit index and RMSEA=root mean square error of approximation.

Table 3 Results of reliability and validity analysis

Construct	Item	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
Felt obligation	FO1	0.86	0.83	0.90	0.74
(FO)	FO2	0.84			
	FO3 (delete)	0.55			
	FO4	0.88			
Altruistic concern	AC1	0.90	0.88	0.92	0.80
(AC)	AC2	0.86			
	AC3	0.92			
Pro-environmental	EI1	0.85	0.77	0.87	0.69
identification (EI)	EI2	0.79			
	EI3	0.85			
Pro-environmental	EC1	0.89	0.81	0.89	0.72
commitment (EC)	EC2	0.83			
	EC3	0.83			
Pro-environmental	PB1	0.82	0.82	0.88	0.64

behaviors (PB)	PB2	0.85			
	PB3	0.79			
	PB4	0.75			
Pro-environmental	PC1	0.91	0.89	0.93	0.82
climate (PC)	PC2	0.92			
	PC3	0.88			

Table 4 Means, standard deviations (SD) and correlation coefficients

	Mean	S.D.	FO	AC	EI	EC	PB	PC
FO	3.60	0.87	**0.86**					
AC	3.67	0.64	0.34**	**0.89**				
EI	3.96	0.69	0.47**	0.38**	**0.83**			
EC	3.58	0.72	0.43*	0.39**	0.46**	**0.85**		
PB	3.66	0.62	0.37**	0.36*	0.39**	0.45*	**0.80**	
PC	3.82	0.67	0.37**	0.42**	0.41**	0.35**	0.48**	**0.91**

Note: (1) The bold elements are the square roots of AVE values; (2) * $p<0.05$ and ** $p<0.01$.

4.3. Structural model analysis

The fit indices of the structural model were as follows: $\chi^2/df=2.37$, GFI=0.91, NFI=0.92, IFI=0.94, TLI=0.91, CFI=0.93 and RMSEA=0.06. The results revealed that the model fits the data sufficiently. Figure 2 indicated the results of the structural model test. The effects of felt obligation on pro-environmental behaviors ($\beta=0.44$, $p<0.001$), pro-environmental identification ($\beta=0.19$, $p<0.01$), pro-environmental commitment ($\beta=0.29$, $p<0.001$) were all positive and significant, which supporting H1, H3 and H6. Meanwhile, the effects of altruistic concern on pro-environmental behaviors ($\beta=0.45$, $p<0.001$), pro-environmental identification ($\beta=0.38$, $p<0.001$), pro-environmental commitment ($\beta=0.62$, $p<0.001$) were also all positive and significant, which supporting H2, H4 and H7. Additionally, pro-environmental identification ($\beta=0.15$, $p<0.001$), pro-environmental commitment ($\beta=0.11$, $p<0.001$),

and pro-environmental climate (β=0.34, p<0.001) were all positively and significantly associated with pro-environmental behaviors, thus indicating support for H5, H8 and H9.

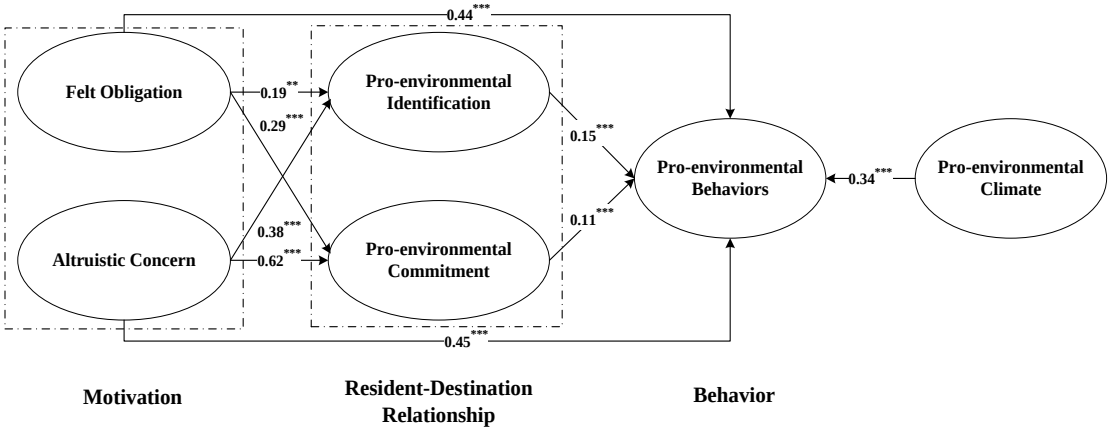

Fig. 2 Results of the structural model test

4.3. Moderating effect analysis

The moderating effects of pro-environmental climate were examined by hierarchical regression analysis. Table 5 showed the results of the moderating effects analysis. As indicated in Table 5, the R^2 values of Model 2 and Model 3 were higher than Model 1, and the R^2 values of Model 5 and Model 6 were also higher than Model 4. Furthermore, the interaction terms (FO*PC and AC*PC) were all positively and significantly associated with pro-environmental behaviors (β=0.14, p<0.001; β=0.25, p<0.001). The results described that the effects of felt obligation and altruistic concern on pro-environmental behaviors were positively and significantly moderated by pro-environmental climate. Thus, H11 and H12 were supported.

Table 5 Results of moderating effect analysis

Dependent Variable	Independent Variable				
Pro-environmental behaviors	Felt obligation (FO)	Pro-environmental climate (PC)	FO*PC	R^2	*F* value
Model 1	0.54***			0.26	413.74
Model 2	0.37***	0.35***		0.28	145.00

Model 3	0.57***	0.57***	0.14***	0.33	109.99
Pro-environmental behaviors	Altruistic concern (AC)	Pro-environmental climate (PC)	AC*PC	R^2	*F* value
Model 4	0.53***			0.29	456.81
Model 5	0.16***	0.54***		0.34	161.75
Model 6	0.34***	0.53***	0.25***	0.39	97.02

5. Discussion and implications

5.1. Discussion

This research examined the effects of motivations (i.e., felt obligation and altruistic concern) on local residents' pro-environmental behaviors, and explored how and when motivations matters to residents' pro-environmental behaviors. The results revealed that felt obligation and altruistic concern positively and directly affect residents' pro-environmental behaviors. This finding indicated that local residents' with felt obligation and altruistic concern are more likely to take actions to protect the natural environment of tourist destinations and willing to perform pro-environmental behaviors in their daily lives voluntarily.

Furthermore, felt obligation and altruistic concern also affect resident-destination relationship such as pro-environmental identification and pro-environmental commitment, which in turn affect residents' pro-environmental behaviors. That is, felt obligation and altruistic concern indirectly affect residents' pro-environmental behaviors through pro-environmental identification and pro-environmental commitment. These findings answer how motivations affect residents' pro-environmental behaviors and uncover the underlying mechanism. In addition, the results suggested that the effects of felt obligation and altruistic concern on residents' pro-environmental behaviors are depended on the level of pro-environmental climate in tourist destinations. Specifically, the positive effects of felt obligation and altruistic concern on residents' pro-environmental behaviors are heightened when the pro-environmental climate increases. Pro-environmental climate positively moderates

the effects of felt obligation and altruistic concern on residents' pro-environmental behaviors. To some extent, the research findings answer when motivations affect residents' pro-environmental behaviors and illustrate the boundary condition to the relationships between them.

5.2. Theoretical implications

This study advances the research on individuals' pro-environmental behaviors in several ways. First of all, based on the Batson's theory of motives, the present research identified the egoistic and altruistic motivations of residents' pro-environmental behaviors This is the first time to introduce this pro-social theory into the field of individuals' pro-environmental behaviors, which expands the application of Batson's theory of motives.

Second, in response to the calls for more study on the intrinsic mechanisms linking antecedent variables and individuals' environmentally friendly behaviors, this research incorporated resident-destination relationship (i.e., pro-environmental identification and pro-environmental commitment) into the research framework. Although previous studies showed that environmentally friendly behaviors can be positively driven by human-nature relationship (e.g., Davis, Le,& Coy, 2011; Coy et al., 2013;Rahman& Reynolds, 2016), very few studies have identified the effects of resident-tourist destination relationship on activating local residents to perform pro-environmental behaviors in the research field of sustainable tourism. This research proposed two relationship variables (i.e., pro-environmental identification and pro-environmental commitment) and examined their effects on residents' pro-environmental behaviors. The research findings demonstrated the salient role of resident-destination relationship in promoting local residents to perform pro-environmental behaviors.

Third, this research considered the boundary condition when examining the effects of motivations on residents' pro-environmental behaviors. The present research revealed that the effects of motivations on residents' pro-environmental behaviors are contingent on the level of pro-environmental climate in tourist destinations. This

research shed light on the importance of pro-environmental climate and illustrated its moderating effect on the relationships between motivations and residents' pro-environmental behaviors. Finally, this research also contributed to the literature on pro-environmental behaviors from the lens of local residents who lived in the tourist destinations. Though prior studies have postulated that local residents are salient stakeholder group in achieving the sustainable development of tourism (Feng& Reisner, 2011; Liu et al., 2014; Zhang et al., 2014), little research has explored local residents' pro-environmental behaviors and identified the motivations of conducting pro-environmental behaviors. The present research thus addressed this research gap.

5.3. Managerial implications

The findings of this research have several managerial implications for the tourist destination management and policy making. The results indicated that felt obligation and altruistic concern motivate local residents to conduct pro-environmental behaviors. Therefore, egoistic and altruistic motivations of residents should be heightened by tourist destination managers. They should develop strategies and take measures to transform the general individuals into the environmentally responsible individuals who hold high level of motivations to care about the tourist destination environment, such as providing access for destination-based environmental learning, initiating environmental public education, and enhancing natural experience. Additionally, the communities should also publicize that the better tourist destination environment not only beneficial to the future generations but also can bring immediate economic benefits to improve residents' egoistic and altruistic motivations.

The results indicated that resident-destination relationship positively and significantly affect residents' pro-environmental behaviors. Thus, the tourist destination managers should take several proactive measures to enhance residents' identification and commitment with the destination environment. They can launch local environmental awareness activities and campaigns to enhance residents' connection and appreciation of the destination. Besides, some resident education programs also can be launched by the destination communities to increase residents'

commitment to the destination environment. Meanwhile, the role of resident-destination relationship should also be considered in the process of policy making. If the policies want to get approval and public support, they must be compatible with the economic wealth and environmental well being of the destination.

The findings that pro-environmental climate not only directly affects residents' pro-environmental behaviors but also positively moderates the effects of motivations on residents' pro-environmental behaviors also provide practical implications. Specifically, the results presented that local residents who perceive a strong pro-environmental climate and perceive the destination communities to be active and genuine in protecting the environment are more inclined to conduct pro-environmental behaviors. In order to create a strong pro-environmental climate, the destination communities should provide chances for residents to join in local tourism planning and decision-making, and enriching residents' beliefs that the communities has taken active and genuine measures and strategies to protect the natural environment of tourist destinations. Additionally, the destination communities should try their best to disclose the information about the effectiveness of environmental governance and the progress of environmentally friendly activities regularly.

6. Conclusions and limitations

Considering the important role played by local residents in the sustainable development of tourism, this research explored and identified the antecedents of residents' pro-environmental behaviors. Based on the theory of motives, this research examined the effects of motivations, namely, felt obligation and altruistic concern motivations on local residents' pro-environmental behaviors. The results suggested that felt obligation and altruistic concern motivations have direct and significant positive effects on residents' pro-environmental behaviors. Meanwhile, this research explored the underlying mechanisms through which motivations affect pro-environmental behaviors. In doing so, this research provided an explanation as to how motivations affect residents' pro-environmental behaviors. The results revealed

that motivations indirectly affect residents' pro-environmental behaviors via resident-destination relationship (e.g., pro-environmental identification and pro-environmental commitment). In addition, this research also explored when motivations affect residents' pro-environmental behaviors and illustrated the boundary condition to the relationships between them. The results demonstrated that the effects of motivations on residents' pro-environmental behaviors are contingent on the level of pro-environmental climate in tourist destinations. This research enriches the pro-environmental behavior and sustainable tourism literatures by providing a profound understanding of how and when motivations affect local residents' pro-environmental behaviors and uncovering the underlying mechanism and the boundary condition to the effects.

This research has several limitations which provide chances for the future research. Firstly, the survey collected convenience samples of local residents from a village tourist destination in China. Therefore, the generalizability may be limited. Future research should consider more scientific sampling methods to address the issue of generalizability. Besides, more ethnically and geographically diverse populations should also be considered in the future studies. Secondly, a self-reported questionnaire of residents' pro-environmental behaviors was used in the survey to collect the data. Because of the social desirability of being pro-environmental, residents' pro-environmental behaviors may be overestimated in their responses, which may not accurately reflect the actual behaviors. More reliable and valid measurement methods to measure the pro-environmental behaviors should be explored in the future research. Thirdly, the survey data of this research is cross-sectional data collected in a short period of time. Future research should consider collecting longitudinal data from different periods. Finally, the different life cycle stages of tourist destination may have important influences on the research findings. The survey site of this research is in its mature development stage. Future research should consider different development stages of destinations.

References

Basit, A. A. (2017). Trust in supervisor and job engagement: mediating effects of psychological safety and felt obligation. The Journal of Psychology, 151(8), 701-721.

Batson, C. D. (2011). Altruism in humans: Oxford University Press.

Batson, C. D., Batson, J. G., Slingsby, J. K., Harrell, K. L., Peekna, H. M., & Todd, R. M. (1991). Empathic joy and the empathy-altruism hypothesis. Journal of personality and Social Psychology, 61(3), 413.

Batson, C. D., & Powell, A. A. (2003). Altruism and pro-social behavior. Handbook of psychology, 463-484.

Cantor, D. E., Morrow, P. C., & Montabon, F. (2012). Engagement in environmental behaviors among supply chain management employees: An organizational support theoretical perspective. Journal of Supply Chain Management, 48(3), 33-51.

Cheng, T. M., & Wu, H. C. (2015). How do environmental knowledge, environmental sensitivity, and place attachment affect environmentally responsible behavior? An integrated approach for sustainable island tourism. Journal of Sustainable Tourism, 23(4), 557-576.

Coy, A. E., Farrell, A. K., Gilson, K. P., Davis, J. L., & Le, B. (2013). Commitment to the environment and student support for “green” campus initiatives. Journal of Environmental Studies and Sciences, 3(1), 49-55.

Davis, A. C., & Stroink, M. L. (2016). Within-culture differences in self-construal, environmental concern, and proenvironmental behavior. Ecopsychology, 8(1), 64-73.

Davis, J. L., Le, B., & Coy, A. E. (2011). Building a model of commitment to the natural environment to predict ecological behavior and willingness to sacrifice. Journal of Environmental Psychology, 31(3), 257-265.

De Groot, J. I., & Steg, L. (2009). Morality and prosocial behavior: The role of awareness, responsibility, and norms in the norm activation model. The Journal of Social Psychology, 149(4), 425-449.

Einhorn, H. J., & Hogarth, R. M. (1981). Behavioral decision theory: Processes of judgement and choice. Annual Review of Psychology, 32(1), 53-88.

Ertz, M., Karakas, F., & Sarigöllü, E. (2016). Exploring pro-environmental behaviors of consumers: An analysis of contextual factors, attitude, and behaviors. Journal of Business Research, 69(10), 3971-3980.

Feng, W., & Reisner, A. (2011). Factors influencing private and public environmental protection behaviors: results from a survey of residents in Shaanxi, China. Journal of Environmental Management, 92(3), 429-436.

Fornell, C., Larcker D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research 18, 39-50.

Hall, C. M. (2019). Constructing sustainable tourism development: The 2030 agenda and the managerial ecology of sustainable tourism. Journal of Sustainable Tourism, 1-17.

Han, H., & Hyun, S. S. (2018). College youth travelers' eco-purchase behavior and recycling activity while traveling: an examination of gender difference. Journal of Travel & Tourism Marketing, 35(6), 740-754.

Han, J. H., Nelson, C. M., & Kim, C. (2015). Pro-environmental behavior in sport event tourism: roles of event attendees and destinations. Tourism Geographies, 17(5), 719-737.

Hansla, A. (2011). Value orientation and framing as determinants of stated willingness to pay for eco-labeled electricity. Energy Efficiency, 4(2), 185-192.

He, X., Hu, D., Swanson, S. R., Su, L., & Chen, X. (2018). Destination perceptions, relationship quality, and tourist environmentally responsible behavior. Tourism Management Perspectives, 28, 93-104.

Huadong, G. (2013). Ancient Villages in Southern Anhui—Xidi and Hongcun. In

Atlas of Remote Sensing for World Heritage: China (pp. 106-111). Springer, Berlin, Heidelberg.

Huang, Y. C., & Liu, C. H. S. (2017). Moderating and mediating roles of environmental concern and ecotourism experience for revisit intention. International Journal of Contemporary Hospitality Management, 29(7), 1854-1872.

Kiatkawsin, K., & Han, H. (2017). Young travelers' intention to behave pro-environmentally: Merging the value-belief-norm theory and the expectancy theory. Tourism Management, 59, 76-88.

Koo, D. M. (2000). The Effects of Personality Variables and Values on Pro-environmental Product Purchase and Recyding Behaviors. Journal of Global Academy of Marketing Science, 5(1), 171-204.

Lemmon, G., & Wayne, S. J. (2015). Underlying motives of organizational citizenship behavior: Comparing egoistic and altruistic motivations. Journal of Leadership & Organizational Studies, 22(2), 129-148.

Leung, Y., & Rosenthal, S. (2019). Explicating Perceived Sustainability-Related Climate: A Situational Motivator of Pro-Environmental Behavior. Sustainability, 11(1), 231.

Liu, J., Qu, H., Huang, D., Chen, G., Yue, X., Zhao, X., & Liang, Z. (2014). The role of social capital in encouraging residents' pro-environmental behaviors in community-based ecotourism. Tourism Management, 41, 190-201.

Liu, Y., Liu, R., & Jiang, X. (2019). What drives low-carbon consumption behavior of Chinese college students? The regulation of situational factors. Natural Hazards, 95(1-2), 173-191.

López-Mosquera, N., & Sánchez, M. (2012). Theory of planned behavior and the value-belief-norm theory explaining willingness to pay for a suburban park. Journal of Environmental Management, 113, 251-262.

López-Mosquera, N., Lera-López, F., & Sánchez, M. (2015). Key factors to explain recycling, car use and environmentally responsible purchase behaviors: a comparative perspective. Resources, Conservation and Recycling, 99, 29-39.

Nunkoo, R., & So, K. K. F. (2016). Residents' support for tourism: Testing alternative structural models. Journal of Travel Research, 55(7), 847-861.

Oh, C. O. (2005). The contribution of tourism development to economic growth in the Korean economy. Tourism Management, 26(1), 39-44.

Park, E., Lee, S., Lee, C. K., Kim, J. S., & Kim, N. J. (2018). An integrated model of travelers' pro-environmental decision-making process: The role of the New Environmental Paradigm. Asia Pacific Journal of Tourism Research, 23(10), 935-948.

Ribeiro, M. A., Woosnam, K. M., Pinto, P., & Silva, J. A. (2018). Tourists' destination loyalty through emotional solidarity with residents: An integrative moderated mediation model. Journal of Travel Research, 57(3), 279-295.

Rahman, I., & Reynolds, D. (2016). Predicting green hotel behavioral intentions using a theory of environmental commitment and sacrifice for the environment. International Journal of Hospitality Management, 52, 107-116.

Russell, S., & Griffiths, A. (2008). Chapter 4 The role of emotions in driving workplace pro-environmental behaviors. In Emotions, ethics and decision-making (pp. 83-107). Emerald Group Publishing Limited.

Schneider, B., & Reichers, A. E. (1983). On the etiology of climates. Personnel psychology, 36(1), 19-39.

Steg, L., De Groot, J. I., Dreijerink, L., Abrahamse, W., & Siero, F. (2011). General antecedents of personal norms, policy acceptability, and intentions: the role of values, worldviews, and environmental concern. Society and Natural Resources, 24(4), 349-367.

Story, P. A., & Forsyth, D. R. (2008). Watershed conservation and preservation: Environmental engagement as helping behavior. Journal of Environmental Psychology, 28(4), 305-317.

Su, L., Huang, S., & Pearce, J. (2019). Toward a model of destination resident–environment relationship: the case of Gulangyu, China. Journal of Travel & Tourism Marketing, 36(4), 469-483.

Su, L., & Swanson, S. R. (2017). The effect of destination social responsibility on

tourist environmentally responsible behavior: Compared analysis of first-time and repeat tourists. Tourism Management, 60, 308-321.

Su, L., Swanson, S. R., & Chen, X. (2018). Reputation, subjective well-being, and environmental responsibility: the role of satisfaction and identification. Journal of Sustainable Tourism, 26(8), 1344-1361.

Terrier, L., & Marfaing, B. (2015). Using social norms and commitment to promote pro-environmental behavior among hotel guests. Journal of environmental psychology, 44, 10-15.

Te Velde, V. L. (2018). Beliefs-based altruism as an alternative explanation for social signaling behaviors. Journal of Economic Behavior & Organization, 152, 177-191.

Tian, Q., & Robertson, J. L. (2019). How and when does perceived CSR affect employees' engagement in voluntary pro-environmental behavior?. Journal of Business Ethics, 155(2), 399-412.

Tonge, J., Ryan, M. M., Moore, S. A., & Beckley, L. E. (2015). The effect of place attachment on pro-environment behavioral intentions of visitors to coastal natural area tourist destinations. Journal of Travel Research, 54(6), 730-743.

Twigg, N. W., Fuller, J. B., & Hester, K. (2008). Transformational leadership in labor organizations: The effects on union citizenship behaviors. Journal of Labor Research, 29(1), 27-41.

Unanue, W., Vignoles, V. L., Dittmar, H., & Vansteenkiste, M. (2016). Life goals predict environmental behavior: Cross-cultural and longitudinal evidence. Journal of Environmental Psychology, 46, 10-22.

Van Knippenberg, D., & Sleebos, E. (2006). Organizational identification versus organizational commitment: Self-definition, social exchange, and job attitudes. Journal of Organizational Behavior, 27(5).

Wu, C. H., Liu, J., Kwan, H. K., & Lee, C. (2016). Why and when workplace ostracism inhibits organizational citizenship behaviors: An organizational identification perspective. Journal of Applied Psychology, 101(3), 362.

Yu, T. K., Lin, F. Y., Kao, K. Y., & Yu, T. Y. (2019). Encouraging Environmental

Commitment to Sustainability: An Empirical Study of Environmental Connectedness Theory to Undergraduate Students. Sustainability, 11(2), 342.

Zhang, Y., Zhang, H. L., Zhang, J., & Cheng, S. (2014). Predicting residents' pro-environmental behaviors at tourist sites: The role of awareness of disaster's consequences, values, and place attachment. Journal of Environmental Psychology, 40, 131-146.

Zhu, Y., & Akhtar, S. (2017). Leader trait learning goal orientation and employee voice behavior: the mediating role of managerial openness and the moderating role of felt obligation. The International Journal of Human Resource Management, 1-25.