

National park visitors' car-use intention: A norm-neutralization model

Abstract: Reducing private car use is an efficient way to promote the sustainable development of national parks. However, many visitors persist in using their cars, even when they are aware of the environmental damage it causes. This study proposed a norm-neutralization model to investigate why national park visitors persist in car-based trips by partially integrating the theory of planned behavior, the norm-activation model, and neutralization theory. The results indicated that neutralization techniques can effectively reduce the effects of social norms and attitudes on car-based trip intention in a conflicting-norm context. The strongest predictors of behavior intention were attitudes toward the behavior while neutralization techniques were the second strongest. The effect of pro-driving norms showed a significant reduction when neutralization techniques were added, but pro-environmental norms did not have a significant effect on behavior intention. Practical and theoretical implications, as well as directions for future research, are discussed.

Keywords: norm-neutralization model; pro-driving norms; pro-environmental norms; neutralization techniques; car-based trip; national parks

1. Introduction

Increased disposable income has boosted the growth of private car ownership and car-based trips in developing countries. By March 2017, the number of private cars in China had risen to over 150 million (China Transport Administration of Public Security Ministry, 2017). The car is becoming the main travel mode among Chinese for short-haul holiday trips. According to a report by the China Tourism Academy, there were 32.13 million car-based tourists during the eight-day super holiday for the 2017 National Day and Mid-Autumn Festival (China Tourism Academy, 2017). Private cars provide many benefits for travelers, including benefits that are functional (e.g., convenient), psychological (e.g., pleasurable), and social (e.g., self-image boosting) (Ellaway, Macintyre, Hiscock, & Kearns, 2003; Uba & Chatzidakis, 2016), thus promoting the formation of pro-driving norms.

However, private car use is also a major contributor to overall carbon emissions from the transport sector (Klockner & Friedrichsmeier, 2011). Transportation dominates the energy bills of domestic and international tourists, accounting for 65–73% of total energy use (Becken, Simmons, & Frampton, 2003; Filimonau, Dickinson, & Robbins, 2014; Lin, 2010; Martín-Cejas, 2015). Aside from carbon emissions and energy use, car-based trips create many other environmental problems, especially in natural areas, such as negative effects on wild animals and plants, noise, and crowding (Gao, Huang, & Zhang, 2016; Wolf & Croft, 2010; Beunen, Regnerus, & Jaarsma, 2008). During each Golden Week in China, it is common for the large number of private cars to cause traffic jams and pollution on highways and in tourism areas. Such consequences have aroused public environmental awareness. Rapidly developing high-speed railways are providing alternatives for short- and medium-length travel. In tourism areas, tourists can choose more sustainable travel modes, such as public buses, shared bicycles, and electric vehicles (Nakamura & Abe, 2016). Nevertheless, it remains difficult to change or reduce car use among tourists (Davies & Weston, 2015).

45 The decision to use a car depends on various factors. Existing research has explored car-use behavior in daily
46 life, revealing a complex range of reasons, including those that are instrumental or utilitarian, psychosocial, affective,
47 or situational (Bamberg, Fujii, Friman, & Garling, 2011; Mackett, 2003; Uba & Chatzidakis, 2016). Worldwide, the
48 private car is the major travel and recreational mode for national park visitors (Connell & Page, 2008). While some
49 studies have investigated the ecological implications of bus transit services provided by national parks (Mace,
50 Marquit, & Bates, 2013; Monz, D'Antonio, Lawson, Barber, & Newman, 2016), few studies have examined why
51 national park visitors persist in using cars. Therefore, the present study aimed to develop a norm-neutralization
52 model to address that question and show the relative importance of different determinants or antecedents. This
53 model partially integrates the theory of planned behavior (TPB), the norm-activation model (NAM), and
54 neutralization theory. It proposes that social norms (including pro-driving and pro-environmental norms) are
55 determinants of car-based-trip intention. Here, pro-driving norms are impetus factors while pro-environmental
56 norms are hindering factors. Positive attitudes toward car-based trips are important contributors to car-use
57 intention. The perceived benefits of car use promote the formation of pro-driving norms and positive attitudes
58 toward car-based trips. Meanwhile, the perceived negative effects of car use activate pro-environmental norms
59 and inhibit positive attitudes toward car-based trips. Various neutralization techniques (e.g., denial of responsibility)
60 are used to reduce the cognitive dissonance caused by different kinds of norms and justify car-use behaviors. For
61 this study, this model was tested using a pilot national park in China.

62 It should be noted that the model does not include perceived behavioral control and ascription of
63 responsibility, as in TPB and NAM. There are two reasons for this. First, this study aimed to propose a norm-
64 neutralization model that emphasizes the effects of two conflicting norms and neutralization techniques on
65 behavior intention; it did not seek to test a fully integrated TPB and NAM model. Second, this study viewed the
66 perceived benefits and perceived negative influences of car use as two opposite effects that promote or activate
67 pro-driving norms and pro-environmental norms, respectively. Prior research has also suggested a parallel model
68 for NAM that assumes that awareness of consequences has a direct effect on personal norms (Harland, Staats,
69 Wilke, 2007; Zhang, Geng, & Sun, 2017). Accordingly, the present study assumed that the perceived negative
70 influences of car use had a direct effect on pro-environmental norms.

71 This study makes several contributions to the existing literature on car use and pro-environmental behavior.
72 First, in the field of tourism and national park research, this study is the first attempt to focus on a conflicting-norm
73 context by integrating pro-driving and pro-environmental norms into one model. Prior pro-environmental behavior
74 models have viewed social norms as important antecedents of behavior intentions; both subjective norms and
75 personal norms are pro-environmental norms in nature. In some contexts, however, tourists likely face conflicting
76 norms simultaneously, as with pro-driving norms. Therefore, this study extends previous research from focusing on
77 only a single type of norm (e.g., pro-environmental norms) to focusing on pro-environmental norms as well as other
78 conflicting norms, such as pro-driving norms. This logic can be extended to other contexts beyond car use. Second,
79 this is the first attempt to integrate neutralization theory into a pro-environmental behavior model, which is helpful
80 for explaining how tourists justify their norm-violating behaviors. This study compared a model that included
81 neutralization techniques with one that did not include neutralization techniques; in this way, the role of
82 neutralization techniques was demonstrated. Third, this study explored the role of the perceived personal benefits
83 and perceived environmental costs of car-based trips in the formation of pro-driving norms, pro-environmental
84 norms, and attitudes toward behaviors; this is helpful for understanding the formation processes of norms and
85 attitudes. Lastly, based on prior qualitative and quantitative research in other fields, this study developed a
86 perceived benefit scale, pro-driving scale, and neutralization techniques scale that can be used in future pro-
87 environmental behavior research.

88 2. Theoretical foundation and hypotheses

89 2.1 Social norms and pro-environmental behavior

90 The social norm is an important concept that originated in sociology. Over time, it has been used to explain a
91 wide range of behaviors, including pro-environmental behavior and travel behavior (Donald, Cooper, & Conchie,
92 2014; Riggs, 2017). Most studies distinguish descriptive norms from injunctive norms (Farrow, Grolleau, & Ibanez,
93 2017). Descriptive norms refer to perceptions of “normal” behavior, or what most people do, whereas injunctive
94 norms refer to what most people approve or disapprove of doing (i.e., pre- or proscriptive norms). Thøgersen (2006)
95 proposed a norm taxonomy according to the level of norm internalization, including descriptive norms, subjective
96 social norms, introjected norms, and integrated norms. The latter three norms are assigned to injunctive norms.
97 Subjective social norms describe what other people think a person should do. This category of norm is included in
98 the TPB (Ajzen, 1991). As internalization levels increase, social norms manifest as personal norms, including
99 introjected and integrated personal norms. An integrated personal norm is one that is deeply internalized in an
100 individual’s values and beliefs whereas an introjected norm is superficially internalized. Conforming to or violating
101 introjected norms will cause self-imposed feelings of pride or guilt. Personal norms have been included in the NAM
102 (Schwartz, 1977) and the value-belief-norm theory (VBN, Stern, 2000).

103 TPB, NAM, and VBN have been widely used to explain a variety of pro-environmental behaviors in tourism
104 and hospitality studies. In those models, norms and attitudes are two important antecedents of pro-environmental
105 behavior. Subjective norms and personal norms are often included simultaneously in many integrated models. The
106 former is operationalized as perceptions of the influence of important others—namely, whether important others
107 think one should perform a particular behavior (e.g., stay at a green hotel when traveling) or a general pro-
108 environmental behavior (Goh, Ritchie, & Wang, 2017; Han, 2015). The latter is operationalized as a sense of
109 obligation to perform pro-environmental actions (e.g., select an eco-friendly restaurant) (Gao et al., 2016; Kim,
110 Njite, & Hancera, 2013; Kiatkawsin & Han, 2017). While these two kinds of norms have been shown to have
111 significant effects on pro-environmental behaviors, their direct-effect sizes are different (Table 1). A number of
112 studies by Han and his colleagues have shown that personal norms have a stronger effect on pro-environmental
113 behaviors than subjective norms (Han, 2014, 2015; Han, Jae, & Hwang, 2016; Kiatkawsin & Han, 2017). Those
114 findings corroborate an earlier study on the use of public transportation (Bamberg, Hunecke, & Blobaum, 2007).
115 However, researchers have argued that subjective norms contribute to the formation of personal norms and have
116 indirect effects on pro-environmental behaviors through personal norms and attitudes (Bamberg et al., 2007; Han,
117 2015; Han, Jae, & Hwang, 2016; Kim, Ham, Yang, & Choi, 2013).

118

119

120

121

122

123

124

125

126

127

128

129

130

131

132

133

Table 1. The influence of norms and attitudes on PEB in tourism and hospitality studies (direct effect)

Author(s)	SN→PEB	PN→PEB	AT→PEB	PEB	Other variables
Kim & Han (2010)	$\beta=0.09^*$		$\beta=0.46^{**}$	Pay conventional hotel prices	Other variables in TPB, environmental concerns, perceived customer effectiveness, environmentally conscious behaviors
Kim, Njite, & Hancera (2013)	$\beta=0.43^{**}$		$\beta=0.29^{**}$	Select an eco-friendly restaurant	Other variables in TPB, anticipated regret
Kim, Han, Yang, & Choi (2013)	$\beta=0.06$		$\beta=0.83^{***}$	Nutritional labeling use	Other variables in TPB
Chen & Tung (2014)	$\beta=0.34^{***}$	$\beta=0.13^{**}$	$\beta=0.32^{***}$	Visit green hotels	Environmental concern, perceived behavioral control
Han (2014)	$\beta=0.24^{***}$	$\beta=0.59^{***}$	$\beta=0.17^{**}$	Environmentally responsible convention attendance	Other variables in VAM, attitude, anticipated feeling of pride and guilt
Han (2015)	$\beta=0.20^{**}$	$\beta=0.36^{**}$	$\beta=0.28^{**}$	Stay at a green hotel	Other variables in TPB and VBN
Han & Hwang (2015)		$\beta=0.60^{**}$		Attend an environmentally responsible convention	Cognitive loyalty, affective loyalty, action loyalty, social norm
Han, Hwang, Kim & Jung (2015)		$\beta=0.34^{**}$	$\beta=0.13^*$	Revisit an environmentally responsible hotel	Other variables in VAM, past behavior, green activity, subjective norm, positive anticipated emotion, negative anticipated emotion
Han, Jae, & Hwang (2016)		$\beta=0.55^{**}$		Environmentally responsible cruise	Other variables in TPB, VAM, and goal-directed behavior model
Untaru et al. (2016)	$\beta=0.13^{**}$		$\beta=0.81^{**}$	Conserve water in a lodging context	Environmental concern, water conservation activities in everyday life
Goh, Ritchie, & Wang (2017)	$\beta=0.21^{**}$		$\beta=0.18^{**}$	Venturing off-trail behavior	Other variables in TPB, environmental value
Kiatkawsin & Han (2017)		$\beta=0.58^{**}$		Behave pro-environmentally while traveling	Other variables in VBN and the expectancy theory

134

Note: SN = subjective norm, PN = personal norm, AT = attitude, PEB = pro-environmental behavior; **p<0.01,

135

***p<0.001.

136

137

2.2 Pro-driving norms, pro-environmental norms, and attitudes

138

In addition to Thøgersen's (2006) taxonomic approach from an internalization perspective, different norms exist in different life domains or subculture groups. Sometimes, these norms are opposing or conflicting. For example, pro-driving and pro-environmental norms are two distinct and opposing sets of normative expectations that may influence car usage. In a study of university students' commuting behaviors, Uba and Chatzidakis (2016) suggested that pro-driving norms applied only to driving traditional cars, not sustainable cars (e.g., electronic cars). They argued that pro-driving norms were more prevalent among young adults as they came of age. In this context, car use is viewed as a symbolic tool for managing self-impressions, socialization, and identity building. Under the pressure of pro-driving norms, students may persist in car-use behavior, even if they are aware of the environmental

144

145

146 damage caused by cars. Moreover, in developing countries, private car ownership is viewed as a symbol of status
147 and prestige. In that context, car-based trips have been encouraged and advocated by most tourism destinations,
148 local governments, and related industries. In China, the private car seems to have become the preferred travel
149 mode for tourists. Aside from social benefits, such as status and prestige, psychological (e.g., the pleasure of driving)
150 and utilitarian (e.g., convenience) benefits also facilitate the formation of pro-driving norms for Chinese tourists.
151 To our knowledge, no previous study has provided an explicit definition of pro-driving norms or developed a scale
152 to measure them. Following Thøgersen's (2006) taxonomy, this study views pro-driving norms as descriptive norms
153 and defines them as one's perception that most other tourists choose private cars as their travel mode. Thus, the
154 following hypotheses are proposed:

155 H1: The perceived benefits of car-based trips significantly facilitate the formation of pro-driving norms.

156 H2: Pro-driving norms have a significant and positive influence on the intention to take car-based trips.

157 The serious environmental consequences of human activity have aroused a general awareness of the need
158 for environment protection. Many studies have explored ways to change individual behaviors or facilitate pro-
159 environmental behaviors, including those related to car use. According to norm-activation theory, personal norms
160 are the direct determinants of pro-social behaviors (including pro-environmental behaviors). Awareness of the
161 negative consequences (AC) of performing a particular behavior and the ascription of responsibility (AR) for those
162 consequences activate personal norms (Schwartz, 1977). Schwartz and Howard (1981) defined personal norms as
163 "moral obligations to perform or refrain from specific actions" (p. 191). Therefore, a personal norm in NAM is a
164 kind of internalized injunction norm. In the context of pro-environmental behavior, personal norms refer to pro-
165 environmental personal norms. Alternative terms are sometimes used, including "responsibility feeling,"
166 "perception of responsibility," and "responsibility" (Kaiser & Shimoda, 1999; De Groot & Steg, 2009; Gao et al.,
167 2016). Gao et al. (2016) used the term "perception of responsibility" instead of personal norms, arguing that
168 perception of responsibility can be a variable of personal norms. In addition, they operationalized responsibility as
169 collective, rather than individual, which might be better suited to the Chinese tourism context.

170 Pro-environmental norms can assume three forms: subjective norms, personal norms (or moral norms), and
171 descriptive norms. Donald et al. (2014) examined the influence of these three norms on transport modes used by
172 commuters. They found that subjective norms influenced both car and public transport use behaviors indirectly
173 through intention and habit. However, the effects of moral norms and descriptive norms were mixed. Specifically,
174 they had no significant effects on car-use intention; only moral norms had a positive effect on public transport use
175 intention. Other studies have likewise obtained mixed results. Harland, Staats, and Wilke (1999) found that moral
176 norms were important factors for explaining using means of transportation other than cars, but Bamberg and
177 Schmidt (2003) did not find moral norms to be very important for students' car use. Similarly, the explanatory
178 power of subjective norms has also been mixed in related empirical studies (Armitage & Conner, 2001; Kim, Ham,
179 Yang & Choi, 2013). Thus, several studies have used descriptive norms as alternative measurements of social
180 pressure, examining the effects of descriptive norms on car-use behaviors. However, those results were mixed as
181 well (Gardner & Abraham, 2010; Ravis & Sheeran, 2003; Donald et al., 2014). Aside from pro-environmental norms,
182 the present study argues that descriptive measurements can also be used for pro-driving norms. The mixed results
183 regarding different types of norms are mainly found in the context of using cars for commuting. Few studies have
184 integrated personal moral norms and descriptive norms into a model. Even fewer have merged two conflicting
185 norms (i.e., pro-driving and pro-environmental norms) into a model concerning tourists' travel mode choices. Thus,
186 the following hypotheses are proposed:

187 H3: Awareness of the negative consequences of using a car has a positive effect on pro-environmental
188 personal norm activation.

189 H4: Pro-environmental personal norms have a negative effect on the intention to take car-based trips.

190 According to TPB and the expectancy-value model of attitudes (Fishbein & Ajzen, 1975), attitudes develop
191 from beliefs individuals hold about the objects of attitudes. Beliefs are related to the attributes or characteristics
192 of the object, such as cost, comfort, and convenience. In the case of car-use behavior, these beliefs link the behavior
193 to certain consequences (e.g., a car-based trip is convenient). If individuals believe a behavior can produce desirable
194 consequences, favorable attitudes will form, and vice versa. Therefore, TPB emphasizes benefit and cost. When
195 individuals face different behavior choices, they select the one with the most positive behavioral consequences.
196 Bamberg and Schmidt (2003) explained university students' car-use behaviors using TPB, NAM, and the theory of
197 interpersonal behavior (TIB) (Triandis, 1977, 1980). They found that behavior belief is a strong antecedent of
198 attitudes toward behavior. Kim, E. et al. (2013) also supported this relationship. In the present study, the perceived
199 benefits and perceived negative consequences of car-based trips were viewed as the positive and negative beliefs
200 that may influence tourists' attitudes toward car use. The following hypotheses are proposed:

201 H5: The perceived benefits of car-based trips have a significant and positive influence on attitudes toward
202 car-based trips.

203 H6: Awareness of the negative consequences of car use has a negative effect on attitudes toward car-based
204 trips.

205 There is a lack of consensus on the predictive power of different components in TPB. Kim, Y. et al. (2013)
206 found that subjective norms were the strongest predictive variables of ecological behavior intentions, compared to
207 attitudes toward the behavior, perceived behavioral control, and anticipated regret. However, a meta-analysis by
208 Armitage and Conner (2001) found that subjective norms were the weakest factors for behavior intention in TPB.
209 As robust predictive variables of human behavior, attitudes toward behavior have been widely used to explain pro-
210 environmental behavior. In some studies, however, attitudes had less predictive power than subjective norms (Kim,
211 Y. et al., 2013; Han, 2014) (see Table 1). The present study tested the role of attitudes in explaining the intention to
212 take car-based trips in a conflicting-norm context. The following hypothesis is proposed:

213 H7: Tourist attitudes toward car-based trips have a significant and positive effect on their intention to take
214 car-based trips.

215 *2.3 Neutralization theory*

216 Neutralization theory, proposed by Sykes and Matza (1957), is an influential theory in the criminology and
217 sociology of deviance for explaining norm-violating behaviors (Copes & Williams, 2007). When individuals violate
218 social norms, they may use neutralization techniques to justify their behavior and maintain a positive self-image or
219 sense of self. Neutralization theory has been introduced into various other areas, such as norm-violating behaviors
220 among employees, the practice of dangerous sports, consumer misbehavior, and pro-environmental behavior
221 (Cheng, Li, Zhai, & Smyth, 2014; Uba & Chatzidakis, 2016). For example, Uba and Chatzidakis (2016) demonstrated
222 the neutralization and affirmation techniques that university students employed to negotiate the cognitive
223 dissonance of opposing or conflicting norms in the car-use context. Cheng et al. (2014) defined neutralization
224 techniques as "rationalizations which individuals invoke to convince themselves, and others, that their deviant
225 behaviors are justifiable and/or excusable" (p. 221). Previous research has demonstrated the five neutralization
226 techniques proposed by Sykes and Matza (1957) in different contexts. These five techniques are: denial of
227 responsibility, denial of injury, denial of victim, condemnation of condemners, and appeal to higher loyalties. Uba
228 and Chatzidakis (2016) extended the range of neutralization techniques by adding five additional techniques: claim
229 of normalcy, defense of necessity, claim of relative acceptability, claim of entitlement, and the change-locus-of-
230 control argument.

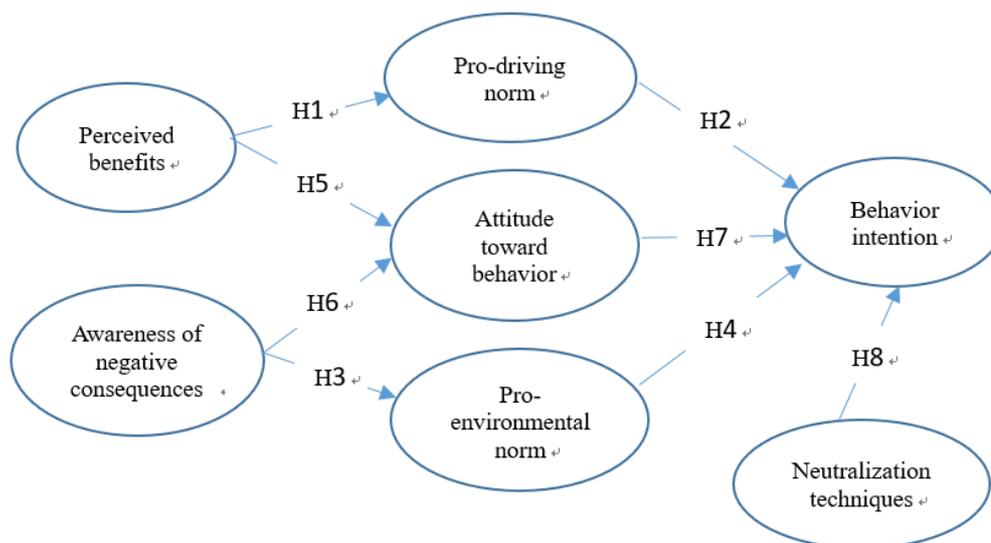
231

232 In the car-based trip context, tourists may face the social-pressure dilemma of conforming to pro-driving and
 233 pro-environmental norms simultaneously. These two types of norms drive two opposing behaviors—namely,
 234 persist in or desist from car use—leading to a behavioral dilemma. Here, neutralization techniques likely become
 235 important strategies for reducing cognitive dissonance and feelings of guilt among tourists who persist in car use.
 236 Based on Uba and Chatzidakis (2016) and Cheng et al. (2014), the present study proposes seven techniques that
 237 car-based tourists may use to justify their persistence in car use: denial of responsibility, denial of injury, denial of
 238 victim, condemnation of condemners, appeal to higher loyalties, claims of normalcy, and the change-locus-of-
 239 control argument. Denial of responsibility entails tourists persisting in car use by placing the blame on an alternative
 240 source or circumstance beyond their control, such as lack of public transportation (Siponen & Vance, 2010; Uba
 241 and Chatzidakis, 2016). Denial of injury involves justifying car use by claiming that the environmental damage
 242 caused by car-based trips is insignificant, minimal, or even harmless (Cheng et al., 2014; Uba & Chatzidakis, 2016).
 243 Denial of victim claims that the victim (e.g., tourism destination) deserves whatever happens as a consequence of
 244 developing car-based tourism. Condemnation of condemners occurs when tourists persisting in car use criticize
 245 those who condemn them in an effort to shift the blame. Appeal to higher loyalties seeks to justify car-use behavior
 246 as being for the greater good or for more important benefits. Claims of normalcy justify taking car-based trips as a
 247 lifestyle choice, arguing that the car is the main travel mode for most tourists. The change-locus-of-control
 248 argument claims that a single individual's desistance from taking car-based trips does not make a difference (Uba
 249 & Chatzidakis, 2016). Following Cheng et al. (2014), this study conceptualized neutralization techniques as a
 250 formative second-order construct with reflective first-order subconstructs (i.e., seven dimensions). Car-based
 251 tourists who employ these techniques to rationalize their car-use behavior may strengthen the intention to persist
 252 in car use. Therefore, the following hypothesis is formulated:

253 H8: Tourists' use of neutralization techniques positively influences their intention to take car-based trips.

254 Figure 1 shows the conceptual model and hypotheses.

255



256

257

Figure 1. The conceptual model of this study

258

259

260

261

262 3. Methodology

263 3.1 Measurement instruments

264 Given the lack of scales in research on car-based trips, the measurement scales used in this study were
265 developed from previous related qualitative and quantitative studies. The perceived benefits scale was developed
266 based on Ellaway et al. (2003) and Uba and Chatzidakis (2016). Ellaway et al. (2003) investigated the psychosocial
267 benefits of private motor vehicle use in daily life. Uba and Chatzidakis (2016) reviewed a wide range of benefits
268 from previous studies regarding car-use behavior. Based on these benefits, the present study developed a six-item
269 scale to measure tourists' perceived benefits from car use, including convenience, comfort, mastery, autonomy,
270 prestige, and pleasure. The scale for the AC of car-based trips was developed from Gao et al. (2016); Kiatkawsin
271 and Han (2017); Luo, Beckon, and Zhong (2018); and Lin (2010). Those studies measured either tourists' perceptions
272 of the negative effects of tourism development and the tourism industry in general or carbon dioxide emissions
273 from transport in destinations. This study, meanwhile, modified those studies' scales into a six-item scale to
274 measure tourists' perceptions of the negative effects of car-based trips, including air pollution, energy use,
275 crowding, noise, animal and plant disturbance, and natural resource damage.

276 Attitudes toward car-based trips were measured by a scale adapted from Goh et al. (2017) and included four
277 items (desirable, good, wise, and favorable). This study viewed pro-driving norms as descriptive norms; the
278 measurement scale was developed mainly from Uba and Chatzidakis (2016), Whitmarsh and O'Neill (2010), and
279 Goh et al. (2017) and included three items. The pro-environmental norms scale was adapted from Gao et al. (2016)
280 and Kiatkawsin and Han (2017), and it included four items to measure respondents' perceptions of tourists'
281 responsibility for environmental protection. The neutralization techniques scale was developed from Uba and
282 Chatzidakis (2016) and Cheng et al. (2014); it included seven dimensions and 21 items. The intention to take car-
283 based trips was measured by a scale adapted from Cheng et al. (2014) and it was composed of three items. All of
284 the items were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). A pretest with
285 100 questionnaires was conducted at a pilot national park (Wuyi Mountain) in Fujian Province, China. After minor
286 adjustments to wording and formatting, the final version of the questionnaire was developed.

287 3.2 Data collection

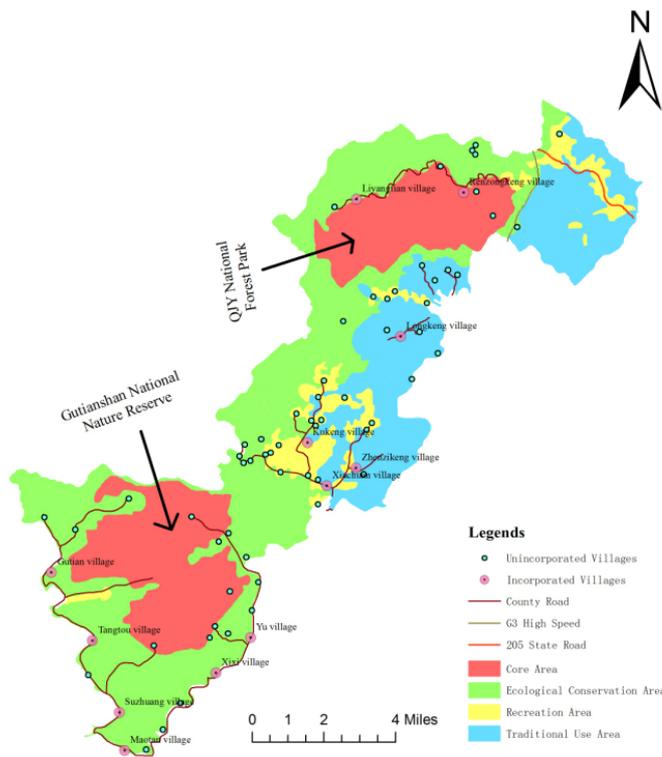
288 Data were collected at the Headwaters of Qianjiang River (QJY) National Park—a pilot national park in
289 Zhejiang Province, China—during the 2017 Super Golden Week (an eight-day holiday from October 1 to October 8).
290 Compared to the Wuyi Mountain National Park, the QJY national park is less famous and less accessible. The private
291 car is the major transport mode for tourists to access this national park. QJY occupies an area of 252 km², composed
292 of the Gutianshan National Nature Reserve (81.07 km²), QJY National Forest Park (45 km²), and the ecological
293 corridor connecting those two areas (Figure 2). The primary goal of the QJY National Park is to protect the ecological
294 service functions of the original area of Qianjiang River and the evergreen broadleaf forest ecosystem in East China's
295 mid-subtropical region.

296 A total of 550 self-administered questionnaires were disseminated, and 545 were returned. Following Hair,
297 Black, Babin, and Anderson (2010), cases with more than 10% of the data missing were eliminated. In addition,
298 questionnaires with more than 10 consecutive identical answers were also excluded. After removing the invalid
299 questionnaires, 449 valid ones were further analyzed, for a valid percentage of 82.4%. Table 2 shows the
300 sociodemographic profiles and behavior characteristics of the respondents. There were more male respondents
301 than female respondents (56.1% male vs. 43.9% female). Most respondents (71.4%) were aged 18–45, 18.3% were
302 45–60, and 13.6% were under 18. Regarding education, 40.8% of respondents had a bachelor's degree, and 26.1%
303 had a diploma. The majority of the respondents were from Zhejiang Province (79.7%) and had organized their trips
304 by themselves (98.9%). Almost half of the sample had traveled three times or more in the past six months (45.3%).

305 Table 2. Sample characteristics (N = 449)

Variables	Levels	Valid percentage (%)
Gender	Male	56.1
	Female	43.9
Age	Under 18	13.6
	18-30	32.9
	30-45	38.5
	45-60	18.3
	Above 60	1.1
	Education	High school or lower
	Diploma degree	26.1
	Bachelor's degree	40.8
	Master's or higher	7.6
Region	Zhejiang Province	79.7%
	Other provinces	19.3%
Travel pattern	Independent travel	98.9
	Group tour	1.1
Travel times in the past six months	1	24
	2	30.7
	3 and over	45.3

306



307

308

309 Figure 2. The zoning of QJY pilot National Park (adapted from Yu et al., 2017)

310

311 3.3 Data analysis

312 Using SmartPLS 3.0, partial least squares structural equation modeling (PLS-SEM) was employed to evaluate
313 the psychometric properties of the measurement scales and to test the hypotheses. According to Hair, Hult, Ringle,
314 and Sarstedt (2014), PLS-SEM can be used when: (1) the research goal is to identify key driver constructs rather
315 than theory testing, confirmation, or comparison; (2) formative measures are included in the structural model; (3)
316 the structural model is complex with many constructs and indicators; (4) the sample size is small; and (5) the data
317 are non-normally distributed. In this study, the goal was to identify the key driving constructs of the intention to
318 take a car-based trip in a conflicting-norm context. The construct for neutralization techniques was conceptualized
319 as a second-order formative construct with first-order reflective indicators. The model was complex with 14 latent
320 constructs and 47 indicators, and the data distributions of 17 indicators were non-normal, because their skewness
321 and/or kurtosis were beyond the range of -1 to +1 (Hair et al., 2014; Zhang, Wu, & Buhalis, in press) (Table 3).
322 Therefore, for this study, variance-based PLS-SEM was preferable to covariance-based SEM using AMOS or LISREL.
323 The bootstrapping technique was used to test significance with 449 cases, 1,000 subsamples, and no sign changes
324 (Hair et al., 2014; Wells, Taheri, Gregory-Smith, & Manika, 2016; Zhang et al., 2018).

325 Before PLS-SEM was conducted, SPSS was used to calculate the descriptive statistics, treat missing values, and
326 test for common method bias. According to Hair et al. (2014), the normality of distributions can be evaluated by
327 skewness and kurtosis. If the skewness or kurtosis of a distribution is greater than + 1 or lower than -1, the
328 assumption of normality is violated. Table 3 shows that the distributions of 17 indicators were non-normal. The
329 amount of missing data was very small, with 1% as the maximum rate (less than 5% per indicator); therefore, all of
330 the missing data were replaced by EM (expectation-maximization algorithm) (Hair et al., 2014; Zhang et al., in press).
331 Common method bias was tested using Harmon's one-factor test approach (Chiu, Lee, & Chen, 2014; Zhang et al.,
332 in press). Exploratory factor analysis was conducted for all of the indicators. The results showed 11 factors with
333 Eigenvalues greater than 1, explaining 68.37% of the total variance. The first factor accounted for only 20.52% of
334 the total variance (less than 50%), indicating that the results were not biased by common method variance.

335 4. Results

336 4.1 Measurement model

337 Different from covariance-based SEM, PLS-SEM does not provide a single goodness-of-fit criterion to evaluate
338 the measure model and structural model; rather, it provides a set of nonparametric evaluation criteria. Following
339 the recommendation of Hair et al. (2014), there are two types of measurement models: a reflective measurement
340 model and a formative measurement model. The evaluation criteria for the reflective measurement model include
341 composite reliability, indicator reliability, convergent validity (average variance extracted), and discriminant validity.
342 The evaluation criteria for the formative measurement model include convergent validity, collinearity among
343 indicators, and significance and relevance of outer weights. In this study, all of the first-order constructs were
344 reflectively measured (Table 3). The reliability and the convergent and discriminate validity of the 14 first-order
345 reflective constructs were assessed. Seven indicator loadings were lower than the recommended threshold of 0.7.
346 After removing those seven indicators, all of the outer loadings were above 0.7, the composite reliabilities (CR)
347 ranged from 0.842–0.934 (above the 0.7 threshold value), and the average variances extracted (AVEs) ranged from
348 0.640–0.825 (above the 0.5 threshold value), indicating the internal consistency and convergent validity of the
349 measurement models. Following Fornell and Larcker's (1981) criterion that the square root of the AVE of a construct
350 should be larger than the biggest correlation between that construct and any other construct, the discriminate
351 validity of the 13 first-order reflective constructs (one construct was removed in the above assessment process)
352 was assessed and confirmed.

353

Table 3. Assessment of the first-order measurement model and descriptive statistics

Items	Mean	Skewness	Kurtosis	Loading	t-value	CR	AVE
Perceived benefits						0.856	0.664
Car-based trips are convenient	4.17	-1.014	2.250	0.814	29.894		
Car-based trips make me feel comfortable	4.13	-.769	1.049	0.850	47.967		
Car-based trips make me feel autonomous and flexible*	4.34	-1.057	2.525	-	-		
Car-based trips make me feel in control	4.01	-.885	.865	0.780	28.531		
Car-based trips make me feel prestige*	2.99	.162	-.655	-	-		
Car-based trips give me driving pleasure*	3.84	-.620	.056	-	-		
Awareness of negative consequences						0.916	0.646
Private cars can increase carbon emissions and air pollution	3.57	-.345	-.130	0.840	8.089		
Private cars consume more energy	3.58	-.330	-.113	0.870	8.879		
Car-based trips lead to congestion in destinations	3.68	-.498	.267	0.737	7.721		
Car crowding damages roadside natural resources	3.25	-.005	-.550	0.825	8.876		
Private cars increase noise pollution in destinations	3.34	-.135	-.421	0.827	8.817		
Private cars disturb animals and plants in destinations	3.21	-.090	-.535	0.709	7.215		
Pro-driving norms						0.883	0.716
The private car has become a popular travel mode	3.82	-.496	.494	0.825	32.353		
My family and friends support car-based trips	3.73	-.454	.608	0.908	93.405		
Tourist destinations encourage and advocate car-based trips	3.43	-.080	-.053	0.803	25.298		
Pro-environmental norms						0.929	0.814
Tourists have a responsibility to protect the environment	4.56	-1.546	4.334	0.924	61.557		
Tourists have a responsibility to minimize the negative effects on resources and environment	4.51	-1.624	3.698	0.914	49.933		
Tourists should take responsibility for environmental degradation in destinations*	3.93	-.782	-.145	-	-		
Tourists have a responsibility to choose environmentally friendly behaviors	4.46	-1.255	2.823	0.867	33.111		
Attitudes toward car-based trips						0.912	0.723
Car-based trips are desirable	3.90	-.436	-.080	0.830	46.933		
Car-based trips are a good travel mode	4.04	-.297	-.551	0.873	65.658		
Taking a car-based trip is wise	3.82	-.077	-.827	0.867	52.685		
Car-based trips are favorable	4.00	-.191	-.677	0.830	46.618		
Denial of responsibility						0.926	0.807
Must choose car-based trip because the destination lacks public transport facilities	3.42	-.396	-.186	0.883	48.721		
Must choose car-based trip because of bad public transport services	3.34	-.181	-.415	0.915	61.171		
Must choose car-based trip because of a lack of public transport service information	3.37	-.314	-.260	0.897	73.788		
Denial of injury						0.888	0.727
Car-based trips do not damage the environment	2.95	.204	-.304	0.858	57.620		
The environmental damage from car-based trips is very small	3.04	.038	.007	0.890	55.048		
The environmental damage from car-based trips is negligible	2.89	.092	-.290	0.807	24.802		
Denial of victim						-	-
If they are worried about environmental damage, destinations should have better car-based-trip management*	4.11	-.864	1.006	-	-		
I do not really believe car-based trips cause much environmental damage in destinations*	3.15	-.157	-.393	-	-		
If destinations overdevelop the tourism industry, environmental damage is inevitable*	3.57	-.515	-.097	-	-		
Condemnation of condemners						0.934	0.825
Destinations should improve public transport infrastructure	4.11	-.802	1.251	0.905	59.612		
Destinations should do their best to improve public transport service	4.12	-1.030	1.974	0.934	73.595		
Destinations should worry more about other environmental damage behaviors	4.09	-.830	1.190	0.886	50.088		
Appeal to higher loyalties						0.914	0.780
My family likes taking car-based trips together	3.88	-.871	1.769	0.896	56.864		
My friends like taking car-based trips together	3.89	-.540	1.165	0.922	82.897		
Car-based trips can enhance affection and friendship	3.98	-.824	1.416	0.829	34.901		
Claims of normalcy						0.881	0.712
Car-based trips have become a lifestyle	3.74	-.479	.749	0.792	30.038		
Car-based trips have become the main travel mode	3.64	-.185	-.277	0.895	76.940		

The majority of tourists choose car-based trips	3.51	-.145	-.195	0.841	45.815		
Change-locus-of-control argument						0.842	0.640
Others still choose car-based trips, even if I do not do so	3.27	-.222	.084	0.760	20.836		
It will not make a difference if I alone choose not to take car-based trips	3.08	-.131	.371	0.823	30.430		
It is difficult to make a difference when I alone choose not to take car-based trips	3.17	-.072	-.094	0.814	36.648		
Intention to take car-based trips						0.897	0.746
I intend to take car-based trips	3.79	-.134	-.171	0.914	94.148		
I plan to take a car-based trip next time	3.74	-.058	-.417	0.898	61.265		
I will take a car for short trips	4.06	-.495	1.098	0.772	28.953		

355 *Items deleted in the measurement model test.

356

357 Neutralization techniques were conceptualized as a second-order formative construct. The criteria of content
 358 validity, collinearity, and the significance and relevance of the first-order constructs were used to assess
 359 measurement quality. Establishing content validity requires that the first-order constructs capture all or at least the
 360 major facets of the second-order construct; a thorough literature review and expert assessment can help to ensure
 361 content validity (Hair et al., 2014). Based on a review of the literature on neutralization theory, five major domains
 362 were included. In addition, this study added two more domains based on a qualitative exploration of car use among
 363 university students. Three experts in the field assessed the facets and ambiguities, and verified content validity.
 364 The variance inflation factor (VIF) was used to assess the level of collinearity. All of the VIFs ranged from 1.146–
 365 1.504 (below the recommended value of 5), indicating no potential collinearity problem. The significance of the
 366 first-order constructs to the second-order construct was assessed by path coefficients (Zhang et al., in press). All of
 367 the path coefficients were significant at the 0.001 level (Table 4), indicating the significant contribution of the six
 368 first-order constructs to the second-order construct.

369

370 Table 4. Assessment of the second-order measurement model

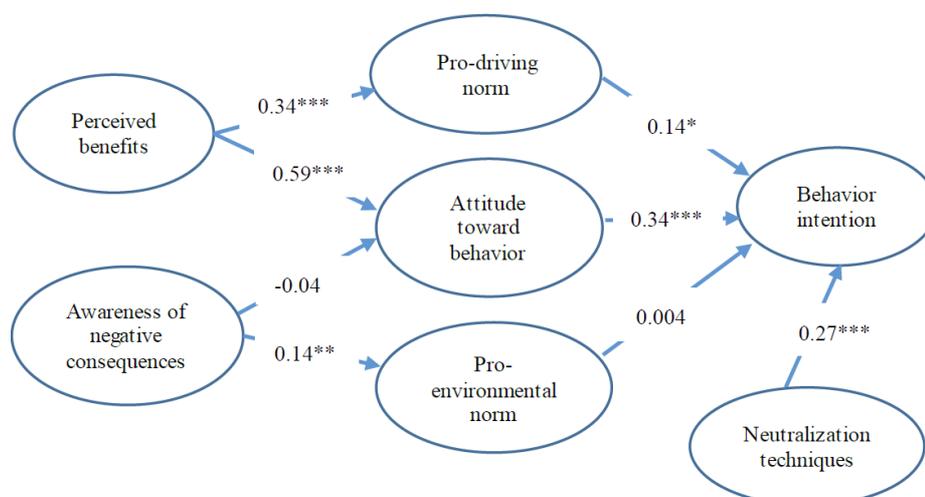
Second-order construct	First-order constructs	Path coefficient	t-value
Neutralization techniques (formative)	Denial of responsibility	0.191	5.731
	Denial of injury	0.245	10.458
	Condemnation of the condemners	0.270	9.817
	Appeal to higher loyalties	0.347	14.943
	Claim of normalcy	0.308	14.788
	Change-locus-of-control argument	0.209	9.208

371

372 4.2 Structural model

373 Figure 3 shows the results of the structural model analysis for the proposed model. The model explained 37.2%
 374 of the total variance in national park tourists' intentions to take car-based trips. Attitude toward the behavior was
 375 the most important factor affecting tourists' behavior intentions, with a path coefficient of 0.34 ($t = 5.429$, $p =$
 376 0.000). The second most important factor was neutralization techniques, with a path coefficient of 0.27 ($t = 4.899$,
 377 $p = 0.000$). The third factor significantly affecting tourists' behavior intentions was pro-driving norms, with a path
 378 coefficient of 0.14 ($t = 2.074$, $p = 0.038$). Pro-environmental norms had no significant effect on tourists' behavior
 379 intentions, with a 0.004 path coefficient ($t = 0.077$, $p = 0.939$). The perceived benefits of car-based trips had a
 380 significant effect on pro-driving norms ($\beta = 0.34$, $t = 7.188$, $p = 0.000$) and attitudes toward behaviors ($\beta = 0.59$, $t =$
 381 18.469 , $p = 0.000$). The AC of car-based trips had a significant effect on pro-environmental norms ($\beta = 0.14$, $t =$
 382 2.880 , $p = 0.004$) but no significant effect on attitudes toward the behavior ($\beta = -0.04$, $t = 0.892$, $p = 0.373$). Therefore,
 383 except for H4 and H6, all of the other hypotheses (H1, H2, H3, H5, H7, and H8) were supported by the data.

384



385

386

Figure 3. Results of PLS analysis for the research model

387

388

389

390

391

392

393

394

395

396

397

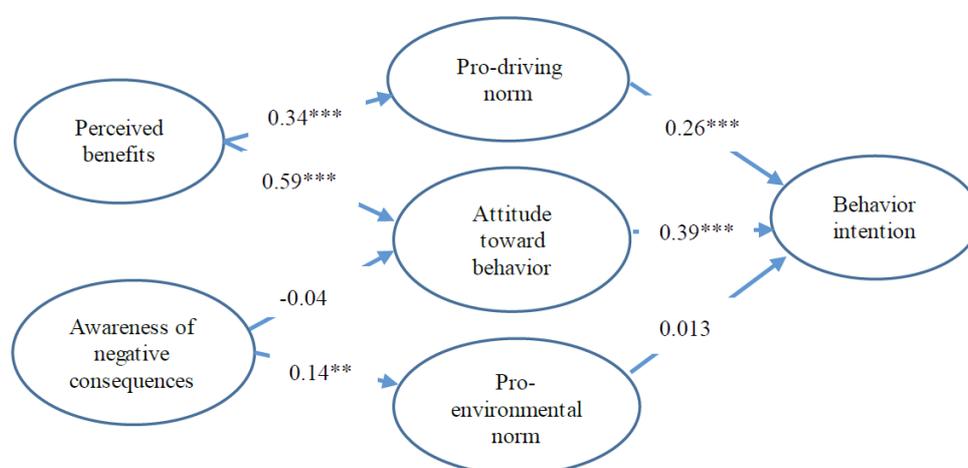
398

399

400

401

To examine and compare the role of neutralization techniques in forming behavior intentions, an alternative model (Figure 4) was tested that removed neutralization techniques from the original proposed model. The alternative model explained 32.3% of the total variance in national park tourists' intentions to take car-based trips. This is lower than the original model (37.2%), indicating that the original model had a larger predictive power for national park tourists' intentions to take car-based trips. Pro-driving norms had more significant effects on behavior intentions in the alternative model ($\beta = 0.26$, $t = 4.203$, $p = 0.000$) than in the original ($\beta = 0.14$, $t = 2.074$, $p = 0.038$). The β value between attitudes and behavior intentions increased from 0.34 ($t = 5.429$, $p = 0.000$) to 0.39 ($t = 6.989$, $p = 0.000$), indicating that attitude was the most important and stable influencing factor. The β value between pro-environmental norms and behavior intention increased, too, from 0.004 to 0.013, but still was not significant. In both structural models, perceived benefits explained 11.3% and 35.0% of the variance in pro-driving norms and attitudes, respectively; only 1.6% of the variance in pro-environmental norms was explained by the awareness of negative consequences.



402

403

Figure 4. Results of PLS analysis for the alternative model

404

405 **5. Discussion**

406 By integrating the theory of planned behavior, the norm-activation model, and neutralization theory, this
407 study developed a norm-neutralization model to predict national park tourists' intentions to take car-based trips in
408 a conflicting-norm context. The proposed theoretical model included: (1) four determinants of car-based-trip
409 intention (pro-driving norms, pro-environmental norms, attitudes toward the behavior, and neutralization
410 techniques) and (2) two antecedents of those determinants (perceived benefits and awareness of negative
411 consequences). The model explained 37.2% of the variance in the intention to take car-based trips, indicating that
412 the norm-neutralization model is appropriate for car-based-trip research. These findings contribute to the
413 understanding of pro-environmental behaviors by showing the formation processes and determinants of tourists'
414 intentions to take car-based trips.

415 This study integrated two opposite norms (pro-driving and pro-environmental norms) into one model to
416 explain national park tourists' intentions to take car-based trips. The results indicated that pro-driving norms have
417 a significant positive effect on behavior intentions while pro-environmental norms have no effect. When the NAM
418 (awareness of negative consequences→pro-environmental norms→behavior intention) was run independently,
419 pro-environmental norms exhibited a significant positive effect on behavior intentions ($\beta = 0.20$, $t = 5.528$, $p =$
420 0.000); however, the relationship direction was unexpected. The most likely reason for this is that national park
421 tourists who hold higher levels of internalized pro-environmental personal norms are also driving enthusiasts. They
422 are more highly aware of environmental problems as a result of their rich tourist experiences by car, which give
423 them more chances to sense the negative effects of car travel. As such, the positive relationship between pro-
424 environmental norms and behavior intentions may be a spurious correlation due to a third variable.

425 After integrating NAM with TPB, the effect of pro-environmental norms became nonsignificant. This is
426 congruent with Donald et al. (2014) and Nilsson and Kuller (2000). TPB and NAM are two important theories for
427 explaining pro-environmental intentions or behaviors. Previous studies have discussed and tested the
428 appropriateness of these two theories. Generally speaking, NAM usually explains pro-environmental intentions or
429 behaviors activated by pro-social motives, while TPB is often used to explain intentions or behaviors involving self-
430 interest motives (Bamberg et al., 2007; Chen & Tung, 2014; Kim, Njite, et al., 2013; Zhang, Wang, & Zhou, 2013).
431 Some researchers combined the two models into integrated models and argued that the integrated models had
432 more satisfactory levels of predictive power for pro-environmental intentions (Han, 2015). In the present study,
433 social norms were conceptualized differently from previous integrated models. First, different from subjective
434 norms, pro-driving norms were viewed as descriptive norms that measure tourists' perceptions of "normal"
435 behaviors, or what most people do. Second, pro-environmental norms were viewed as different from the personal
436 norms used other researchers. Most pro-environmental behavior research has defined personal norms as
437 individuals' feelings of moral obligation to perform pro-environmental behaviors. Following Gao et al. (2016), this
438 study measured pro-environmental norms via collective responsibility. Third, previous studies have directed
439 different norms (e.g., subjective norms and personal norms) at the same object (e.g., staying at a green hotel) while
440 this study directed social norms at different objects (i.e., driving vs. environment protection). These differences
441 may account for results that diverge from those of previous research. When norms directed at different objects
442 (especially conflicting objects) are integrated into one model, the predictive patterns of those norms may change.
443 Another explanation for the nonsignificant effect of pro-environmental norms is that national park tourists'
444 intentions to take car-based trips are mainly motivated by self-interest; therefore, rational-choice models are more
445 appropriate.

446 Neutralization techniques were found to be an important factor influencing national park tourists' intentions

447 to take car-based trips. When neutralization techniques were integrated into the model, the effect sizes of other
448 antecedents decreased. National park tourists may face pressures from different, even opposing, social norms. In
449 particular, pro-driving norms encourage tourists to take car-based trips, but pro-environmental norms discourage
450 this behavior. Such inconsistencies in norm requirements often produce cognitive dissonance for tourists. According
451 to Festinger (1957), cognitive dissonance occurs when a person simultaneously holds two or more contradictory
452 beliefs, ideas, or values. Some strategies can be used to reduce internal inconsistency and psychological discomfort,
453 such as changing cognition, adding new information, or avoiding contradictory information. Neutralization
454 techniques are strategies for changing cognition; they can help individuals justify or rationalize their norm-violating
455 behaviors to maintain a positive self-concept or self-identity. This study's results are consistent with Cheng et al.
456 (2014), who found that neutralization was the strongest predictor of the intention to use organization-provided
457 Internet for personal purposes. The results are also consistent with Uba and Chatzidakis's (2016) qualitative
458 research, which found that university students employed various neutralization techniques to justify their car-use
459 behaviors. Compared to the model without neutralization techniques (Figure 3), the norm-neutralization model
460 (Figure 2) had higher predictive power for tourists' intentions to take car-based trips. This means that neutralization
461 techniques are efficient strategies for dealing with social pressure dilemmas in conflicting-norm contexts. By
462 reducing the effects of conflicting social norms, neutralization techniques decrease levels of inconsistency and
463 discomfort, thus maintaining a positive self-image or sense of self for tourists.

464 Among all of the antecedents, attitudes toward behavior were the strongest predictors of national park
465 tourists' intentions to take car-based trips. This is consistent with some studies (e.g., Kim & Han, 2010; Untaru,
466 Ispas, Candrea, Luca, & Epuran, 2016) but inconsistent with others (e.g., Kim, Njite et al., 2013). There could be a
467 range of reasons for this, such as model development, research context, focus behavior, and so on. Perceived
468 benefits and awareness of negative consequences of car-based trips are the positive and negative beliefs tourists
469 hold about car-based trips. Consistent with previous TPB-based studies (e.g., Bamberg & Schmidt, 2003; Kim, E. et
470 al., 2013), the results showed that positive beliefs contributed to the formation of pro-driving norms and positive
471 attitudes. Negative beliefs activated tourists' pro-environmental norms, which is inconsistent with Gao et al. (2016).
472 Most NAM-based research has not investigated the direct effects of the awareness of negative consequences on
473 personal norms. Gao et al. (2016) examined this direct effect but found it nonsignificant. However, in an integrated
474 model of TPB and NAM developed by Zhang et al. (2017), awareness of consequences indirectly affected
475 environmental complaint intention via personal norms, attitudes, and subjective norms. Namely, awareness of
476 consequences had a significant direct effect on personal norms in that study. This is consistent with the findings of
477 the present study.

478 **6. Conclusion**

479 TPB, NAM, and their extended or integrated models have been widely used to explain a range of tourists' pro-
480 environmental behaviors. Both subjective and personal norms have been shown to be important determinants of
481 pro-environmental behaviors. Few studies, however, have investigated the effects of two conflicting types of norms
482 in one model. Neutralization theory has been widely used in research on norm-violating behaviors, but it is rarely
483 used in pro-environmental behavior research. The car-based trip is also a less studied pro-environmental behavior.
484 Therefore, this study contributes to pro-environmental behavior literature by integrating TPB, NAM, and
485 neutralization theory, and especially by including conflicting norms and neutralization techniques in the proposed
486 model (i.e., the norm-neutralization model). This new perspective can broaden the range of theory integration in
487 pro-environmental behavior research and enhance our understanding of pro-environmental behaviors.

488 As an important category of protected areas, national parks have the dual goals of ecological protection and
489 recreation. Transportation is a major challenge for environmental management in national parks. Although public

490 transit systems operate in many national parks, tourists still prefer driving. This study's results can help park
491 managers to understand why national park tourists persist in taking car-based trips and adopt appropriate
492 management strategies. First, pro-driving norms are important determinants influencing car-based-trip intentions;
493 the perceived benefits of car-based trips activate the formation of pro-driving norms. Several methods can be used
494 to reduce the social stress of pro-driving norms: (1) providing alternative public transportation systems, gateway
495 communities, and greater perceived benefits (e.g., convenience, comfort, and cost); (2) encouraging tourists to use
496 public transportation and cultivating the habit through a reward system (e.g., reduce or relieve ticket costs); and
497 (3) restricting private car use by reducing its perceived benefits (e.g., charge higher parking fees and congestion
498 taxes).

499 Visitors employ various neutralization techniques to justify their car-use behavior. Corresponding
500 interventions can decrease the role of these neutralization techniques as follows: (1) Appeal to higher loyalties and
501 claims of normalcy are the first two important neutralization techniques. Therefore, encouraging sustainable and
502 green consumption and behavior patterns in the whole society may change visitors' evaluations of important others'
503 expectations and social normalcy. (2) To avoid being blamed by visitors, national parks should increase public
504 transportation facilities and service levels. ICTs can be used to provide timely and rich transportation information
505 for tourists. (3) Provide environmental education information (including the damaging effects of car use) to tourists
506 via various media throughout the whole travel process (pre-travel, on-site, and post-travel). (4) Cultivate the idea
507 that environmental protection begins with the individual and that everyone is responsible for environmental
508 protection.

509 This research has some limitations. First, as with most research, the generalizability of the findings can be
510 debated. In this study, generalizability issues could arise in several ways: (1) The study area was a pilot national park
511 in East China, which differs from the definition of national parks set by the International Union for the Conservation
512 of Nature (IUCN), though reforms are being made to meet IUCN goals. (2) Each national park is different in its
513 physical environment, infrastructure, public service system, tourism information, and other conditions. (3) The
514 survey was conducted during China's Super Golden Week; this means there were large numbers of car-based
515 tourists in most tourism areas, which could produce more salient environmental problems. (4) The sample was
516 composed of tourists from a developing country, where private car ownership may still be considered a symbol of
517 prestige and status. (5) Each visitor is different in terms of consumption and time budgets, and visitors' behavior
518 intentions may be different under different ambient pressures. Therefore, the proposed norm-neutralization model
519 should be confirmed in a different country, a different time period, and different kinds of national parks at different
520 stages of development. Second, this study used a scale to measure pro-environmental norms that might be better
521 suited to Chinese tourists by considering China's collective cultural characteristics; however, it did not find a
522 significant effect on behavior intention. There could be two reasons for this: measurement issues and no expected
523 relationship between pro-environmental norms and car-based-trip intentions. Future research can adopt the
524 common scale used in most NAM-based research to examine the effect on behavior intention. Third, the
525 neutralization techniques scale used in this study was developed from studies conducted in typical environments.
526 However, it is possible that some special contextual factors exist (e.g., incomplete information, lack of public
527 transport, insecurity, time deficiency, and placelessness) that could become neutralization techniques for tourists
528 in unusual environments. Future research should explore these special neutralization techniques. Lastly, this study
529 focused on car-based trips. Future research should explore public-transport-based trips, which would enrich tourist
530 transportation behavior research from another perspective. Sustainable cars (e.g., electric cars) and eco-driving
531 behaviors may reduce negative environmental effects (Nègre & Delhomme, 2017) and further influence tourists'
532 beliefs and intentions regarding taking car-based trips. This, too, warrants an examination in future research.

533

534 **References**

- 535 Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-
536 211.
- 537 Armitage, C. J., Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *The British*
538 *Journal of Social Psychology/The British Psychological Society*, 40, 471-499.
- 539 Bamberg, S., Fujii, S., Friman, M., & Garling, T. (2011). Behaviour theory and soft transport policy measures.
540 *Transport Policy*, 18 (1), 228-235.
- 541 Bamberg, S., Hunecke, M., & Blobaum, A. (2007). Social context, personal norms and the use of public
542 transportation: Two field studies. *Journal of Environmental Psychology*, 27(3), 190-203.
- 543 Bamberg, S., & Schmidt, P. (2003). Incentives, morality, or habit? Predicting students' car use for university routes
544 with the models of Ajzen, Schwartz, and Triandis. *Environment and Behavior*, 35, 264-283.
- 545 Becken, S., Simmons, D. G., Frampton, C. (2003). Energy use associated with different travel choices. *Tourism*
546 *Management*, 24(3), 267-277.
- 547 Beunen, R., Regnerus, H. D., & Jaarsma, C. F. (2008). Gateways as a means of visitor management in national parks
548 and protected areas. *Tourism Management*, 29(1), 138-145.
- 549 Chen M. F., & Tung, P. J. (2014). Developing an extended Theory of Planned Behavior model to predict consumers'
550 intention to visit green hotels. *International Journal of Hospitality Management*, 36 (1), 221-230.
- 551 Cheng, L., Li, W., Zhai, Q., & Smyth, R. (2014). Understanding personal use of the Internet at work: An integrated
552 model of neutralization techniques and general deterrence theory. *Computers in Human Behavior*, 38, 220-
553 228.
- 554 China Tourism Academy. (2017). Big data report of car-based trip (cross-cities) in China during the holiday for
555 National Day and Mid-Autumn Festival. <http://www.ctaweb.org/html/2017-10/2017-10-13-9-9-68840.html>.
- 556 Chiu, Y. T. H., Lee, W. I., & Chen, T. H. (2014). Environmentally responsible behavior in ecotourism: Antecedents and
557 implications. *Tourism Management*, 40, 321-329.
- 558 Connell, J., & Page, S. J. (2008). Exploring the spatial patterns of car-based tourist travel in Loch Lomond and
559 Trossachs National Park, Scotland. *Tourism Management*, 29(3): 561-580.
- 560 Copes, H., & Williams, J. P. (2007). Techniques of affirmation: Deviant behaviour, moral commitment, and
561 subcultural identity. *Deviant Behavior*, 28 (3), 247-272.
- 562 Davies, N. J., & Weston, R. (2015). Reducing car-use for leisure: Can organised walking groups switch from car travel
563 to bus and train walks? *Journal of Transport Geography*, 48, 23-29.
- 564 De Groot, J. I., & Steg, L. (2009). Morality and prosocial behaviour: The role of awareness, responsibility, and norms
565 in the Norm Activation Model. *The Journal of social psychology*, 149(4), 425-449.
- 566 Donald, I. J., Cooper, S. R., & Conchie, S. M. (2014). An extended theory of planned behaviour model of the
567 psychological factors affecting commuters' transport mode use. *Journal of Environmental Psychology*, 40: 39-
568 48.
- 569 Ellaway, A., Macintyre, S., Hiscock, R., & Kearns, A. (2003). In the driving seat: Psychosocial benefits from private
570 motor vehicle transport compared to public transport. *Transportation Research Part F: Traffic Psychology and*
571 *Behaviour*, 6 (3), 217-231.
- 572 Farrow, K., Grolleau, G., & Ibanez, L. (2017). Social norms and pro-environmental behavior: A review of the evidence.
573 *Ecological Economics*, 140, 1-13.
- 574 Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford: Stanford University Press.
- 575 Filimonau, V., Dickinson, J., & Robbins, D. (2014). The carbon impact of short-haul tourism: A case study of UK travel
576 to Southern France using life cycle analysis. *Journal of Cleaner Production*, 64, 628-638.

- 577 Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*.
578 Reading, MA: Addison-Wesley.
- 579 Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and
580 measurement Error. *Journal of Marketing Research*, 18(1), 39-50.
- 581 Gao, J., Huang, J., & Zhang C. Z. (2016). Tourists' perceptions of responsibility: An application of norm-activation
582 theory. *Journal of Sustainable Tourism*, Published online: 08 Jul 2016
- 583 Gardner, B., & Abraham, C. (2010). Going Green? Modelling the impact of environmental concerns and perceptions
584 of transportation alternatives on decisions to drive. *Journal of Applied Social Psychology*, 40, 831-849.
- 585 Goh, E., Ritchie, B., Wang, J. (2017). Non-compliance in national parks: An extension of the theory of planned
586 behaviour model with pro-environmental values. *Tourism Management*, 59, 123-127.
- 587 Hair, J. F. J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th
588 ed.). USA: Pearson.
- 589 Hair, J. F. J., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation*
590 *modeling (PLS-SEM)*. UK: Sage.
- 591 Han, H. (2014). The norm activation model and theory-broadening: Individuals' decision-making on
592 environmentally-responsible convention attendance. *Journal of Environmental Psychology*, 40, 462-471.
- 593 Han, H. (2015). Travelers' pro-environmental behavior in a green lodging context: Converging value-belief-norm
594 theory and the theory of planned behavior. *Tourism Management*, 47, 164-177.
- 595 Han, H. & Hwang, J. (2015). Norm-based loyalty model (NLM): Investigating delegates' loyalty formation for
596 environmentally responsible conventions. *International Journal of Hospitality Management*, 46, 1-14.
- 597 Han, H., Hwang, J., Kim, J. & Jung, H. (2015). Guests' pro-environmental decision-making process: Broadening the
598 norm activation framework in a lodging context. *International Journal of Hospitality Management*, 47, 96-107.
- 599 Han, H., Jae, M., & Hwang, J. (2016). Cruise travelers' environmentally responsible decision-making: An integrative
600 framework of goal-directed behavior and norm activation process. *International Journal of Hospitality*
601 *Management*, 53, 94-105.
- 602 Harland, P., Staats, H., & Wilke, H. A. M. (1999). Explaining pro-environmental intentions and behavior by personal
603 norms and the theory of planned behavior. *Journal of Applied Social Psychology*, 29, 2505-2528.
- 604 Harland, P., Staats, H., Wilke, H. A. M. (2007). Situational and personality factors as direct or personal norm
605 mediated predictors of pro-environmental behavior: Questions derived from norm-activation theory. *Basic*
606 *and Applied Social Psychology*, 29(4): 323-334.
- 607 Kaiser, F. G., & Shimoda, T. A. (1999). Responsibility as a predictor of ecological behaviour. *Journal of Environmental*
608 *Psychology*, 19(3), 243-253.
- 609 Kiatkawsin, K., & Han, H. (2017). Young travelers' intention to behave pro-environmentally: Merging the value-belief-
610 norm theory and the expectancy theory. *Tourism Management*, 59, 76-88.
- 611 Kim, E., Ham, S., Yang, I. S., & Choi, J. G. (2013). The roles of attitude, subjective norm, and perceived behavioral
612 control in the formation of consumers' behavioral intentions to read menu labels in the restaurant industry.
613 *International Journal of Hospitality Management*, 35, 203-213.
- 614 Kim, Y. J., Njite, D., & Hancer, M. (2013). Anticipated emotion in consumers' intentions to select eco-friendly
615 restaurants: Augmenting the theory of planned behavior. *International Journal of Hospitality Management*,
616 34, 255-262.
- 617 Kim, Y., & Han, H. (2010). Intention to pay conventional-hotel prices at a green hotel a modification of the theory
618 of planned behavior. *Journal of Sustainable Tourism*, 18(8), 997-1014.
- 619 Klockner, C. A., & Friedrichsmeier, T. (2011). A multi-level approach to travel mode choice – How person

- 620 characteristics and situation specific aspects determine car use in a student sample. *Transportation Research*
 621 *Part F: Traffic Psychology and Behaviour*, 14 (4), 261-277.
- 622 Lin, T. P. (2010). Carbon dioxide emissions from transport in Taiwan's national parks. *Tourism Management*, 31(2),
 623 285-290.
- 624 Luo, F., Becken, S. & Zhong, Y. (2018). Changing travel patterns in China and 'carbon footprint' implications for a
 625 domestic tourist destination. *Tourism Management*, 65, 1-13.
- 626 Mace, B. L., Marquit, J. D., & Bates, S. C. (2013). Visitor assessment of the mandatory alternative transportation
 627 system at Zion National Park. *Environmental Management*, (5), 1271-1285.
- 628 Mackett, R. L. (2003). Why do people use their cars for short trips? *Transportation*, 30(3), 329-349.
- 629 Martín-Cejas, R. R. (2015). The environmental impact caused by road access to Timanfaya Natural Park on Lanzarote
 630 Island. *Transportation Research Part D: Transport and Environment*, 41, 457-466.
- 631 Monz, C., D'Antonio, A., Lawson, S. Barber, J., & Newman, P. (2016). The ecological implications of visitor
 632 transportation in parks and protected areas: Examples from research in US National Parks. *Journal of Transport*
 633 *Geography*, 51: 27-35.
- 634 Nakamura, H., & Abe, N. (2016). Tourist decisions in renting various personal travel modes: A case study in
 635 Kitakyushu City, Japan. *Tourism Management*, 55, 85-93.
- 636 Nègre, J. & Delhomme, P. (2017). Drivers' self-perceptions about being an eco-driver according to their concern for
 637 the environment, beliefs on eco-driving, and driving behavior. *Transportation Research Part A: Policy and*
 638 *Practice*, 105, 95-105.
- 639 Nilsson, M., & Kuller, R. (2000). Travel behaviour and environmental concern. *Transportation Research*, 5D, 211-
 640 234.
- 641 Riggs, W. (2017). Painting the fence: Social norms as economic incentives to non-automotive travel behavior. *Travel*
 642 *Behaviour and Society*, 7, 26-33.
- 643 Ravis, A., & Sheeran, P. (2003). Descriptive norms as an additional predictor in the theory of planned behaviour: A
 644 meta-analysis. *Current Psychology: Developmental, Learning, Personality, Social*, 22, 218-233.
- 645 Schwartz, S. H. (1977). *Normative influence on altruism*. In L. Berkowitz (Ed.), *Advances in experimental social*
 646 *psychology*, Vol. 10 (pp. 221-279). New York: Academic Press.
- 647 Schwartz, S. H., & Howard, J. A. (1981). *A normative decision-making model of altruism*. In: Rushton, J.P., Sorrentino,
 648 R.M. (Eds.), *Altruism and Helping Behavior*. Erlbaum, Hillsdale, pp. 89-211.
- 649 Siponen, M., & Vance, A. (2010). Neutralization: New insights into the problem of employee information systems
 650 security policy violations. *MIS Quarterly*, 34(3), 487-502.
- 651 Stern, P. C. (2000). New Environmental Theories: Toward a coherent theory of environmentally significant behavior.
 652 *Journal of Social Issues*, 56 (3) :407-424.
- 653 Sykes, G., & Matza, D. (1957). Techniques of neutralization: A theory of delinquency. *American Sociological Review*,
 654 22, 664-670.
- 655 Transport Administration of Public Security Ministry. (2017). Registered vehicles amount in first quarter of 2017 in
 656 China. <http://www.mps.gov.cn/n2255040/n4908728/c5682934/content.html>.
- 657 Triandis, H. C. (1977). *Interpersonal behavior*. Monterey, CA: Brooks/Cole.
- 658 Triandis, H. C. (1980). *Values, attitudes, and interpersonal behavior*. In H. E. Howe & M. M.
 659 Page (Eds.), *Nebraska Symposium on Motivation 1979* (pp. 195-259). Lincoln: University of Nebraska Press.
- 660 Thøgersen, J. (2006). Norms for environmentally responsible behaviour: An extended taxonomy. *Journal of*
 661 *Environmental Psychology*, 26, 247-261.
- 662 Uba, C. D., & Chatzidakis, A. (2016). Understanding engagement and disengagement from pro-environmental

- 663 behaviour: The role of neutralization and affirmation techniques in maintaining persistence in and desistance
664 from car use. *Transportation Research Part A: Policy and Practice*, 94, 278-294.
- 665 Untaru, E. N., Ispas, A., Candrea, A. N., Luca, M., & Epuran, G. (2016). Predictors of individuals' intention to conserve
666 water in a lodging context: The application of an extended Theory of Reasoned Action. *International Journal*
667 *of Hospitality Management*, 59, 50-59.
- 668 Wells, V. K., Taheri, B., Gregory-Smith, D., & Manika, D. (2016). The role of generativity and attitudes on employees
669 home and workplace water and energy saving behaviours. *Tourism Management*, 56, 63–74.
- 670 Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in
671 determining consistency across diverse pro-environmental behaviours. *Journal of Environmental Psychology*,
672 30, 305-314.
- 673 Wolf, I. D., & Croft, D. B. (2010). Minimizing disturbance to wildlife by tourists approaching on foot or in a car: A
674 study of kangaroos in the Australian rangelands. *Applied Animal Behaviour Science*, 126(1-2), 75-84.
- 675 Wu, P. L., Yeh, S. S., & Woodside, A. G. (2014). Applying complexity theory to deepen service dominant logic:
676 Configural analysis of customer experience-and-outcome assessments of professional services for personal
677 transformations. *Journal of Business Research*, 67(8), 1647-1670.
- 678 Yu, H., Chen, T., Zhong, L. S., & Zhou R. (2017). Functional zoning of the Qianjiangyuan National Park System Pilot
679 Area. *Resources Science*, 2017, 39(1): 20-29.
- 680 Zhang, H. M., Wu, Y., & Buhalis, D. (2018). A model of perceived image, memorable tourism experiences and revisit
681 intention. *Journal of Destination Marketing & Management*, <http://dx.doi.org/10.1016/j.jdmm.2017.06.004>.
- 682 Zhang, X. J., Geng, G. J., & Sun, P. (2017). Determinants and implications of citizens' environmental complaint in
683 China: Integrating theory of planned behavior and norm activation model. *Journal of Cleaner Production*, 166,
684 148-156.
- 685 Zhang, Y., Wang, Z., & Zhou, G. (2013). Antecedents of employee electricity saving behavior in organizations: an
686 empirical study based on norm activation model. *Energy Policy*, 62, 1120-1127.
- 687