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Pro-tourism and anti-tourism community groups at a world heritage site in Turkey

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This empirical study deepens our understating of support for sustainable tourism development (SSTD) from the perspectives of various community groups in Pamukkale, a world natural and cultural heritage inscribed on the UNESCO list. A quota sampling technique was used to survey the views of three communities: business, farmers, and the government. Occurrences of contrarian cases were checking using cross-tabulation analyses. Complexity theory and fuzzy-set qualitative comparative analysis (fsQCA), as an innovative approach, were applied to develop and test a configurational model for predicting both high and low SSTD scores for three community groups. The fsQCA results revealed that causal recipes for achieving pro-tourism behaviour are not simply mirror opposites of the conditions leading to anti-tourism behaviour. The complex configurational models indicating high/low SSTD were unique to each community group, indicating that a specified strategy must be developed for community-based tourism management. The evidence-of-fit validity of the measurement model and the predictive validity of the configurational model were provided. Support for the fsQCA results in the key tenets of complexity theory confirms that this theory explained the heterogeneity and complex interactions of SSTD antecedents well. The study outcomes provide a guideline for managing conditions to both increase SSTD and hinder SSTD negation for various community groups. The limitations and implications for further research are discussed.

Keywords: community; tourism support; complexity theory; configuration; predictive validity; Pamukkale

Introduction

Sustainable tourism development at heritage sites demands community-driven management that promotes social capital and pro-social behaviour (Nguyen & Rieger, 2017). Many scholars have identified indicators of support for sustainable tourism development (SSTD) and proposed practical implications for community-based tourism management (CBT) (e.g. Choi & Sirakaya, 2006; Kaján, 2013; Lee, 2013; Rasoolimanesh, Jaafar, Ahmad, & Barghi, 2017; Su & Wall, 2015; Zapata, Hall, Lindo, & Vanderschaeghe, 2011). The ignorance of communities' roles from decision-making to the implementation process both hinders sustainable tourism development at world heritage sites (Chhabra,

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2010; Lee, 2016) and provides conditions leading to anti-tourism attitudes and behaviour (Olya & Gavilyan, 2016).

Gustafson (2002, p. 900) highlights that 'in spite of the magnitude of tourist flows and the resulting cultural and economic influences in contemporary society, both tourism and tourists are often accompanied by ambivalence, disparagement, and even hostility.' Although the importance of listening to the voices of various communities is clear (Šegota, Mihalič, & Kuščer, 2016; Van Den Bergh, 2014; Yuksel, Bramwell, & Yuksel, 1999), there is little knowledge about the conditions (i.e. causal model/recipe) under which communities act as the lovers or haters of tourism. Clearly, some local residents will oppose some kinds of tourism activities (Schofield, 2011; Serra-Cantallops & Ramon-Cardona, 2016).

Modelling the behaviours of communities is a complex issue because different community groups have different expectations, interests, and awareness, leading to different attitudes and behaviours regarding sustainable tourism development, and policy-makers must thus develop distinct strategies for CBT (Simpson, 2008). Wright and Sharpley (2016, p. 5) argue that 'in complex and potentially sensitive contexts, including disaster tourism sites, the whole truth of the local community's perceptions of tourism is likely to be revealed only through a deeper, more nuanced understanding of their social reality.'

Šegota et al. (2016) stress the equal representation of *all voices* in the tourism development process and argue that because lives in all local communities are influenced by tourism, every community's interests must be translated and considered. Otherwise, a conflict could arise in the process of tourism development (Kuvan & Akan, 2012). It is time to explore the recipes that show how indictors of sustainable tourism development support (SSTD) must be combined to model the complex behaviours of various community groups (Olya & Gavilyan, 2016; Ordanini, Parasuraman, & Rubera, 2014).

This paper is organized as follows. The next section describes the purpose and significance of the study. Then, in the theoretical framework section, justification of the relevance and rationality of complex theory with fuzzy-set qualitative comparative analysis (fsQCA), the proposed configural model and a profile of the study area are presented. In the methodology section, scale items measurement, the data and procedure and data analysis are detailed. Following this, the findings obtained from measurement model testing, configural model testing, predictive validity, and the assessment of the fsQCA results with key tenets of complexity theory are explained in the results section. Finally, the discussion and conclusion consist of comparisons of the results with the findings of previous studies, remarks on the findings of present study and its limitations and implications.

Purpose and significance of study

This study aims to develop and test a configurational model to simulate the conditions for both high and low levels of SSTD from the viewpoints of various community groups in Pamukkale. The study measures the perceptions of three communities, namely, the business, farming and government communities, about indicators of SSTD. Using asymmetric modelling, economic, environmental, social, and cultural impact; quality of life and length of residency are combined as a configuration for predicting both pro-tourism and anti-tourism behaviour. The configurational model is tested for the three communities. The results, which describe conditions leading to high and low for SSTD scores, are evaluated in light of the tenets of complexity theory. The evidence of predictive validity shows the ability of the proposed configurational model to make predictions based on another sample (i.e. future data/behaviour).

This empirical study contributes to the tourism development literature in several ways. First, this study explores the causal recipes explaining the behaviour of both anti-tourism and pro-tourism communities. Bershidsky (2015) provided a list of anti-tourism actions – such as protests, 'not welcome' signs at some clubs and bars, and the illegality of Airbnb – taken against tourists who plan to visits cities such as Berlin, Barcelona, Lisbon and Hong Kong. Even the mayor of Barcelona officially stated that tourists should 'go away' (Matlack, 2015).

In academia, there have also been concerns about tourism development under the shadow of the anti-tourism community (Schofield, 2011; Serra-Cantallops & Ramon-Cardona, 2016; Williams & Lawson, 2001). Schofield (2011) reports various attitudes among Salford residents to the impacts of tourism development and advises that Salford City Council should target 'anti-tourism' and 'uncertain' residents and place particular emphasis on tourism's potential to both facilitate the conservation of Worsley's heritage and improve local facilities and services.

Williams and Lawson (2001, p. 288), by clustering the residents of 10 New Zealand towns into 2 groups of lovers and haters/cynics, conclude that 'from an entrepreneurial perspective, the importance placed on community issues by the least positive residents is of concern.' Williams and Lawson (2001, p. 288) also recommended searching for approaches that 'encourage support for tourism and/or forestall or minimize adverse reactions.'

Secondly, the causal models predicting for SSTD in three community groups were calculated because each community has its own perceptions of tourism impacts (Šegota et al., 2016; Simpson, 2008). Kuvan and Akan (2012) report an increase in conflicts between residents and hotel managers, which was caused by different perceptions about the economic, social, and environmental effects of tourism development in Turkey. Yang, Ryan, and Zhang (2013) analysed the impact of social conflict on tourism in China, including intra- and inter-group conflict. Kuvan and Akan (2012, p. 582) conclude that 'attention is not called for addressing the demands of disparate, yet systematically comprehensible set of entities who may or may not have legitimate claims, but who may nonetheless affect the interests of those who may have legitimate claims.' This empirical study addressed these two research gaps via the configurational modelling of the *pro-tourism and anti-tourism behaviours* of *three different community groups with different perceptions and interests* regarding tourism development in Pamukkale, a UNESCO world heritage site in Turkey (http://whc.unesco.org/en/list/485).

In terms of the study context, Pamukkale is a mix of natural and cultural world heritage and a host of communities. This diversity of perceptions may cause disputes in the sustainable tourism development process (Yuksel et al., 1999). Tosun (2001) lists the challenges to sustainable tourism development in Turley as follows:

(1) A lack of flexibility and decentralisation
(2) Some lack of comprehensiveness and integration
(3) Lack of community perspective
(4) Being driven by an industry dominated by international tour operators, multinational companies, major domestic business interests and central government and
(5) Lack of consistency, co-ordination and co-operation (p. 292).

Hence, proposing causal recipes for specific group communities will help us to understand the complex process of SSTD at the study site. Specifically, it is a reply to the call of Kuvan and Akan (2012, p. 582), who recommended that 'further studies, which include

more stakeholders, are needed for a more comprehensive understanding, and more sustainable outcomes' in tourism development of Turkey.

Finally, this study advances theory and method in the context of CBT by applying a new analytical approach (i.e. complexity theory with fsQCA) to crafting and testing a proposed configurational model. Asymmetrical modelling, as a promising approach that moves beyond the conventional assumptions of symmetrical approaches (e.g. data normality, multicollinearity issues, and the ignorance of contrarian cases), calculates more accurate results regarding the causal conditions that describe complex phenomena (Olya & Altinay, 2015; Olya & Gavilyan, 2016; Olya & Mehran, 2017; Ragin, 2008; Wu et al., 2014). Baggio and Sainaghi (2016, p. 24) justify the importance of non-linear models and methods in tourism studies as follows:

> The complexity of a destination is strongly related to its constituent elements, a wide number of 'co-producing' firms, and to the non-linearity of the relationships between these entities that create complex dynamic behaviors with a possibility to exhibit chaotic features. For this reason, there is a need to employ methods that are more consistent with the nature of the object of study and the complexity of a tourism system.

fsQCA and complexity theory allow scientists to explore the causal conditions leading to both high and low study outcome scores (i.e. SSTD). This is significant for modelling the pro-tourism (i.e. high scores for SSTD) and anti-tourism (i.e. low score for SSTD) behaviours of communities that are influenced by various perceptions of the social, cultural, economic, and environmental impacts of tourism. The next section elaborates on complexity theory and fsQCA.

Complexity theory and fsQCA

Social exchange theory (SET) is one of the most common theories applied to provide theoretical support for a model indicating the behaviour of a community regarding tourism development (e.g. Lee et al., 2013; Nunkoo & Ramkissoon, 2011; Stylidis, Biran, Sit, & Szivas, 2014). SET states that if the local community perceives the benefits of tourism development, without perceiving unjustified costs, then they will be more likely to support and participate in sustainable tourism development plans (Gursoy, Jurowski, & Uysal, 2002; Jurowski, Uysal, & Williams, 1997). Several scholars have declared that although SET is necessary for explaining some attitudes and behaviours of the local community, it is insufficient for explaining the multi-interactions of a wide range of factors influencing the complex behaviours of various community groups towards SSTD (e.g. Látková & Vogt, 2012; Olya & Gavilyan, 2016; Sharpley, 2014).

Generally, SET may support a positive relationship between economic impacts and SSTD, but it may not be able to explain the asymmetric associations between social and environmental impacts and SSTD. In other words, although some communities are less likely to perceive positive social and environmental impacts, they are still likely to support and participate in sustainable community-based tourism development (Table 1). This study provides evidence of contrarian cases regarding SSTD in Pamukkale. For example, while local people (67 cases) did not perceive positive environmental impacts, they still achieved a high SSTD score (Table 1(a)). In contrast, some (13 cases) perceived positive environmental impacts, but they were less likely to engage in SSTD (Cramer's V test = .16, $p < .01$). As shown in Table 1(b), this study presents evidence of 61 negative contrarian cases and 10 positive contrarian cases with regard to the association between social impacts and SSTD (Cramer's V test = .15, $p < .05$).

AQ8 Table 1. The evidence of contrarian cases regarding SSTD?.

Environmental Impacts (a) (*Cramer's V test =.165***)		SSTD					Total
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Strongly disagree	Count	0	0	2	9	10	21
	% within Env. Imp.	0.0%	0.0%	9.5%	42.9%	47.6%	100.0%
Disagree	Count	3	8	18	32	16	77
	% within Env. Imp.	3.9%	10.4%	23.4%	41.6%	20.8%	100.0%
Neutral	Count	0	14	26	39	13	92
	% within Env. Imp.	0.0%	15.2%	28.3%	42.4%	14.1%	100.0%
Agree	Count	2	8	21	37	17	85
	% within Env. Imp.	2.4%	9.4%	24.7%	43.5%	20.0%	100.0%
Strongly agree	Count	2	1	2	10	12	27
	% within Env. Imp.	7.4%	3.7%	7.4%	37.0%	44.4%	100.0%
Total	Count	7	31	69	127	68	302
	% within Env. Imp.	2.3%	10.3%	22.8%	42.1%	22.5%	100.0%

13 Positive contrarian cases indicating A→ ~ O

67 Negative contrarian cases indicating ~A→ O

Social Impacts (b) (*Cramer's V test =.150**)		SSTD					Total
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Strongly disagree	Count	1	2	5	13	9	30
	% within Soc. Imp.	3.3%	6.7%	16.7%	43.3%	30.0%	100.0%
Disagree	Count	4	10	14	26	13	67
	% within Soc. Imp.	6.0%	14.9%	20.9%	38.8%	19.4%	100.0%
Neutral	Count	0	11	29	60	18	118
	% within Soc. Imp.	0.0%	9.3%	24.6%	50.8%	15.3%	100.0%
Agree	Count	1	6	16	25	18	66
	% within Soc. Imp.	1.5%	9.1%	24.2%	37.9%	27.3%	100.0%
Strongly agree	Count	1	2	5	3	10	21
	% within Soc. Imp.	4.8%	9.5%	23.8%	14.3%	47.6%	100.0%
Total	Count	7	31	69	127	68	302
	% within Soc. Imp.	2.3%	10.3%	22.8%	42.1%	22.5%	100.0%

10 Positive contrarian cases indicating A→ ~ O

61 Negative contrarian cases indicating ~A→ O

Note: SSTD stands for sustainable tourism development support.
[a]Cross-tabulations of environmental impacts and SSTD.
[b]Cross-tabulations of social impacts and SSTD.
*$p < .05$.
**$p < .01$.

The occurrence of such contrarian cases can be explained by the tenets of complexity theory (Hsiao, Jaw, Huan, & Woodside, 2015; Olya & Altinay, 2016; Olya & Gavilyan, 2016; Wu et al., 2014).

Complexity theory postulates that a combination of antecedents (i.e. recipes), not the net effect of all determinants, however, can be considered the causal recipe for modelling **AQ9** SSTD. This means that instead of investigating the net effect of environmental impact on SSTD, a complex configuration consisting of this factor and other factors (e.g. economic, social and cultural concerns, quality of life) must be explored to explain the conditions

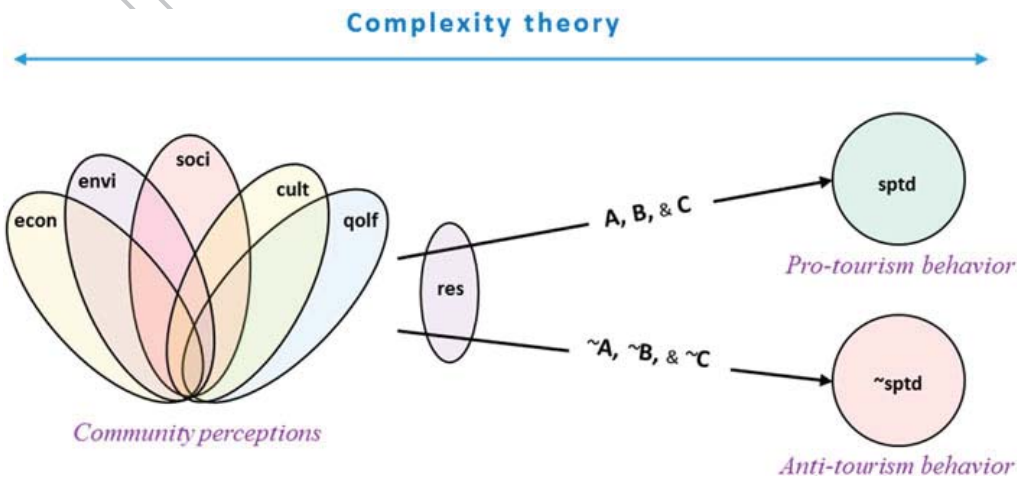
leading to high SSTD scores (Rihoux & Ragin, 2009). Recalling the different expectations, perceptions, and interests of various community groups, it is essential to apply configurational modelling (i.e. employing a configuration of the antecedent) when exploring the complex behaviours of various community groups regarding SSTD.

According to the tenets of complexity theory, the conditions needed to achieve a high SSTD score are not simply the opposite of the conditions leading to a low SSTD score. fsQCA, which is a set-theoretic method, enables scientists to simulate both high and low scores for certain outcome conditions (Ragin, 2008; Woodside, 2014). In other words, the causal recipes for high SSTD scores show the conditions that are associated with pro-tourism communities, and in contrast, causal models of low SSTD scores explain the complex behaviours of anti-tourism communities.

Another function of complexity theory and fsQCA is the equifinality principle, which posits alternative causal models (i.e. recipes, algorithms), not just one deterministic model, leading to a given outcome (Ragin, 2008; Woodside, 2014). Unlike symmetrical modelling that offers one causal model with which to predict a high SSTD score, asymmetrical modelling explores other potential paths (i.e. causal recipes) indicating high/low SSTD scores (Rihoux & Ragin, 2009). Recent studies have argued that along with supporting the fit validity of the proposed model with empirical data, the predictive validity of the model also requires support. This means that the ability of the model to calculate the same outcome (i.e. future behaviour) for separate datasets must be tested (Gigerenzer & Brighton, 2009; Hsiao et al., 2015; Olya & Altinay, 2016; Olya & Gavilyan, 2016; Olya & Mehran, 2017; Wu et al., 2014).

Research configural model

Tourism has significant economic, social, cultural, and environmental impacts on both destinations and local communities (Hall & Page, 2014; Mason, 2015). Hence, tourism scholars used these impacts, which are perceived by local communities, as indictors of SSTD (e.g. Almeida-García, Peláez-Fernández, Balbuena-Vázquez, & Cortés-Macias, 2016; Gursoy & Rutherford, 2004; Kim, Uysal, & Sirgy, 2013; Rasoolimanesh, Roldán, Jaafar, & Ramayah, 2016). Apart from tourism impacts, the quality of life of the local resident



Colour online, B/W in print

Figure 1. Research configural model. Note: A: business community; B: farmer community; C: government community; Sptd is support for sustainable tourism development; econ is economic impacts; envi is environmental impacts; soci is social impacts; cutl is cultural impacts; qolf is quality of life; res is length of residence.

is identified as another significant predictor of support for tourism development (Liang & Hui, 2016; Olya & Gavilyan, 2016; Woo, Kim, & Uysal, 2015).

The relationship between the length of residence in the community and attitudes and behaviours towards SSTD has been reported in several research projects (e.g. Alipour, Olya, & Forouzan, 2017; Mathew & Sreejesh, 2017). Given this realization, a complex configuration that consists of the perceived economic, environment, social, and cultural, impacts, quality of life and length of residency is generated to predict both high (pro-tourism behaviour) and low (anti-tourism behaviour) SSRD scores. Unlike in symmetrical methods, a Venn diagram is used to depict the proposed configurational model based on complexity theory and fsQCA (Figure 1).

As elaborated in the contributions section, exploring the models of SSTD for a particular WCHS across different community perspectives is important because each community – with its unique needs, perceptions, and attitudes – plays a different role in the development of sustainable tourism. Many scholars recommend addressing the following research question: how and under what conditions do various community groups play positive or negative roles in indicating SSTD (e.g. Hodges & Watson, 2000; Kwon, 2016; Olya & Gavilyan, 2016). This empirical study fills this research gap by testing the proposed configurational model using data obtained from three communities, namely the business (arrow A), farming (arrow B), and government communities (arrow C) (Figure 1).

Study area

Pamukkale, which means 'cotton castle' in Turkish, is located in the Denizli province in southwestern Turkey and is one of the country's most important tourist destinations. UNESCO declared Pamukkale, along with the neighbouring ancient city of Hierapolis, famous for its thermal springs and natural landscape, a world heritage site. Pamukkale is ranked first in Turkey, in terms of the number of visitors. It is located on a Mediterranean Sea coast, and as a result of the impact of the wet winds being absorbed by the mountains, it enjoys comprehensive precipitation each year. Built in the second century BC, the ancient Greco-Roman and Byzantine city of Hierapolis is the main historical tourist attraction in Pamukkale.

The population of Pamukkale is 320,142, and its three major stockholders are the farming community, with 2337 members, the business community, with 1310 members, and the government community with 670 members (http://www.pamukkale.gov.tr). Following tourism, agriculture is the major industry in Pamukkale, as a result of its ideal weather and soil quality. The world-famous Honaz cherry is grown in Denizli province. As one of the biggest geothermal greenhouse centres in Turkey, Pamukkale is also the hub of other types of fruits and crops, such as pomegranates, olives, tomatoes, walnuts, corn, wheat, and cotton. Pamukkale is also known for its Civril Apple, grapes and wine industry, and the wine-making centres have testing stands along the roads to provide an opportunity for visitors to have a first-hand observation of the winemaking process. These conditions mean that farmers are recognized as one of the key stockholders in the study area; they are effectively involved in the decision-making process and contribute to sustainable development.

Methodology

Instrument measurements

The scale items were prepared and measured based on the Churchill's (1979) guidelines for developing an appropriate measurement instrument. The items were extracted from past

research (e.g. Almeida-García et al., 2016; Gursoy & Rutherford, 2004; Kim et al., 2013; Lee, 2013; Stylidis et al., 2014). Three items were extracted from Lee's (2013) work on gauging SSTD. A sample from the scale is *I participate in sustainable tourism-related plans and development*. Quality of life is measured using three items extracted from Woo et al. (2015). *So far, I have gotten the important things I want in life* is a sample of this variable.

Six items regarding economic impacts (e.g. tourism increases employment opportunities), eight items regarding environmental impacts (e.g. tourism produces large quintiles of waste products), four items regarding cultural impacts (e.g. tourism improves understandings and appreciations of different cultures) and five items regarding social impacts (e.g. tourism causes the increase of crime) were adapted from the research of Almeida-García et al. (2016), Gursoy and Rutherford (2004), Kim et al. (2013) and Stylidis et al. (2014). All these items were rated based on 5-point Likert scale ranging from 1, strongly disagree, to 5, strongly agree. Length of residence was measured based on the years of residence in Pamukkale. Following Podsakoff, MacKenzie, Lee, and Podsakoff's (2003) recommendations for procedural remedies to reduce the threat of common variance, some items were coded in reverse.

Data and procedure

Permission for an *in situ* survey was obtained from the local authorities of Pamukkale. A quota sampling technique was applied to collect the views of three community groups: business, farmers, and the government. A local assistant was recruited to identify the community members and administer the survey. A sample of the questionnaire was translated into the Turkish language using the back-translation method (Brislin, 1970). A pilot study with 10 cases for each community was conducted to check the clarity of the scale items and other unpredictable problems related to field work (e.g. timing). All items were understandable, and respondents filled out the questionnaires successfully.

Table 2. Profile of the respondents.

Gender	Frequency	Percent	Marital status	Frequency	Percent
Male	190	63	Single	130	43
Female	110	37	Married	170	57
Total	300	100	Total	300	100.0
Age (year)			Education level		
18–27	92	31	High school	85	28
28–37	104	35	Some college degree	14	5
38–47	74	25	Bachelor	168	56
48–57	28	9	Master	31	10
58–67	2	1	PhD	2	1
Total	300	100	Total	300	100
Length of residency			Monthly income (TL*)		
1–3 years	59	20	<1000	57	19
3–5 years	42	14	1000–5000	232	77
5–10 years	50	17	5000–10,000	10	3
10–20 years	66	22	>10,000	1	0.5
>20 years	83	28	Total	300	100
Total	300	100			

Note: The exchange rate of TL to US dollar was 2.8 at the time of data collection.

The questionnaires were directly distributed to the local communities from the 2 April to the 16 August 2015. A total of 300 respondents were targeted for the entire sample size, which yields a quota of 100 cases for each community. To reach the expected quota for each community, community members were invited to the survey, and uncompleted questionnaires were discarded. Data collection continued until 100 valid cases were obtained for each community. With a response rate of 83%, 360 cases participated in the survey, though 60 questionnaires were invalid.

Of the respondents, 63% were male, and 36.7% were female; 43% were single, and 57% were married. In terms of age, 31% were 18–27 years old, 35% were from 28 to 37, 25% were aged 38–47, 9% were from 48 to 57, and 1% were older than 57. More than 55% had a bachelor's degree, 28% had completed high school, 10% had a master's degree, 5% had some kind of college degree, and 1% held a doctoral degree. Twenty-eight per cent of respondents had been settled in the Pamukkale site for more than 20 years, 22% had been there for 10–20 years, 17% had been there for 5–10 years, 14% had been there for 3–5 years, and 20% had been there for 1–3 years. The monthly income of 77% of the respondents was between 1000 and 5000 Turkish lira (TL), while 19% earned less than 1000 TL, 3% earned between 5000 and 10,000 TL, and the remainder had incomes that exceeded 10,000 TL. Table 2 outlines the demographic characteristics of the respondents.

Data analysis

The data were digitized and screened to perform a set of preliminary analyses, including reliability, validity, and cross-tabulation tests. Cronbach's alpha and composite reliability (CR) were calculated to test the internal consistency of the study measures. A rigorous set of factor analyses, namely exploratory factor analysis (EFA) using the principal components method and varimax rotation technique and confirmatory factor analysis (CFA) using maximum likelihood estimation, were performed to check the composition of the scale items. A set of fit statistics, specifically the chi-square over degree of freedom (X^2/df), comparative fit index (CFI), incremental fit index (IFI), Tucker–Lewis index (TLI), and root mean square error of approximation (RMSEA) were estimated to test the fit validity of the measurement model. Convergent and discriminate validity were tested to demonstrate the construct validity of the scale items (Anderson & Gerbing, 1988; Bagozzi & Yi, 1988; Fornell & Larcker, 1981; Hair, Anderson, Tatham, & Black, 1998).

The results of the cross-tabulation analyses showed the occurrence of contrarian cases that demonstrate the asymmetric relationship between SSTD and its indicators (Table 1). Next, asymmetric modelling using fsQCA was applied to test the proposed configurational model. Following Ragin's (2008) user manual for fsQCA software (www.fsQCA.com), the data were calibrated from a crisp value into a fuzzy form. Then, fuzzy truth table algorithms were generated using the Quine–McCluskey technique, which is a method of minimizing Boolean functions. These tables show all possible conditions leading to the study outcomes (i.e. high and low SSTD scores). A counterfactual analysis of the causal conditions, which is the last step of fsQCA, was conducted to refine all possible conditions listed in the fuzzy truth tables based on coverage and consistency. As Ragin (2008) explains, coverage represents the relative importance of different paths to an outcome, and consistency demonstrates what proportion of observed cases are consistent with the pattern. These can be calculated based on Equations (1) and (2), respectively.

$$\text{Coverage} : (X_i \leq Y_i) = \sum \{\min(X_i,\ Y_i)\} / \sum (Y_i), \tag{1}$$

Table 3. Results of reliability and validity.

Scale items	λ (α)	Eigenvalue	% of variance	SFL (CR)	AVE	MSV	ASV
Economic impacts	(.788)	4.548	11.154	(.723)	.503	.048	.023
Tourism contributes to income and the standard of living	.784			.798***			
Tourism improves the local economy	.719			.707***			
Tourism increases employment opportunities	.797			.759***			
Tourism improves investment and development	.697			.695***			
Tourism improves infrastructural spending in the economy	.548			.687***			
Tourism increases revenues	.595			.593***			
Environmental impacts[a]	(.893)	6.642	17.039	(.701)	.538	.073	.016
Tourism increases traffic congestion	.536			.565***			
Tourism results in overcrowding	.707			.638***			
Tourism results in noise pollution	.790			.752***			
Tourism results in air pollution	.768			.733***			
Tourism produces large amounts of litter and waste	.752			.792***			
Tourism causes the reduction of green space	.762			.804***			
Tourism causes the reduction of open space	.699			.773***			
Tourism causes water shortages	.735			.776***			
Cultural impacts	(.738)	1.312	7.338	(.757)	.540	.058	.027
Tourism improves cultural activities and opportunities for cultural involvement (i.e. music, theatre, cinema, concerts, etc.)	.798			.831***			
Tourism improves the sense of community and community activities	.732			.746***			
Tourism improves the understanding and appreciation of different cultures	.672			.684***			
Tourism promotes cultural exchange	.563			.668***			
Social impacts[a]	(.833)	2.153	9.911	(.714)	.547	.073	.018
Tourism causes increased crime	.607			.633***			
Tourism increases prostitution	.767			.823***			
Tourism increases the consumption of illegal substances	.820			.854***			
Tourism contributes to smuggling	.751			.786***			

(*Continued*)

Table 3. Continued.

Scale items	λ (α)	Eigenvalue	% of variance	SFL (CR)	AVE	MSV	ASV
Tourism increases tension	.468			.556***			
Quality of life	(.699)	1.266	6.913	(.692)	.548	.058	.027
The conditions of my life are excellent	.821			.786***			
So far, I have gotten the important things I want in life	.812			.771***			
I am satisfied with my life as a whole	.799			.658***			
Support sustainable tourism development	(.761)	1.465	7.597	(.788)	.545	.068	.046
I support the development of sustainable tourism initiatives	.698			.781***			
I participate in sustainable tourism-related plans and development	.785			.829***			
I cooperate with tourism planning and development initiatives	.725			.582***			
Model fit statistics: $X^2 = 897.966$ (df = 362, $p < .01$), $X^2/df = 2.481$, CFI = .854, IFI = .856, TLI = .837; RMSEA = .070							

Note: λ is factor loading coefficient. α is Cronbach's alpha representing internal consistency. Kaiser–Meyer–Olkin measure with .843 and Bartlett's test of Sphericity of 3940.548 was significant ($p < .001$). SFL: standardized factor loading; AVE: average variance extracted; MSV: maximum shared squared variance; ASV: average shared square variance; CR: composite reliability; CFI: comparative fit index; IFI: incremental fit index; TLI: Tucker–Lewis index; RMSEA: root mean square error of approximation.[a]Reverse coded items. Item were gauged using 5-point Likert scale.***SFL is significant at the .001 level.

$$\text{Consistency} : (X_i \leq Y_i) = \sum \{\min(X_i,\ Y_i)\} / \sum (X_i), \tag{2}$$

2)where X_i is case i's membership score in set X and Y_i is case i's membership score in the outcome condition (Ragin, 2008). The configurational model testing using fsQCA was performed for all three communities. To explore recipes describing the pro-tourism and anti-tourism behaviour of the three community groups, causal algorithms leading to high and low SSTD scores were calculated. The predictive validity was tested (Gigerenzer & Brighton, 2009; Olya & Gavilyan, 2016; Wu et al., 2014). Finally, the results of the fsQCA were evaluated in light of the key tenets of complexity theory (Woodside, 2014).

Results

Reliability and validity

The magnitude of the Cronbach's alpha and CR values for all constructs met the commonly accepted level (Table 3), which confirmed the internal consistency (i.e. reliability) among the items of each scale (Bagozzi & Yi, 1988; Cortina, 1993). The EFA results showed that all items were loaded under their respective components ($\lambda > .45$). The eigenvalues of all factors were more than 1. According to the percentage of variance (<40%), as a criterion of Harman's single factor, no general factor emerged, which demonstrated that

common method variance is not a serious threat to the study measures (Podsakoff et al., 2003). The CFA results revealed that scale items were significantly and adequately loaded under the assigned factors (standardized factor loading (SFL) > .5, $p < .001$) (Anderson & Gerbing, 1988). As shown in Table 3, the fit validity results (X^2/df = 2.481, CFI = .854, IFI = .856, TLI = .837; RMSEA = .070) revealed that the proposed measurement model was well fitted with the data (Bentler, 1990; Bentler & Bonett, 1980; Browne & Cudeck, 1993).

To test convergent and discriminate validity, average variance extracted (AVE), CR, maximum shared squared variance (MSV), and average shared square variance (ASV) were estimated for all constructs (Table 3). As Hair et al. (1998) suggested, the AVE of each construct was larger than .5 and was also greater than the corresponding CR value for each factor. Such results provide evidence of convergent validity. The AVE values for all constructs were larger than MSV and ASV for the related variables. These statistics proved the discriminant validity of the study measures (Anderson & Gerbing, 1988; Fornell & Larcker, 1981).

Results from the fsQCA

The results of the model testing for the three community groups are outlined in Table 4. The causal models describing both the pro-tourism and anti-tourism behaviours of the communities are provided in the left and right sides of Table 4, respectively. According to the fsQCA results, two consistent and sufficient causal recipes explained the pro-tourism behaviour of the business community (coverage: .407, consistency: .863). The first model suggests that those businesses that perceived a high level of economic and cultural impact and quality of life, although they perceived a low level of social and environmental impact on the part of tourism development in Pamukkale, had high levels of SSTD (A. M1: *econ*~envi*~soci*cult*qolf*). There is an alternative model (i.e. A. M2: *~envi*~soci*cult*qolf*~res*) that showed a causal recipe for pro-tourism behaviour among the business community. Model 2 suggests that those businesses that had been residents of Pamukkale for a short time and perceived high levels of cultural impact and quality of life and low levels of environmental and social impact are likely to support sustainable tourism development (Table 4).

The results of the asymmetric modelling provide three causal recipes describing anti-tourism behaviour among the business community group (coverage: .535, consistency: .866). Those who had been resident of Pamukkale for a long period of time and perceived low levels of economic, environmental, social, and cultural impact and quality of life were less likely to engage in SSTD (~A. M1: *~econ*~envi*~soci*~cult*~qolf*res*). Alternatively, those business community members who had stayed for only a short term at the study site and perceived high levels of economic and cultural impact and low levels of environmental and social impact and quality of life (~A. M2: *econ*~envi*~soci*cult*~qolf*~res*) had low levels of SSTD. Those businesses who had been residents of Pamukkale for a short time and perceived low levels of economic, environmental, and social impact of tourism, yet perceived high levels of cultural impact and quality of life, were less likely to engage in SSTD (~A. M3: *~econ*~envi*~soci*cult*qolf *~res*).

The fsQCA results for the farming community explored one causal recipe for achieving a high SSTD score (coverage: .174, consistency: .966) and one causal model leading to a low SSTD score (coverage: .276, consistency: .966). Those farmers who had been resident of Pamukkale for a short time and perceived high levels of economic, environmental, social, and cultural impact and quality of life (B. M1: *econ*envi*soci*cult*qolf*~res*) showed a

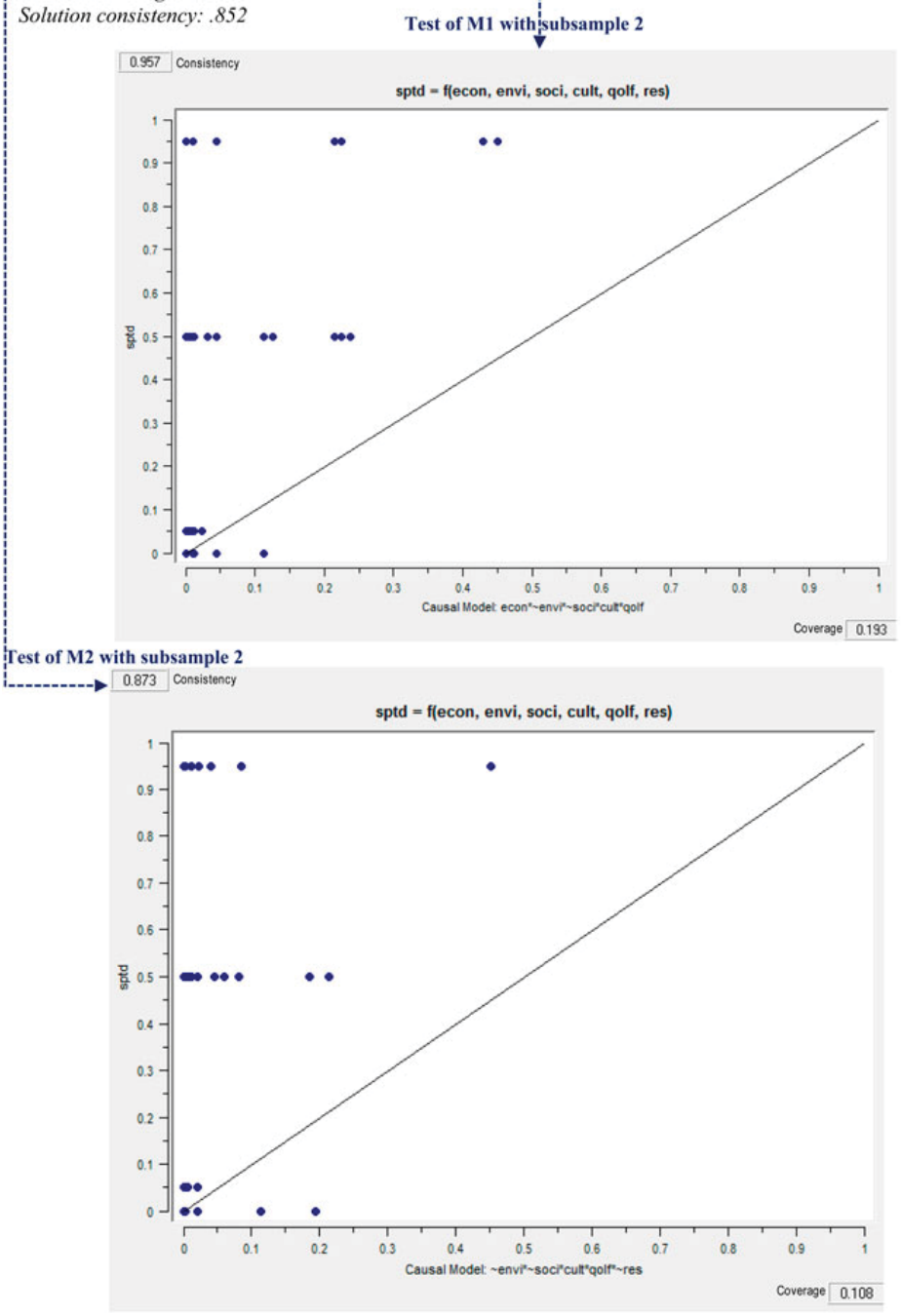
Table 4. Configural models SSTD and its negation.

Models for predicting high score of outcome (*SSTD*)	RC	UC	C	Models for predicting the outcome negation (~*SSTD*)	RC	UC	C
Business community							
A. *sptd = f(econ, envi, soci, cult, qolf, res)*				~A. ~*sptd = f(econ, envi, soci, cult, qolf, res)*			
M1: econ*~envi*~soci*cult*qolf	.380	.126	.873	M1: ~econ*~envi*~soci*~cult*~qolf*res	.281	.108	.971
M2: ~envi*~soci*cult*qolf*~res	.282	.028	.861	M2: econ*~envi*~soci*cult*~qolf*~res	.400	.198	.874
Solution coverage: .409				M3: ~econ*~envi*~soci*cult*qolf *~res	.153	.022	.821
Solution consistency: .863				Solution coverage: .535			
				Solution consistency: .866			
Farmer community							
B. *sptd = f(econ, envi, soci, cult, qolf, res)*				~B. ~ *sptd = f(econ, envi, soci, cult, qolf, res)*			
M1: econ*envi*soci*cult*qolf*~res	.174	.174	.966	M1: econ*~envi*~soci*~cult*~qolf*~res	.276	.111	.966
Solution coverage: .174				Solution coverage: .276			
Solution consistency: .966				Solution consistency: .966			
Government community							
C. *sptd = f(econ, envi, soci, cult, qolf, res)*				~C. ~ *sptd = f(econ, envi, soci, cult, qolf, res)*			
M1: econ*~envi*~soci*cult*~qolf*res	.470	.470	.722	M1: econ*~envi*~soci*~qolf	.670	.384	.801
Solution coverage: .470				M2: ~envi*~soci*~cult*~qolf*~res	.317	.031	.870
Solution consistency: .722				Solution coverage: .701			
				Solution consistency: .801			

Note: M stands for model; RC: raw coverage; UC: unique coverage; C: consistency. SSTD is support for sustainable tourism development; econ is economic impacts; envi is environmental impacts; soci is social impacts; cutl is cultural impacts; qolf is quality of life; res is length of residence.

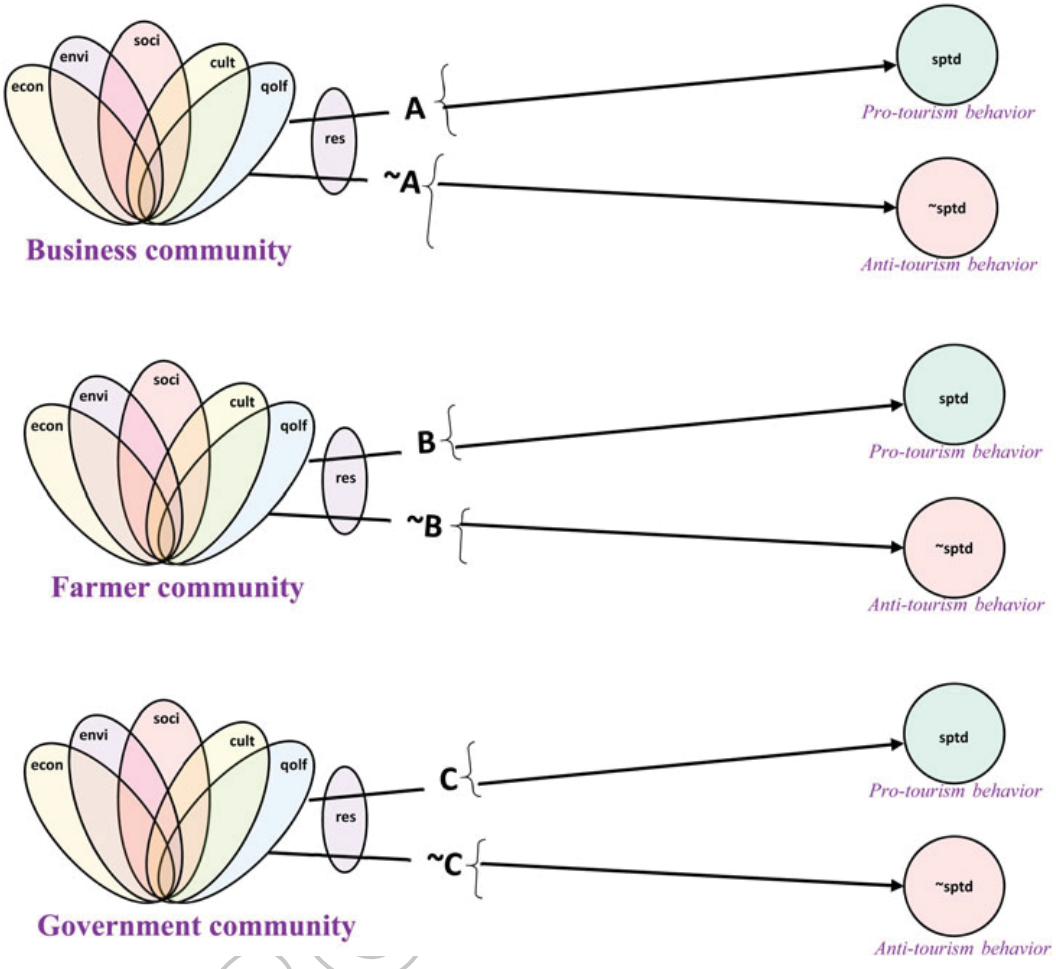
AQ25 Table 5. Results of predictive validity.

Models from subsample 1	Raw coverage	Unique coverage	Consistency
Subsample 1: *sptd = f(econ, envi, soci, cult, qolf, res)*			
M1. econ*~envi*~soci*cult*qolf	.365	.110	.834
M2. ~envi*~soci*cult*qolf*~res	.307	.051	.889
Solution coverage: .417			
Solution consistency: .852			



Note: The XY plots revealed an asymmetric relationship between sptd and its causal models.

high level of SSTD. In contrast, those farmers who had been resident of Pamukkale for a short time and perceived a high level of economic impact but low levels of environmental, social, and cultural impact, and quality of life (~B. M1: econ*~envi*~soci*~cult*~-qolf*~res) had low SSTD scores.



Colour online, B/W in print

Figure 2. The results of configural models of three community groups. Note: Sptd is support for sustainable tourism development; econ is economic impacts; envi is environmental impacts; soci is social impacts; cutl is cultural impacts; qolf is quality of life; res is length of residence.

From the perspective of the government community, one causal recipe explains the conditions leading to pro-tourism behaviour (coverage: .470, consistency: .772), and two causal models describe the conditions leading to anti-tourism behaviour (coverage: .701, consistency: .801). As shown in Table 4, those members of the government community who had been resident of Pamukkale for a long time and perceived high levels of economic and cultural impact, as well as low levels of environmental and social impact and quality of life (C. M1: *econ*~envi*~soci*cult*~qolf*res*), are likely to engage in SSTD. Importantly, members of the government community who perceived high levels of economic impact but low levels of environmental and social impact and quality of life (~C. M1: *econ*~envi*~soci*~qolf*) were less likely to engage in SSTD. The second condition that makes the government community an anti-tourism group is represented in Model 2 (~C. M2: *~envi*~soci*~cult*~qolf*~res*), in which members with short residency times and low perceptions of environmental, social, and cultural impacts, and quality of life scored low levels of SSTD (Table 4).

Predictive validity results

This study provides evidence of the predictive validity of the proposed model (Table 5). First, the sample was divided into two subsamples. Secondly, the causal models using

subsample 1 were calculated (coverage: .417, consistency: .852). Thirdly, the causal models that emerged from subsample 1 were tested using the data of subsample 2. The fuzzy XY plots of the two causal models were sketched, which demonstrated the asymmetric relationships between the causal models and the study outcome (i.e. SSTD). As shown in the XY plots in Table 5, the two causal models sufficiently and consistently predicted high SSTD scores. Therefore, the proposed configurational model has the predictive ability to explore the outcome condition using a separate data set (Hsiao et al., 2015; Olya & Gavilyan, 2016; Wu et al., 2014).

Evaluation of complexity theory

The fsQCA results were assessed in the light of six tenets of complexity theory (Woodside, 2014). According to the first tenet, a simple antecedent (i.e. economic impact) may be necessary, but it is rarely sufficient to predict high/low SSTD. As illustrated in Figure 2, none of the simple antecedents is sufficient to predict either high or low SSTD scores. Therefore, Tenet 1 is supported. The second tenet is *the recipe principle*, which states that a combination of two or more simple antecedents is sufficient for a consistently high/low SSTD score. Based on the fsQCA results, all causal models for predicting both high and low SSTD scores consist of more than two antecedents (e.g. A. M1: econ*~envi*~soci*cult*qolf). Thus, Tenet 2 is supported. The third tenet posits that a causal model is sufficient but not necessary to predict high/low SSTD scores. The name of this tenet is *the equifinality principle*. As demonstrated in Figure 2, the fsQCA results offer two causal models (i.e. A. M1-2) for high SSTD scores and three models (not just one model) for low SSTD scores for the business community group. Thus, Tenet 3 is supported.

The present study benefited from the fourth tenet, which is called *the causal asymmetry*. This tenet postulates that the causal recipe for a high SSTD score is unique and not the mere opposite of recipes for a low SSTC score. As depicted in Figure 2, the models for predicting high SSTD scores (A, B, and C) are not simply the opposites of algorithms (~A, ~B, and ~C) for low SSTD scores. The fifth tenet states that the role of each antecedent (e.g. economic impact) in causal recipes depends on the actions of other antecedents (e.g. cultural impacts, quality of life, and length of residency).

As shown in Figure 2(~A), economic impact positively contributes to predicting low SSTD scores in Model 2 (M2: econ*~envi*~soci*cult*~qolf*~res), while it plays negative roles in Model 1 (M1: *~econ*~envi*~soci*~cult*~qolf*res*) and Model 3 (M3: ~econ*~envi*~soci*cult*qolf *~res). Therefore, Tenet 5 is supported, which is very helpful in explaining existence of heterogeneity in predicting SSTD (Olya & Gavilyan, 2016; Schofield, 2011; Sharply, 2014). According to the sixth tenet, a given recipe is relevant for some cases, not all members of community groups. For example, for the business community, Model 1 represents the behaviour of some cases (coverage is less than 1), while the behaviour of some other business community members matched with the recipe of Model 2 (see Table 5(a)). The evaluation of the fsQCA results with the tenets of key complexity theory showed that it is a promising alternative to SET and explained the asymmetric interactions between SSTD and its antecedents well.

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Discussions and conclusion

This empirical study tackled the complexity of anti-tourism and pro-tourism behaviours among various community groups in Pamukkale, which is a UNESCO world heritage site in Turkey. Anti-tourism behaviours among local communities are a current issue in

Table 6. Practical implications for managing pro-tourism and anti-tourism community groups.

Suggestions for pro-tourism community group	Suggestions for anti-tourism community group
Business community M1: econ*~envi*~soci*cult*qolf Managers must improve the economy, culture, and quality of life of those business communities who perceive the environmental and social impacts of tourism to be low. The creation of more jobs and opportunities related to tourism can improve the economic impact. The provision of a cultural exchange between the business community and tourists can increase the cultural impact of tourism. Decision-makers can improve the quality of life of the business community by promoting healthcare services, knowledge-sharing, and sustainable governance M2: ~envi*~soci*cult*qolf*~res Policy-makers must encourage this pro-tourism community group to become more involved in cultural activities, such as the preservation and restoration of celebrations, local festivals, and cultural events. Improving the quality of life of this group will encourage its members to support the development of sustainable tourism	M1: ~econ*~envi*~soci*~cult*~qolf*res This anti-tourism business community, which has been in Pamukkale for a long time, must develop a positive perception of tourism in terms of economic, environmental, social, and cultural factors, as well as quality of life. The encouragement of civic involvement and pride regarding tourism activities/resources will increase the social impacts of tourism. Tourism decision-makers can implement conservation projects for the Pamukkale site, and can foster a more positive perception of the environmental impact by informing and involving this community group M2: econ*~envi*~soci*cult*~qolf*~res This anti-tourism group requires a perception shift towards a more positive attitude. Improving quality of life can be a catalyst in this aim. Implementation of community beautification, revitalization, and improving the community's collective ego is an approach to achieve this M3: ~econ*~envi*~soci*cult*qolf *~res Managers must boost the economic, environmental, and social impacts of tourism in Pamukkale to motivate this anti-tourism community to support the development of sustainable tourism. Upgrading the tourism facilities and infrastructure will provide amenities that can generate a positive perception regarding tourism development in Pamukkale
Farmer community M1: econ*envi*soci*cult*qolf*~res	M1: econ*~envi*~soci*~cult*~qolf*~res

(*Continued*)

Table 6. Continued.

Suggestions for pro-tourism community group	Suggestions for anti-tourism community group
This model states that managers should monitor the impact of tourism and quality of life on the farmer community group who have lived in the area for a shorter time to encourage their continuing support for the development of sustainable tourism in Pamukkale. Authorities can focus on the allocation of tourism-related funds to public facilities and services, such as schools near the settlements of the farming community. Organizing festivals and seasonal markets to sell farm produce to the tourists during the peak season may lead to a positive economic impact. The development of agro-tourism projects can also contribute to the local economy	The anti-tourism attitude among this group can be converted into a positive behaviour by providing awareness of the role of tourism in improving sanitation and cleanliness, bringing in hard currency, thereby strengthening the tax base, which will be spent on improving community facilities. Furthermore, this can result in the improvement of housing quality and public transport facilities, and this group can eventually become involved in social and cultural activities. The authorities can establish some eco-friendly campaigns and practices near the farmers' settlements, with the involvement of visitors, to boost the positive impact of the development of tourism in Pamukkale
Government community	
M1: econ*~envi*~soci*cult*~qolf*res	M1: econ*~envi*~soci*~qolf
The economic and cultural benefits of the government community must be satisfied, as they have remained in Pamukkale for a long time. Extra tax revenues through accommodation and restaurant taxes, airport taxes, sales taxes, park entrance fees, and employee income tax may provide conditions for the government community to perceive the positive economic impacts of tourism. Encouraging this pro-tourism group to learn a new language and skill will increase their communication and cultural exchange with tourists, which is a further cultural impact of tourism	The environmental and social impacts of tourism, and quality of life on this anti-tourism community must be improved by applying the suggested strategies. For example, managers can invest in human and social capital to change the current condition
	M2: ~envi*~soci*~cult*~qolf*~res
	The expectations and concerns of this community with regard to improving environmental, social and cultural factors, as well as their quality of life, must be considered and addressed by the managers to prevent an anti-tourism attitude and behaviour

Note: *M* stands for model. econ is economic impacts; *envi* is environmental impacts; *soci* is social impacts; *cutl* is cultural impacts; *qolf* is quality of life; *res* is length of residence.

tourism and have been observed in many destinations, such as Barcelona, Berlin, Lisbon, and Hong Kong (Bershidsky, 2015; Matlack, 2015). Exploring the causal conditions leading to such behaviours is imperative, especially at world heritage sites, which are important to the collective interests of humanity.

In line with the intention of the present study, anti-tourism sentiments have been identified and reported in different destinations across the world. For example, Weaver and Lawton (2013) revealed a fair degree of host resentment and opposition to certain tourism and tourism-related projects in Australia. Anti-tourism behaviour may not take the form of large-scale protests; however, the concepts of 'slow tourism' (Oh, Assaf, & Baloglu, 2016) vs. 'mass tourism,' or 'mass tourism' vs. 'alternative tourism,' have obvious ramifications for particular community members who are not reaping the so-called benefits of the tourism. This has the potential to generate resentment and opposition to tourism, particularly mass tourism. In their elaboration of new dynamics in urban tourism in Berlin-Kreuzberg, Füller and Michel (2014) reiterated the fact that anti-gentrification was negatively perceived by some residents in urban centres, and that it was 'often accompanied by anti-tourism sentiments' (p. 6).

With regard to Turkey, Henderson (2007, p. 74), asserted that ' … the rise in Islamic extremism has been a source of new and potentially divisive socio-cultural forces which are evident in more moderate nations.' Kuvan and Akan (2012) exemplified the anti-tourism behaviour of residents in Turkey results via their conflict with hoteliers, who disregarded their benefits and concerns. Tosun found that greater flexibility, decentralization and the involvement of local communities are required for the development of tourism in Turkey. This study developed and tested a configurational model used to predict the conditions leading to both high and low SSTD scores.

This study also contributed to the current knowledge of CBT by proposing specific causal recipes for achieving both high and low SSTD scores. In other words, this study complemented the works of Šegota et al. (2016), Schofield (2011), and Van Den Bergh (2014), who identified the voices of different community groups as being triggered by different expectations, perceptions, and interests. Specifically, Kuvan and Akan (2012) report evidence of conflict among local communities in Turkey, which was increased due to top-down CBT and miscommunication. The results of this empirical study revealed that the causal models that describe the conditions needed to achieve SSTD are unique and vary based on the views of the three community groups. Applying specific strategies that satisfy the conditions of the various community groups is a step towards shifting from traditional top-down CBT to bottom-up CBT, as highlighted by Zapata et al. (2011). The results of the study extend our understanding of CBT, specifically the need to develop different strategies (models A, B, and C) for each community group, not a set of holistic plan for all communities that is dictated from the top down.

This study used fsQCA and complexity theory for the asymmetrical modelling of SSTD. The application of this innovative approach advances theory and methods because complexity theory helps to explain the occurrence of heterogeneity (e.g. the negative association between economic impact and SSTD), as well as the asymmetric relationship between SSTD and its indicators (see Table 1), which SET was unable to explain. Complexity theory suggests that a combination of antecedents, not a single antecedent, can describe the conditions leading to the desired level of SSTD. Hence, we can explain occurrences of heterogeneity in indicating SSTD by considering this fact: the positive or negative role of each antecedent in a given recipe depends on the presence or absence of other antecedents. This is in accordance with findings of Schofield (2011, p. 220), who identified the heterogeneity of length of residency in indicating

STTD and noted that '… the longer residents stay, the more negative their attitudes become.' However, research by Allen, Hafer, Long, and Perdue (1993) found no correlation between these variables and residents' attitudes towards tourism. With this realization, we were able to explore specific causal recipes for various group communities. Furthermore, the fsQCA results showed that the conditions leading to the anti-tourism behaviour not simply mere opposites of the causal model describing pro-tourism behaviour. In accordance with Olya and Gavilyan (2016), the present study shows the practicality of complexity theory and fsQCA for crafting and testing a configurational model of SSTD based on communities' perspectives.

The outputs of the present study can be used as a guideline for decision-makers in Pamukkale who are attempting to not only avoid anti-tourism behaviours, but also to encourage local communities to effectively contribute to sustainable tourism development programmes. The implementable implications for managing both pro-tourism and anti-tourism sentiments of three community groups are suggested in Table 6. The business community is the most complex group at the study site. Their supportive behaviour is in line with two causal models, and their anti-tourism behaviour matches three causal recipes that policy-makers must monitor and manage.

The fsQCA results showed that the farmer community is the most demanding community in terms their perceptions about the antecedents of SSTD. If they perceived positive economic, social, and cultural impacts and quality of life, then they are likely to engage in SSTD. The anti-tourism members of the farmer community are sensitive to negative environmental, social, cultural, and quality-of-life impacts, although they perceived a positive economic impact on the part of tourism. If the government community perceives positive economic and cultural impacts, despite their negative perceptions about environmental, social, and quality-of-life impacts, they are likely to SSTD in Pamukkale. The causal models describing anti-tourism behaviour among the government community revealed that the cultural impacts of tourism are very important to them; its absence (Model 1) and its negation (Model 2) lead to low SSTD scores.

Although this study is a reply to the study performed by Sinclair-Maragh and Gursoy (2016), who called for the modelling of SSTD in developing countries, we suggest that due to the more accurate results calculated using the innovative approach, further research is needed to apply complexity theory and fsQCA to the development and testing of models for predicting SSTD in both developed and developing countries. In accordance with Ordanini et al. (2014), who believe that a causal recipe is more important than ingredients (i.e. antecedents), the present article explored the conditions (i.e. causal recipes) leading to both high and low SSTD scores. As Olya and Gavilyan (2016) concluded, most indicators of SSTD have been identified, and it is time to explore how these ingredients must be combined to be attuned to the proposed causal recipes for achieving the desired outcome/s. Hence, we recommended this as a pathway for future studies to develop strategies, programmes, and practices that create conditions similar to the causal recipes that emerged from the asymmetrical modelling. The calibration of a resilience framework for long-term structural change, as proposed by Bec, McLennan, and Moyle (2016), for each different community is another direction for further research. This is a cross-sectional study, which is a limitation of this article that can be addressed in future research by performing longitudinal studies.

Disclosure statement

AQ16 No potential conflict of interest was reported by the authors.

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