

Residents open their homes to tourists when disaster strikes

Cite as:

Hajibaba, H., Karlsson, L., Dolnicar, S. (in press) Residents open their homes to tourists when disaster strikes. *Journal of Travel Research*, doi: 10.1177/0047287516677167.

Acknowledgements

We thank the Australian Research Council (ARC) for support under grants DP110101347 (salary support) and DP120103352 (project support). We thank Tim Coltman and Dominik Ernst for their comments on previous version of this manuscript.

Abstract

Residents are key stakeholders of tourism destinations. Yet, to date, no study has investigated if and how residents can contribute to destination recovery when a disaster hits. The emergence of peer-to-peer networks offers an efficient platform for residents to open their homes to displaced tourists. Such help is particularly critical if key tourist infrastructure is severely damaged. But are residents willing to open their homes and help in other ways? The present study adopts a scenario-based survey research design, including Australians who live in tourism regions and Australian tourists. Results indicate that (1) segments of residents willing to support the tourism industry in disaster situations exist, and (2) tourists are willing to accept residents' offers of support. The more immediate the emergency, the higher the willingness to help and accept help. These insights point to the potential of involving residents in destination recovery efforts.

Keywords

Natural disasters; residents; sharing economy; peer-to-peer networks; collaborative consumption; crisis management

Introduction

Natural disasters pose a constant threat to tourism destinations. Unexpected disasters have the potential to cause significant damage to infrastructure and disrupt tourist flows. The disruption of tourist flows leads to loss of tourism revenue which many regions heavily rely upon. In Nepal, for example, tourism contributed 8.9% to the 2014 GDP (World Travel and Tourism Council 2015). The April 2015 earthquake hit Nepal's tourism industry hard. Many tourist accommodations were completely or partially damaged, 90% of international trips were cancelled immediately after the earthquake and a further 40% drop in international arrivals was forecast for the 12 months following the disaster (Government of Nepal 2015).

The negative impacts of disasters on tourism destinations occur at two points in time: at the *emergency stage* immediately after the disaster hits and at the destination *recovery stage*, which sometimes can take years as in the case of the 2011 Christchurch earthquake which caused a 73% drop in international guest nights in the Canterbury region and was partially due to a 40-50% decrease in the number of available beds (Orchiston, Prayag, and Brown 2016; Wilson 2016).

Studies which have investigated how to best manage such situations (Ritchie 2009; Sönmez, Apostolopoulos, and Tarlow 1999) assume the existence of a disaster management plan where professionals take clearly specified roles. However, relying solely on professional disaster relief staff and commercial infrastructure is limiting, especially when the damage to infrastructure is substantial.

The present study investigates the potential of involving residents in the emergency response and the long-term rebuilding process. The involvement of residents has not been the subject of a systematic investigation, possibly due to the lack of an effective "activation mechanism". The emergence of peer-to-peer networks offers such a mechanism. Peer-to-peer networks, such as Airbnb, enable quick distribution of accommodation capacity and other services. Residents can become tourist accommodation providers by listing their properties online. Because residents are making available existing housing, peer-to-peer accommodation networks can scale their supply to meet increased demand at virtually no cost and much faster than hotels. Evidence of peer-to-peer networks activating current hosts to help in the provision of accommodation during disasters already exists (Airbnb 2016).

The present study investigates:

- (1) the potential of involving residents in the emergency response and long-term rebuilding process of tourism destinations after a disaster hits, and
- (2) tourists' willingness to accept the support offered by residents.

The knowledge gained from this study adds to both the crisis literature and the emergency literature (George 2008; Robinson and Jarvie 2008). Findings are also of immediate value to the tourism industry which can develop novel approaches to disaster management and recovery. This study does not aim to develop a comprehensive conceptual model of resident assistance, rather it aims to assess whether this new avenue of involving residents in tourism recovery efforts at the destination is an avenue worth pursuing.

The Potential Role of Residents in Destination Recovery

The occurrence of natural disasters at tourism destinations can lead to substantial damage to tourist accommodation. Lack of alternative accommodation forces tourists to cancel their trip (Orchiston, Prayag, and Brown 2016). 'Tent hotels' were an immediate response to the destruction of hotels in Arugam Bay (Sri Lanka) following the Asian tsunami (Robinson and Jarvie 2008). Camping tents were used to accommodate visitors arriving for the surf season. Tents solved the immediate problem, but were not suitable for the longer recovery period following the natural disaster.

Natural disasters not only damage the infrastructure, they also negatively impact tourists' perceptions of safety at the destination (Sönmez and Graefe 1998). Such negative perceptions decrease the likelihood of tourists

travelling to disaster-stricken destinations (Sönmez and Graefe 1998). Following a disaster, both tourists at the destination and tourists about to travel to the destination need reassurance of safety (Law 2006). Tourists also need updates on disaster developments to feel confident to travel (Beirman 2003; Ritchie 2009). Hajibaba, Boztuğ, and Dolnicar (2016) identify three approaches that can be used to reduce cancellations: the provision of alternative accommodation, the provision of updates, and safety measures.

Carlsen and Liburd (2008) emphasize the need to identify the role of different tourism stakeholders in rebuilding tourism destinations. During a disaster, tourists are more vulnerable than residents because they are unfamiliar with the environment (Burby and Wagner 1996). Helsloot and Ruitenberg (2004) challenge the myth that residents panic in a disaster situation, instead arguing that most residents act rationally in such situations. Helsloot and Ruitenberg (2004) suggest to consider involving residents during and after a disaster in the provision of rescue, shelter and care.

Stallings and Quarantelli (1985, 94) emphasize the importance of emergent groups (“groups of citizens that emerge around perceived needs or problems associated with both natural and technological disaster situations”). Resident participation and involvement in the community is fundamental for creation of resilient communities which, in turn, improves disaster readiness and recovery (Norris et al. 2008). According to Stallings and Quarantelli (1985), emergent citizen groups in a crisis have to turn into organized groups of citizens and be linked to emergency management organizations. Help from residents can occur both during and after disasters (Helsloot and Ruitenberg 2004; Stallings and Quarantelli 1985), but exactly how is unclear from the crisis literature.

New distribution channels enable residents’ involvement in all three aspects of destination recovery: provision of accommodation, safety and information. Peer-to-peer accommodation networks can be used by residents to share their homes with tourists. As opposed to the traditional tourism accommodation sector (which involves tourists renting rooms from professional businesses), peer-to-peer accommodation networks provide an online marketplace that coordinates rental of spaces between ordinary people (Guttentag 2015). Airbnb is the most prominent peer-to-peer accommodation network. On Airbnb people who are willing to rent out space take pictures of their space and post them online, along with a detailed description of the property, a price and a booking calendar. Tourists are able to browse all the spaces available for rent on the peer-to-peer accommodation site, send inquiries and book online. Trust is central to peer-to-peer accommodation networks. Therefore, both the person renting out space and the person renting space need to be signed up with the networks. Being signed up means that the profiles of people involved in a transaction are visible to the other party, along with reviews they have received both in their role as guest and in their role as hosts. The peer-to-peer accommodation network handles payments and charges a commission. One of the unique selling propositions of peer-to-peer accommodation networks is the higher level of authenticity experienced by tourists. Note, however, that this is not an aspect the present study focuses on because the context of the study is that of serious emergencies. Authenticity is not of primary concern in this context.

Another way in which residents can help is by helping tourists travel around the destination if public transport is not operating. Peer-to-peer transportation networks allow residents to provide transportation to tourists using their personal vehicles. Peer-to-peer transport uses GPS-based apps, facilitating a real-time connection between residents and tourists looking for a ride (Copenhagen Economics 2015).

Finally, residents can also assist by providing information to tourists. Social media can facilitate peer-to-peer information sharing in disaster situations (Pennington-Gray, Kaplanidou, and Schroeder 2013). Residents can use social media to share eyewitness reports. Tourists might trust disaster information sources differently. It is therefore important to investigate the level of tourists’ trust in information from residents.

Factors Driving Residents’ Willingness to Help

Residents can support tourism destinations in crisis by sharing their available resources, such as their homes or information, with tourists. Belk (2007, 127) defines sharing as “the act and process of distributing what is ours

to others for their use.” Sharing which occurs among people known to one another, like family members and friends, is referred to as “sharing in” (Belk 2010). Sharing between strangers is referred to as “sharing out” (Belk 2010).

Sharing out available resources with tourists in an emergency situation following a disaster or during the recovery phase from such a disaster is behavior which is intended and benefits other, so it can also be seen as a form of helping. Helping is defined as an intended act that is beneficial to another (Batson and Shaw 1991).

Helsloot and Ruitenberg (2004) argue that in times of crisis residents are willing to help not only their family and friends but also others. Therefore, it can be hypothesized that residents would be willing to help tourists in disaster situations by sharing out their available resources.

Several theories can be used in an attempt to explain residents’ helping and sharing behavior in disaster situations. According to social exchange theory, the costs and benefits of an exchange affect individuals’ evaluation of that exchange (Ap 1992). Therefore, it can be assumed that residents who benefit from tourism will be more willing to offer help. Alternatively, economic benefits, such as earnings from sharing their home with tourists, can drive residents to offer help (Karlsson and Dolnicar 2016).

Belk (2010) argues that the kind of sharing which involves exchange and reciprocity is not true sharing; rather it represents collaborative consumption which is defined as “people coordinating the acquisition and distribution of a resource for a fee or other compensation” (Belk 2014, 1597). True sharing does not involve compensation, but love and caring (Belk 2010). This is in line with the empathy-altruism model by Batson and Shaw (1991) which postulates an altruistic path to helping. Witnessing others’ suffering arouses empathy. Empathic emotions evoke altruism and willingness to help the person for whom empathy is felt (Batson and Shaw 1991). Therefore, empathy and altruism potentially explain residents’ support in disasters.

Another motivation for sharing – which has come up in the literature on peer-to-peer accommodation networks – is possessing unused resources (Tussyadiah and Pesonen 2015). It can be assumed, therefore that residents who have guest facilities at their home will be more likely to make accommodation available to tourists. Sense of community is another sharing motivator (Belk 2007). Place attachment is closely related to one’s sense of community and is found to motivate residents to protect, improve and revitalize their communities (Manzo and Perkins 2006). It can be assumed that place attachment affect residents’ sharing and helping behavior in disaster situations.

Some personality traits such as extroversion also influence helping behavior (Smith and Nelson 1975). Vollhardt and Staub (2011) find people who suffered from a natural disaster are more likely to help. Residents’ personality and past experience of disasters can also be hypothesized to affect their helping behavior. According to Ouellette and Wood (1998), past behavior predicts future behavior. Those residents who have experience of sharing their home on accommodation sharing websites can be assumed to be more likely to share their homes during disasters. The likelihood of residents sharing disaster information with tourists using social media can be assumed to be affected by their general social media use.

Factors Driving Tourists’ Acceptance of Residents’ Offers

Some tourists are more crisis-resistant than others (Hajibaba et al. 2015). Therefore it can be hypothesized that at least a segment of tourists would follow through with their travel plans and accept the offer of support from residents in disaster situations. Hajibaba et al. (2015) identify crisis-resistant tourists as those tourists who are young and have a high willingness to take risks. Tourists’ risk-taking and personality affect cancellation behavior in an earthquake crisis (Hajibaba and Dolnicar 2015). It is reasonable to assume, therefore, that those same factors (age, risk-taking and personality) will also be associated with tourists’ acceptance of residents’ offers in times of crisis.

Heo (2016) attributes the popularity of the sharing economy to tourists’ desire to connect with the locals. It can be assumed, therefore, that tourists traveling with the motivation of meeting people are also more likely to

accept residents' offers of accommodation in times of crisis. Travel motivation is mainly linked to the question of why people travel and is an internal factor causing behavior (Larsen, Øgaard, and Brun 2011). Travel motivations are hypothesized to influence tourists' acceptance of residents' offers of support.

Methodology

Two survey studies were conducted: one investigating residents' willingness to help, the other investigating tourists' willingness to accept help. In both cases a hypothetical scenario research design was adopted which relies on people's assessment of their own behavior in a situation they may have not previously experienced. It would be preferable to implement measures in a number of locations where a disaster is expected to hit and then study the real uptake. But such an approach is practically not feasible, especially if each person is asked to assess measures during the emergency and the recovery period.

Resident study

Questionnaire and measurements

Data from 995 adult Australian residents living in areas highly dependent on tourism was collected by an online research panel company. The 20 areas most highly dependent on tourism (Central Northern Territory, Phillip Island, Whitsundays, Snowy Mountains, West Coast Tasmania, East Coast Tasmania, Spa Country, Kangaroo Island, Tropical North Queensland, Lakes in Victoria, Mid North Coast, Upper Yarra, Central Murray, High Country, Australia's Coral Coast, Sunshine Coast, Outback QLD, Gold Coast, Western Vic, Northern Rivers) were identified using statistics from Tourism Research Australia (2011). Adult respondents living in those areas were invited to complete the survey. No other restrictions or sampling quotas were imposed. The resulting sample reflected the census data from the Australian Bureau of Statistics well with the exception of age which is known to be higher in tourism dependent areas which are typically regional and regional coastal. Response bias was checked by comparing responses given by early and late respondents (Blair and Zinkhan 2006). No major differences were detected that would indicate a response bias problem. Note, that it is not important in this study that the sample is representative of the geographical areas in which the study was conducted because the aim is not to make precise statements about population percentages.

Study participants were asked to: *"Please imagine that a natural disaster (such as a cyclone, a flood, or a bushfire) hits the area you live in. Your home is not affected but most of the tourist accommodations in your area are severely damaged."*

Study participants then indicated their willingness to share their home with displaced tourists at the destination during a natural disaster under three assumptions: (1) that tourists would pay the same price as in commercial tourist accommodation, (2) that tourists would pay a small fee to cover expenses, and (3) that tourists would pay nothing. Binary response options (Yes or No, coded as 1 or 0) were offered because these best reflect the construct under study (behavior). Behavior, ultimately, can only occur or not occur (Dolnicar and Grün 2007, 2009). Responses were summed up and used as a measure of willingness to provide accommodation at the emergency stage.

Next, study participants were asked to think about a longer time frame after the disaster hit: *"Now please imagine after this natural disaster your local tourism industry is faced with accommodation shortage. The rebuilding is predicted to take up to one year and new tourists cannot be accommodated during this time. If nothing is done, this will lead to the closure of various local tourism businesses which would have major impact on economic flow to your region."*

Study participants again indicated their willingness to share their home with tourists at three price levels and the sum served as a measure of willingness to provide accommodation at the recovery stage.

Participants also indicated how likely they were to help local tourism industry by disseminating disaster related information to tourists through (1) sharing updates on social media, (2) volunteering in an emergency call center, and (3) volunteering to distribute brochures with disaster information in key tourists areas to help

promote safe travel in the destination. Participants were also asked how likely they were to help tourists with the safety aspect by: (1) helping tourists travel around the area if public transport is not operating, (2) picking tourists up from the airport if public transport is not operating, and (3) undertaking a first aid course (or other special training) to be prepared for tourists staying with them. Items were measured on a four-point scale ('very unlikely'=-2 to 'very likely'=+2). The general information provision score during disaster and safety provision score range from -6 to +6. For the information provision after the disaster, only the item 'using social media to share updates on the disaster' was used as the other two items are limited to the disaster emergency stage only.

Adding up the responses for each of the three sets of items is in line with the scoring recommendations by Rossiter (2002, 2011) who argues in his COARSE measurement theory that one question has to be asked for each object for composite objects. Three questions were therefore required to cover information sharing because it consists of three concrete objects: sharing information on social media, working in a call center, and handing out leaflets.

Finally, study participants were asked which types of tourists they would prefer to share their home with and the information channels they prefer to get disaster updates from. They were also asked if they benefit from the tourism industry. The general term "benefit" was deliberately used because not all residents have immediate financial benefits from tourism. While they may not work in tourism, their township might not exist without tourism. A number of additional constructs – hypothesized to influence residents' support – were measured: past experience of disasters, personality, emotional empathy, place attachment, general social media use, availability of guest facilities, and currently being a host on accommodation sharing websites.

Personality was measured using Rammstedt and John's (2007) 10-item instrument which measures – with two items each – extraversion, agreeableness, conscientiousness, neuroticism and openness to experience offering answer options from 'strongly disagree' (-2) to 'strongly agree' (+2). Each personality dimension score ranges from -4 to +4. Emotional empathy was measured using the 20-item Basic Empathy Scale (Jolliffe and Farrington 2006) with response options ranging from 'strongly disagree' (-2) to 'strongly agree' (+2). The empathy score ranges from -40 to +40.

Study participants provided responses to all questions regarding accommodation, information, and safety for both during and after the disaster. The advantages of this research design include: (1) segments of residents based on their response to the full set of six accommodation questions can be identified, (2) differences between their willingness to host during and after a crisis can be studied, (3) differences between the range of support activities residents are willing to offer for during and after a disaster can be studied, and (4) insight can be gained into the association of residents' characteristics with their offers of support at various stages of the disaster.

Data analysis

Accommodation sharing information was analyzed using descriptive statistics. Cluster analyses were calculated to gain insight into residents' patterns of offering help to tourists, separately for the emergency and the recovery stage. More insight can be gained from two separate cluster analyses – rather than one joint analysis – because two segmentation solutions enable destinations to most effectively activate residents' support by knowing which residents are available to assist in which circumstances (immediate emergency or recovery period). Because the variables in the segmentation base are not equally scaled, they were standardized (Milligan and Cooper 1988). The size of the sample complies with minimum requirements for segmentation (Dolnicar et al. 2014; Dolnicar, Grün, and Leisch 2016). Bootstrap stability across 100 bootstrap samples was used to select a number of segments between 2 and 10 using k-means (Dolnicar and Leisch 2010). The four-segment solution emerged as very stable for both points in time. For the final analysis, k-means was calculated 100 times on the original data. The solution with the smallest within-cluster sums of squares was retained.

The following tests were used to test for differences at the 95% confidence level: Chi-square tests for categorical, Kruskal-Wallis rank-sum tests for metric and McNemar Chi-square tests for paired binary

variables. P-values were corrected for multiple testing using Holm's (1979) procedure. Computations were performed using R (Leisch 2006; R Development Core Team 2015).

Tourist study

Questionnaire and measurements

Data was collected from 480 adult Australian residents who had undertaken at least one personal holiday (for at least 4 nights, not for business) in the past 12 months. A test of respondent IDs confirmed that there was no overlap between resident and tourist respondents. No sampling quotas were imposed. The only two limitations for tourists to participate in the study were that they had to be older than 18 and that they had to comply with the travel requirement outlined above. Response bias was checked by comparing responses given by early and late respondents (Blair and Zinkhan 2006). No major differences were detected.

Participants received the following instruction: *"Please imagine that you are planning to visit a tourist destination in Australia next week. You hear in the news that a cyclone hit the destination you are planning to visit. The cyclone has caused some serious damage to buildings. It has also affected the normal operation of trains and buses at the destination. The local authorities at the destination state that the destination is safe to visit so you do not need to cancel your trip. Your accommodation is severely damaged, but nearby areas are not at all affected. You can get the accommodation cost refunded. You bought travel insurance and if – for whatever reason – you cancel your trip, you would get 95% of all other expenses refunded (e.g. airfare)."*

They then indicated if they would travel as planned if they could stay in the home of residents far from the disaster (1) for the same price, (2) for a small fee to cover expenses, and (3) for free.

They were asked the same question about this second scenario: *"What if you were already at the destination when the cyclone hit? The local authorities at the destination state that the destination and all main tourist attractions are safe to visit. So you do not need to cancel your trip. Your accommodations is severely damaged, but nearby areas are not at all affected. You can get the accommodation cost refunded. You bought travel insurance and if – for whatever reason – you cancel your trip, you would get 95% of your remaining expenses refunded (e.g. airfare)."*

The overall acceptance of accommodation score ranges from 0 to 3 for the two points in time. Study participants indicated their level of trust in disaster updates from different information channels on a slider scale with endpoints labelled 'Not Trust' and 'Absolutely Trust'. The respondents only saw a slider scale, but their responses were recorded on a 100 point scale allowing a wide range of data analytic procedures to be used.

Additional potential explanatory variables collected were personality (Rammstedt and John 2007) and risk taking (Nicholson et al. 2005). Risk taking was measured for recreation, health, career, finance, safety and social risk on a five-point scale from 'never' (0) to 'very often' (4).

This study is deliberately limited to Australian domestic tourism because including overseas travelers or offering scenarios including overseas travel would introduce a large number of additional factors that cannot be controlled for.

Study participants provided responses to all questions regarding accommodation, information, and safety for both during and after the disaster.

Data analysis

Acceptance of accommodation offers was analyzed using descriptive statistics. Two multiple linear regression analyses were performed to identify factors driving tourists' willingness to accept the accommodation offers during the emergency and the recovery period. Regression analysis was used in the tourist study because – as opposed to the resident study – only one dependent variable (acceptance of accommodation offers) was available. Measures of personality, risk-taking, age, travel experience, money spent during travel, and travel motivations served as the independent variables in this analysis. The final regression models only contain

variables – selected using backward elimination – which significantly reduce the variance explained by the fitted models when eliminated.

To test whether there were differences in how much tourists trust different sources of information, Friedman rank-sum tests (for repeated measured metric) and pairwise Wilcoxon rank-sum tests (for paired metric variables) were used.

Results

Willingness to help in disaster situations

During a disaster – in the emergency stage – most surveyed residents are willing to share their home with tourists. Table 1 shows seven different patterns of responses to the accommodation provision questions at different price levels during the emergency stage of a disaster. As can be seen in the first row of Table 1, 58% of study participants are willing to share their home with tourists irrespective of price levels (Answer pattern 1); 18% do not want to share their home regardless of price levels (Answer pattern 2); 24% are price sensitive.

Results for the recovery stage are also shown in Table 1: 19% are willing to share their home regardless of price (Answer pattern 1). This is a significantly lower willingness than that of 58% during a disaster emergency ($p=0.000$). Forty-three percent are not willing to share their home even if they could earn money (Answer pattern 2). This is a much a higher rate of refusal than in the immediate emergency situation. Overall, surveyed residents are more price sensitive at the recovery stage than in the immediate emergency stage.

Table 1 Response patterns for accommodation provision (emergency and recovery stages)

Answer pattern	Would you be willing to share your home with tourists ...			Emergency stage		Recovery stage	
	... if they paid you the same as a tourist accommodation would charge?	... if they only paid you a small fee to cover the cost of their stay?	... without receiving any money for your effort?	Frequency	%	Frequency	%
1	Yes	Yes	Yes	581	58%	186	19%
2	No	No	No	183	18%	428	43%
3	Yes	Yes	No	104	10%	165	16.5%
4	Yes	No	No	55	6%	191	19%
5	No	No	Yes	37	4%	10	1%
6	No	Yes	Yes	25	3%	4	0.5%
7	No	Yes	No	10	1%	11	1%
Total				995	100%	995	100%

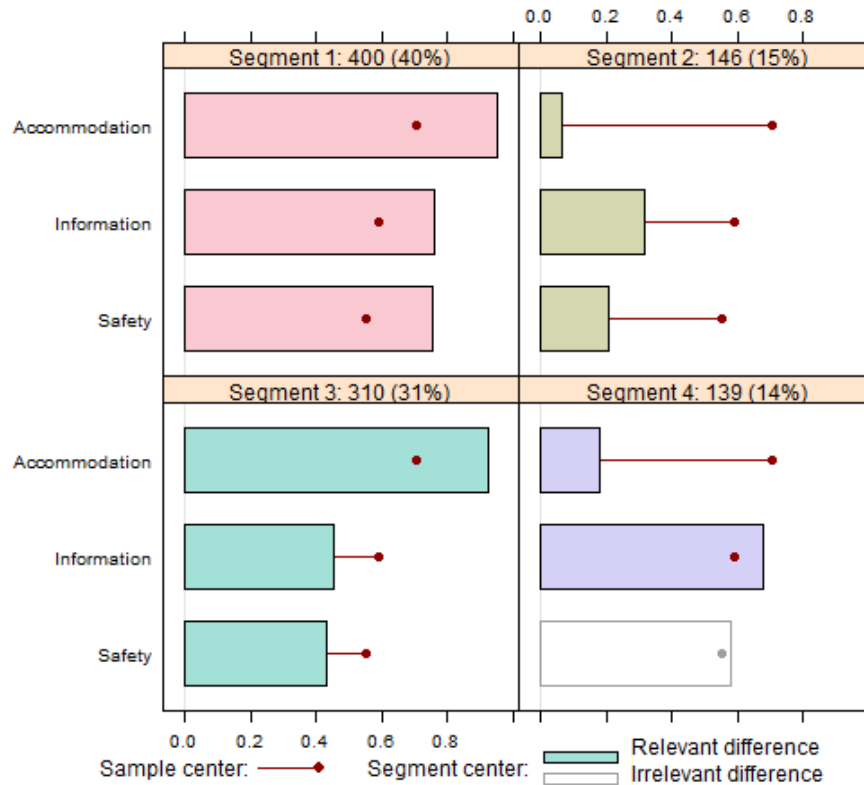
Surveyed residents express a high willingness to help by providing safety (mean=0.61, range=-6 to +6) and updated disaster information (mean=1.07, range=-6 to +6). Study participants display clear preferences in terms of the types of tourists they would welcome in their home. They prefer singles (mean=3.36) or couples (mean=3.28) over families (mean=4.11) and groups (mean=5.30) ($p=0.000$). They prefer older (mean=3.32) over younger tourists (mean=4.64) ($p=0.000$).

Helping segments at the emergency stage

To identify people who are most willing to help at the emergency stage, cluster analysis was performed. Three variables (provision of accommodation, information and safety) served as the segmentation base. Figure 1 shows the profiles of the resulting segments. The horizontal lines indicate the overall percentage of participants' willing to help with each of the three aspects of accommodation, information and safety. The horizontal bars indicate the percentage of segment members who are willing to help. Segments are characterized by comparing

the horizontal lines (overall sample) with horizontal bars (segment). The bars are colored if the difference between the segment mean and the sample mean for the variable is at least half of the sample mean, or at least a tenth of the total maximum for that variable (Dolnicar and Leisch 2013).

Figure 1 Profile of segments for the emergency stage



Members of segment 1 (n=400) are most willing to help through providing accommodation, information and safety (Helpers). Segment 2 (n=146) is not willing to help (Non-helpers). Segment 3 (n=310) is willing to provide accommodation to displaced tourists (Accommodation Providers), but not information and safety. Segment 4 (n=139) is willing to provide information (Information Providers), but not accommodation and safety.

The segments differ significantly from each other (see Table 2): Helpers score highest (mean=9.27) on empathy (p=0.000). Of the Helpers 17% – a higher fraction than in the other segments – indicate that they benefit from the local tourism industry (p=0.036). Also more Helpers (72%) indicate that the area they live in depends on tourism (p=0.000), followed by Accommodation Providers (68%), Information Providers (68%) and Non-helpers (53%). These results confirm both egoistic (living in tourism dependent areas) and altruistic motivations (empathy) for helping.

Helpers score highest on extroversion (mean=0.76, p=0.000), agreeableness (mean=1.79, p=0.000), conscientiousness (mean =2.34, p=0.011) and openness to experience (mean =0.88, p=0.008). They score lowest on neuroticism (mean=-1.20, p=0.000). More Helpers (50%) feel strongly attached to the region where they live (p=0.018) which points to sense of community being associated with willingness to help.

Past experience of natural disasters is also significantly associated with segment membership (p=0.011). More Non-helpers (62%) have never experienced a natural disaster. More Information Providers (22%) indicate that their area was not affected by a natural disaster but the areas close by were affected. More Helpers indicate that their area was affected with 30% not needing and 9% needing to evacuate.

House structure is associated with willingness to accommodate tourists during a disaster. More Helpers (82%/57%) and Accommodation Providers (79%/48%) have a spare bedroom ($p=0.000$) and a guest bathroom ($p=0.000$) in their home, respectively. More Helpers (4%) currently rent out the house they live in through accommodation sharing websites ($p=0.008$) and use social media (85%, $p=0.000$). Thus, Helpers could be activated in an emergency situation through social media; their prior experience with house sharing will speed up offers of help. None of the Accommodation Providers currently rent out their house online, despite their willingness to share their house during a disaster.

Most Helpers (51%) prefer to get disaster updates through social media ($p=0.000$), followed by Information Providers (40%). More members of the Helpers segment than any other segment prefer to get disaster updates through mobile phone text messages (69%, $p=0.000$), email (62%, $p=0.006$), and community websites (31%, $p=0.000$). This information is of immediate practical value because it offers guidance to destination managers about how to most effectively distribute information to specific resident segments and how to best reach them when asking for their help in an emergency situation.

Table 2 Profile of resident segments (emergency stage)

Variables	Segment 1: Helpers (n=400)	Segment 2: Non-helpers (n=146)	Segment 3: Accommodation Providers (n=310)	Segment 4: Information Providers (n=139)	p-value
Emotional empathy (mean)	9.27	6.61	7.11	9.16	.000
Personality (mean)					
... extroversion	0.76	-0.34	-0.11	-0.06	.000
... agreeableness	1.79	0.32	1.41	1.23	.000
... conscientiousness	2.34	2.10	1.92	2.09	.011
... neuroticism	-1.20	-0.27	-1.15	-0.75	.000
... openness to experience	0.88	0.40	0.54	0.88	.008
Place attachment					
... strong	50%	40%	37%	43%	
... moderate	40%	44%	49%	48%	.018
... weak	9%	12%	11%	7%	
... non-existent	1%	4%	3%	2%	
Do you and your family benefit from the local tourism industry? (Yes)	17%	9%	11%	13%	.036
Does the area you live in depend on tourism? (Yes)	72%	53%	68%	68%	.000
Past experience of natural disasters					
... no experience of natural disasters	44%	62%	46%	45%	
... my area was not affected but areas close by were affected.	17%	16%	21%	22%	.011
... my area was affected but did not evacuate my house.	30%	18%	28%	25%	
... my area was affected and did evacuate my house.	9%	4%	5%	8%	
Do you have a spare bedroom? (Yes)	82%	55%	79%	58%	.000
Do you have a guest bathroom? (Yes)	57%	39%	48%	40%	.000
Do you currently rent out the house you live in through any accommodation sharing websites (such as airbnb.com	4%	1%	0%	3%	.008

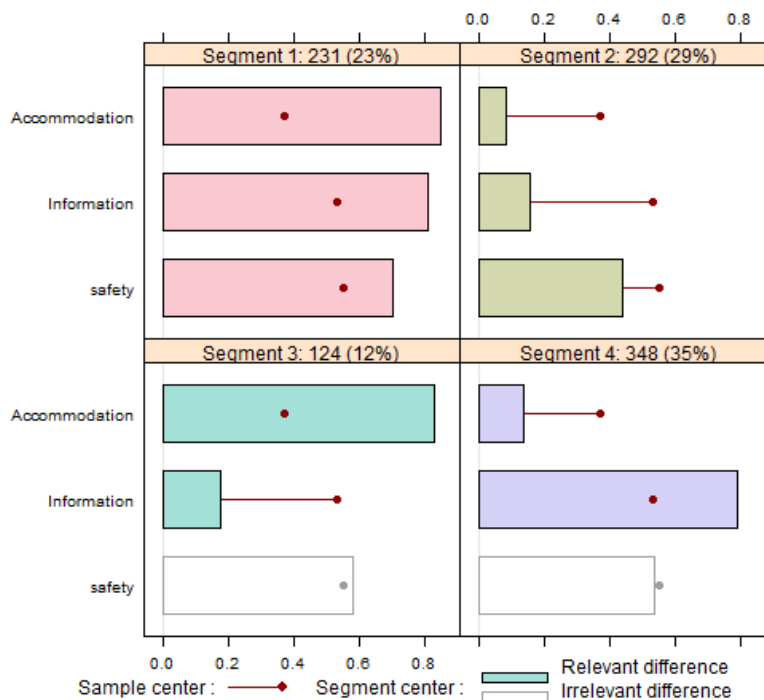
or stayz.com)? (Yes)					
Do you use social media (Facebook, Twitter, YouTube etc.)? (Yes)	85%	61%	67%	77%	.000
During this disaster, through which information channel would you prefer getting updates?					
... social media	51%	30%	30%	40%	.000
... mobile phone text messages	69%	43%	56%	58%	.000
... email	62%	45%	55%	56%	.006
... community website	31%	17%	19%	19%	.000

Helping segments at the recovery stage

Cluster analysis was performed to identify segments of people willing to help during the recovery period, using the same segmentation variables, but relating to the time after the disaster. Results are shown in Figure 2. Segment 1 (n=231) is willing to provide accommodation, information and safety (Post-disaster Helpers). Segment 2 (n=292) are Post-disaster Non-helpers. Segment 3 (n=124) are Post-disaster Accommodation Providers and Segment 4 (n=348) are Post-disaster Information Providers.

The post-disaster segments differ significantly from each other (see Table 3): post-disaster Information Providers score higher (mean=9.99) on empathy (p=0.000), followed by Post-disaster Helpers (mean=8.20). A higher proportion of Post-disaster Accommodation Providers (77%) and Post-disaster Helpers (72%) indicate that the area they live in depends on tourism (p=0.006).

Figure 2 Profile of segments for the recovery stage



Post-disaster Helpers and Accommodation Providers score higher on extroversion (mean=0.60, 0.34) (p=0.000), higher on agreeableness (mean=1.77, 1.78) (p=0.000) and lower on neuroticism (mean= -1.19, -1.45) (p=0.002), respectively. More Post-disaster Accommodation Providers (86%, 61%) and Post-disaster Helpers (83%, 54%) have a spare bedroom (p=0.000) and a guest bathroom (p=0.005). More Post-disaster Accommodation Providers (4%) and Helpers (4%) rent out the house they live in on accommodation sharing websites (p=0.015).

A higher proportion of Post-disaster Information Providers (96%) and Helpers (96%) use social media ($p=0.000$). Post-disaster Information Providers (63%) are more likely to be female. Post-disaster Accommodation Providers (65%) are more likely to be male ($p=0.000$). Non-helpers are significantly older (mean=60); Helpers are younger (mean=54, $p=0.000$). A higher proportion of Post-disaster Helpers (62%) and Information Providers (60%) prefer disaster updates from social media ($p=0.000$). More Post-disaster Helpers (64%) and Information Providers (64%) prefer disaster updates via mobile phone text messages ($p=0.000$), followed by Post-disaster Accommodation Providers (61%). More Post-disaster Helpers and Information Providers prefer disaster updates via community websites (29%, 27%, $p=0.001$) and media websites (22%, 19%, $p=0.000$).

Comparing segment membership during the acute emergency with segment membership in the recovery stage shows that 9% of Helpers during the acute emergency move to become Non-helpers in the recovery stage; 13% become Accommodation Providers, and 34% become Information Providers. A higher proportion of during disaster Helpers who move to Post-disaster Accommodation Providers (74%) and Non-helpers (69%) are male ($p=0.000$); they are also older (mean=63, $p=0.000$). More of those staying in the Helpers segment after disaster (56%) and moving from Helpers during disaster to Post-disaster Information Providers (68%) are female; they are also younger (mean=55).

One third of Non-helpers become Information Providers and one third of Information Providers become Non-helpers after the disaster. Of the Accommodation Providers during a disaster 37% become Post-disaster Non-helpers, 28% become Information Providers, and 13% become Helpers. Accommodation Providers during the disaster that become Post-disaster Non-helpers are older than others ($p=0.004$).

Table 3 Profile of resident segments (recovery stage)

Variables	Segment 1: Post-disaster Helpers (n=231)	Segment 2: Post-disaster Non-helpers (n=292)	Segment 3: Post-disaster Accommodation Providers (n=124)	Segment 4: Post-disaster Information Providers (n=348)	p-value
Emotional empathy (mean)	8.20	6.48	7.14	9.99	.000
Personality (mean)					
... extroversion	0.60	-0.18	0.34	0.25	.000
... agreeableness	1.77	1.01	1.78	1.28	.000
... conscientiousness	2.15	2.13	2.05	2.16	.869
... neuroticism	-1.19	-0.80	-1.45	-0.84	.002
... openness to experience	0.72	0.54	0.78	0.80	.238
Does the area you live in depend on tourism? (Yes)	72%	61%	77%	67%	.006
Do you have a spare bedroom? (Yes)	83%	68%	86%	68%	.000
Do you have a guest bathroom? (Yes)	54%	46%	61%	45%	.005
Do you currently rent out the house you live in through any accommodation sharing websites (such as airbnb.com or stayz.com)? (Yes)	4%	1%	4%	0%	.015
Do you use social media (Facebook, Twitter, YouTube etc.)? (Yes)	96%	45%	47%	96%	.000
During this disaster, through which information channel would you prefer getting updates?					
... social media	62%	9%	15%	60%	.000

... mobile phone text messages	64%	49%	61%	64%	.000
... community website	29%	16%	19%	27%	.001
... media website	22%	9%	11%	19%	.000
Gender (female)	54%	46%	35%	63%	.000
Age (mean)	54	60	59	55	.000

Accepting help in disaster situations

Most surveyed respondents indicate that they would accept accommodation offers during the emergency stage. Thirty-four percent would stay with residents regardless of price in such a situation. Thirty-nine percent would not stay with residents, even if the accommodation were free. The remaining 27% are price sensitive. During the recovery stage, 46% would not stay with residents; 26% stay with residents regardless of price; 28% are price sensitive.

Overall, most study participants (68%) accept the accommodation offer at least in one of the six situations (emergency or recovery stage \times three price levels). Only 32% never accept the accommodation offer. Nineteen percent always accept the offer. Eight percent accept the offer during the emergency situation, but not at the destination recovery stage. Across all price conditions study participants are more willing to stay with residents during the emergency stage (61%) than during the destination recovery stage (54%) ($p=0.000$). More are willing to stay with residents for free (58%) than at full commercial accommodation rate (54%) ($p=0.000$).

In terms of trusting different information sources, the Friedman test indicates significant differences ($p=0.000$) with the pairwise Wilcoxon rank-sum tests showing that all pairwise differences are significant ($p < 0.02$) except for the difference between media and hotel staff and media and travel agent. The rank order of people's trust is:

Family and friends > Residents > Local government > Tourists > Hotel staff \geq Media \geq Travel agent.

Study participants trust disaster-related information most when it comes from their family and friends at the destination (mean=84). Residents are the second most trustworthy source (mean=69), followed by the local government at the destination (mean=66) and other tourists (mean=61). Study participants also indicate that they feel slightly safer (mean=60) knowing that most residents at the destination agree to support them during a disaster.

Table 4 Summary of the final linear regression models (emergency and recovery stage)

Variables	Model 1: Emergency stage			Model 2: Recovery stage		
	Estimate	Std. Error	p-value	Estimate	Std. Error	p-value
Intercept	1.37	0.22	.000 *	1.08	0.27	.000*
Personality (mean)						
... agreeableness	0.10	0.04	.008 *	0.06	0.03	.074
... conscientiousness	-0.08	0.04	.040 *	- **	-	-
Risk taking (mean)						
... recreational risks (e.g. rock-climbing, scuba diving)	0.16	0.06	.008 *	-	-	-
... career risks (e.g. quitting a job without another to go to)	-0.12	0.06	.070	-	-	-
... financial risks (e.g. gambling, risky investments)	0.20	0.07	.003 *	0.19	0.06	.003 *
Age (mean)	-	-	-	-0.01	0.01	.003 *
How many holidays away from home (for at least 4 nights, not for business) do you usually take per year WITHIN your country of residence? (mean)	0.04	0.02	.048 *	-	-	-

Compared to most people you know, how much money do you spend on a typical annual holiday? (Ref: More than most people I know)						
... less than most people I know	-	-	-	0.38	0.17	.023 *
... same as most people I know	-	-	-	0.23	0.14	.094
What was important to you on your last holiday? (Ref: No)						
... luxury and being spoilt. (Yes)	-0.33	0.12	.007 *	-0.34	0.12	.006 *
... to do sports. (Yes)	-	-	-	-0.19	0.13	.161
... not to exceed my planned budget for this holiday. (Yes)	0.24	0.013	.070	-	-	-
... meeting new people. (Yes)	-	-	-	0.42	0.12	.000 *
... coziness and a familiar atmosphere. (Yes)	0.21	0.13	.106	0.30	0.12	.014 *
... for everything to be organized so I do not have to worry about anything. (Yes)	-	-	-	0.23	0.12	.061
... unspoilt nature and a natural landscape. (Yes)	-0.22	0.15	.151	-	-	-
... cultural offerings and sights. (Yes)	0.40	0.14	.006 *	0.24	0.13	.074
... catering to children needs. (Yes)	-	-	-	0.23	0.13	.075
Explained variance: R ²		0.10			0.13	

* Significance at 0.05 level

** Each regression model contains variables selected in a backward elimination manner.

The results of the regression analysis at the emergency stage (see Table 4) indicate that personality, risk taking, travel experience, and travel motivations are associated with acceptance of the accommodation offer at the emergency stage. The personality dimension of agreeableness positively affects ($p=0.008$) and conscientiousness negatively affects ($p=0.040$) acceptance of the accommodation offer. Accepting the accommodation offer and taking recreational ($p=0.008$) and financial risks ($p=0.003$) are significantly positively associated. Taking more domestic trips per year is also associated with higher acceptance of the offer ($p=0.048$). Study participants who rate ‘cultural offerings and sights’ as important ($p=0.006$) and ‘luxury and being spoilt’ as unimportant ($p=0.007$) score higher on acceptance of the accommodation offer.

The regression analysis for the recovery stage (see Table 4) indicates that the acceptance of the accommodation offer is significantly associated with risk taking, age, travel behavior and motivations. It is positively associated with taking financial risks ($p=0.003$). Younger people are more likely to accept the accommodation offer ($p=0.003$). People who spend less money on a typical holiday – compared to most people they know – are more likely to accept the accommodation offer ($p=0.023$). People who rate ‘meeting new people’ ($p=0.000$) and ‘coziness and a familiar atmosphere’ ($p=0.014$) as important and ‘luxury and being spoilt’ ($p=0.006$) as unimportant score higher on the acceptance of accommodation offer.

Conclusions, Limitations and Future Work

This study set out to investigate the potential of residents’ involvement in the recovery of tourism destinations following a disaster as well as during the immediate disaster emergency. The purpose was to determine the extent to which residents of a tourism destination are willing to support the destination following a disaster, and to identify those residents who are most willing to support and, therefore, have to be targeted and activated when required.

Results show that most study participants are willing to support the tourism industry during and after a disaster by sharing their homes, sharing information or providing safety. The size of the segments of Helpers and Accommodation Providers shrink from during to after the disaster. The segment of Information Providers, however, increases in size from 14% during to 31% after the disaster. One third of the members of the Helpers, Accommodation Providers and Non-helpers segments during the disaster become Information Providers after the disaster. These findings point to an increased willingness to help when the need for shelter is urgent. During destination recovery, fewer will share their homes with tourists, but more will share information.

People who are supportive during and after a disaster have higher emotional empathy and live in areas where tourism is of critical importance. During the emergency stage, 6% of study participants share their home with tourists only if they get paid the same as a hotel would charge. This proportion increases to 19% for the recovery stage. On the other hand, some are willing to share their homes during and after disaster for free. These findings confirm both egoistic and empathetically evoked altruistic motivations (Batson and Shaw 1991) for helping in disaster situations. People are more willing to get involved in true sharing – which involves caring – in an emergency situation. They are more likely to get involved in collaborative consumption – which involves an exchange – during the recovery stage.

Study participants who express a higher degree of willingness to support tourists share some common characteristics: they are more extroverted and agreeable and less neurotic with high sense of place attachment. Extraversion is associated with being sociable, talkative, and active; agreeableness is associated with being flexible, cooperative and tolerant; neuroticism is associated with being anxious, depressed and insecure (Barrick and Mount 1991). Residents with a higher sense of community who are more sociable, talkative, flexible, cooperative, and emotionally stable represent the most promising targets among residents because they are more likely to support tourism industry in times of crises.

Most of the supportive study participants are not currently using peer-to-peer accommodation websites. They do not share their homes with tourists under normal circumstances, but are willing to do so in times of crisis. Peer-to-peer accommodation websites can be used to activate these residents in disaster situations. Residents willing to provide accommodation in times of crises can be identified and signed up on peer-to-peer networks in advance of a disaster. When disasters strike, hosts in the affected area can be activated by sending automatic emails and asking if they are able to help.

In terms of the tourists: most study participants are willing to accept the offer to stay with residents. The acceptance rate is higher during the acute emergency than during the destination recovery. This finding is consistent with expectations, as tourists at destinations would be in immediate need of finding alternative accommodation.

People who are more willing to accept residents' accommodation offers are quite distinct. They are younger, less risk-averse budget tourists with travel motivations of meeting people and experiencing cultural offerings, and less motivated with luxury and being spoiled during their travel. These characteristics are in line with the characteristics of backpacker tourists (Larsen, Øgaard, and Brun 2011; Maoz 2007).

Results further show that people trust the information residents provide. Given how much trust people put in residents, it is important to encourage residents to share – recovery – information following a disaster. Information Providers are generally heavy users of social media. While they use traditional media to get disaster information, they also heavily use social media in disaster situations. Thus, they can be reached through social media and encouraged to share their eyewitness information, photos and videos. Social media are an effective disaster communication tool and an emergent form of public participation (Sigala 2011). This study confirms the potential of social media in providing disaster updates by residents, a source that is highly trusted.

According to Ap (1992), residents contribute to the success or failure of the local tourism industry. Results from this study confirm these findings by identifying a new role for residents as key contributors to destination recovery following a disaster. If the tourism industry demonstrates the benefits residents receive from tourism in their communities, they will be supportive (McGehee and Andereck 2004) even during extreme event circumstances.

Cheng (2016) and Heo (2016) discuss the impacts of the sharing economy on destination management. The current study points to the potential of the sharing economy to assist destinations in crisis. When in accommodation shortage, residents willing to share their homes can be activated by using the Airbnb network. When public transport is not working, those willing to help with transportation can be activated, for example, by using the Uber network. When it is critical to communicate information to tourists, residents can be activated through social media. The sharing economy, therefore, provides a way to turn 'emergent citizen groups' in a

crisis into ‘organized groups of citizens’ (Stallings and Quarantelli 1985). It facilitates the contribution of residents to emergency and recovery efforts following a crisis and can be seen as a way towards building collaborative resilience in tourism destinations. Given that network structures are more effective than hierarchical systems in disaster emergency and recovery (Norris et al. 2008) crisis management plans should recognize, embrace and build on this capacity.

One limitation of this study is the specific scenario (cyclone) used. The nature of the disaster influences tourists’ cancellation behavior (Hajibaba and Dolnicar 2016). A replication with a wider range of disasters would be useful. The hypothetical nature of the study itself also represents a limitation. Based on the proof of principle from the present study it is now possible to develop measures at destination the effectiveness of which could be empirically tested in future.

The current study is limited to Australia. Results are expected to generalize to other countries, but may differ across areas which differ in community trust. The study is also limited to domestic trips because the tourist sample contains Australians traveling to an Australian destination faced with a disaster. Extending the scope of the present study to including overseas travelers or offering scenarios including overseas travel would have introduced a large number of additional factors that cannot be controlled for. It would be interesting to replicate this study in the context of international tourism. Additionally, the residents under study live in areas highly reliant on tourism, which are most vulnerable to adverse effects of natural disasters on tourism. The present study did not aim to make precise statements about population percentages. To know the precise population percentage for helping and accepting, the study would have to be repeated with a sample representative of the exact tourism destinations under study.

Using stated preferences – as opposed to revealed preferences – introduces another limitation to this study because respondents’ choices in experimental conditions might differ in real situations. Stated responses of residents to the disaster questions can potentially be affected by social desirability bias. To keep this bias to a minimum, the questionnaire was pretested using a talk aloud protocol indicating that respondents did not feel socially obliged to express their willingness to make space available. The distribution of responses also points to social desirability not being a major problem with only 20% of respondents stating they would offer accommodation at no cost after the disaster. Nevertheless, it cannot be excluded that the overall level of stated willingness is elevated because of social desirability bias. This should not affect the comparative findings (across price levels and points in time) derived from this study.

Another limitation of the resident study is that one question was technically double barreled, as the reviewers rightly identified. The question referred to helping both tourists and the local tourism industry. Pretesting using a talk-aloud protocol did not point to respondents having difficulties, but it would have been preferable to word this question in a slightly different way.

Tourism literature has paid little attention to the issue of residents offering help to tourists and tourists accepting help by residents. With the sharing economy on the rise, this is an important area for future research. A number of factors potentially influencing residents’ support could be studied which have not been included in the present study: compassion (Weaver and Jin 2016), past experience of hosting guests, frequency of general technical use, and safety concerns. It would be of great value if a comprehensive conceptual model of resident support in times of crisis could be developed. Additional factors potentially influencing tourists’ willingness to stay with residents should also be studied in future research, including experience of facing with a disaster-stricken destination, accommodation preferences, and past experience of staying with residents.

References

- Airbnb. 2016. "Airbnb Disaster Response." <https://www.airbnb.com.au/disaster-response> (accessed April 7, 2016).
- Ap, John. 1992. "Residents' Perceptions on Tourism Impacts." *Annals of Tourism Research* 19 (4): 665-690.
- Barrick, Murray R., and Michael K. Mount. 1991. "The Big Five Personality Dimensions and Job Performance: A Meta-Analysis." *Personnel Psychology* 44 (1): 1-26.
- Batson, C. Daniel, and Laura L. Shaw. 1991. "Evidence for Altruism: Toward a Pluralism of Prosocial Motives." *Psychological Inquiry* 2 (2): 107-122.
- Beirman, David. 2003. *Restoring Tourism Destinations in Crisis: A Strategic Marketing Approach*. Crows Nest: Allen & Unwin.
- Belk, Russell. 2007. "Why Not Share Rather Than Own?" *The Annals of the American Academy of Political and Social Science* 611 (1): 126-140.
- Belk, Russell. 2010. "Sharing." *Journal of consumer research* 36 (5): 715-734.
- Belk, Russell. 2014. "You Are What You Can Access: Sharing and Collaborative Consumption Online." *Journal of Business Research* 67 (8): 1595-1600.
- Blair, Edward, and George M. Zinkhan. 2006. "Nonresponse and Generalizability in Academic Research." *Journal of the Academy of Marketing Science* 34 (1): 4-7.
- Burby, Raymond J., and Fritz Wagner. 1996. "Protecting Tourists from Death and Injury in Coastal Storms." *Disasters* 20 (1): 49-60.
- Carlsen, Jack C., and Janne J. Liburd. 2008. "Developing a Research Agenda for Tourism Crisis Management, Market Recovery and Communications." *Journal of Travel & Tourism Marketing* 23 (2-4): 265-276.
- Cheng, Mingming. 2016. "Sharing Economy: A Review and Agenda for Future Research." *International Journal of Hospitality Management* 57: 60-70.
- Copenhagen Economics. 2015. "Economic Benefits of Peer-To-Peer Transport Services." <http://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/0/320/1441009386/economics-benefits-of-peer-to-peer-transport-services.pdf> (accessed March 18, 2016).
- Dolnicar, Sara, and Bettina Grün. 2007. "How Constrained a Response: A Comparison of Binary, Ordinal and Metric Answer Formats." *Journal of Retailing and Consumer Services* 14 (2): 108-122.
- Dolnicar, Sara, and Bettina Grün. 2009. "Does one Size Fit All? The Suitability of Answer Formats for Different Constructs Measured." *Australasian Marketing Journal* 17 (1): 58-64.
- Dolnicar, Sara, Bettina Grün, and Friedrich Leisch. 2016. "Increasing Sample Size Compensates for Data Problems in Segmentation Studies." *Journal of Business Research* 69 (2): 992-999.
- Dolnicar, Sara, Bettina Grün, Friedrich Leisch, and Kathrin Schmidt. 2014. "Required Sample Sizes for Data-Driven Market Segmentation Analyses in Tourism." *Journal of Travel Research* 53 (3): 296-306.
- Dolnicar, Sara, and Friedrich Leisch. 2010. "Evaluation of Structure and Reproducibility of Cluster Solutions Using the Bootstrap." *Marketing Letters* 21 (1): 83-101.
- Dolnicar, Sara, and Friedrich Leisch. 2013. "Using Graphical Statistics to Better Understand Market Segmentation Solutions." *International Journal of Market Research* 56 (2): 97-120.
- George, Babu P. 2008. "Local Community's Support for Post-Tsunami Recovery Efforts in an Agrarian Village and a Tourist Destination: A Comparative Analysis." *Community Development Journal* 43 (4): 444-458.
- Government of Nepal. 2015. "Nepal Earthquake 2015 Post Disaster Needs Assessment." http://www.recoveryplatform.org/jp/pdf/Nepal_PDNA%20Volume%20A%20Final.pdf (accessed April 7, 2016).
- Guttentag, Daniel. 2015. "Airbnb: Disruptive Innovation and the Rise of an Informal Tourism Accommodation Sector." *Current Issues in Tourism* 18 (12): 1192-1217.
- Hajibaba, Homa, Yasemin Boztuğ, and Sara Dolnicar. 2016. "Preventing Tourists from Canceling in Times of Crises." *Annals of Tourism Research* 60: 48-62.
- Hajibaba, Homa, and Sara Dolnicar. 2015. "What Drives Trip Cancellations When a Disaster Hits?" In *CAUTHE 2015: Rising Tides and Sea Changes: Adaptation and Innovation in Tourism and Hospitality*, edited by Erica Wilson and Mieke Witsel, 155-164. Gold Coast, Australia: Southern Cross University.
- Hajibaba, Homa, and Sara Dolnicar. 2016. "Drivers of Trip Cancellations among Australian Travellers." In *Tourist Behaviour - An International Perspective*, edited by Metin Kozak and Nazmi Kozak, 97-105. Oxfordshire, United Kingdom: CABI.
- Hajibaba, Homa, Ulrike Gretzel, Friedrich Leisch, and Sara Dolnicar. 2015. "Crisis-resistant Tourists." *Annals of Tourism Research* 53: 46-60.
- Helsloot, Ira, and Arnout Ruitenberg. 2004. "Citizen Response to Disasters: A Survey of Literature and Some Practical Implications." *Journal of Contingencies and Crisis Management* 12 (3): 98-111.
- Heo, Cindy Yoonjung. 2016. "Sharing Economy and Prospects in Tourism Research." *Annals of Tourism Research* 58: 166-170.
- Holm, Sture. 1979. "A Simple Sequentially Rejective Multiple Test Procedure." *Scandinavian Journal of Statistics* 6: 65-70.
- Jolliffe, Darrick, and David P. Farrington. 2006. "Development and Validation of the Basic Empathy Scale." *Journal of Adolescence* 29 (4): 589-611.
- Karlsson, Logi, and Sara Dolnicar. 2016. "Someone's Been Sleeping in my Bed." *Annals of Tourism Research* 58: 159-162.

- Larsen, Svein, Torvald Øgaard, and Wibecke Brun. 2011. "Backpackers and Mainstreamers: Realities and Myths." *Annals of Tourism Research* 38 (2): 690-707.
- Law, Rob. 2006. "The Perceived Impact of Risks on Travel Decisions." *International Journal of Tourism Research* 8 (4): 289-300.
- Leisch, Friedrich. 2006. "A Toolbox for K-Centroids Cluster Analysis." *Computational Statistics and Data Analysis* 51 (2): 526-544.
- Manzo, Lynne C., and Douglas D. Perkins. 2006. "Finding Common Ground: The Importance of Place Attachment to Community Participation and Planning." *Journal of Planning Literature* 20 (4): 335-350.
- Maoz, Darya. 2007. "Backpackers' Motivations the Role of Culture and Nationality." *Annals of Tourism Research* 34 (1): 122-140.
- McGehee, Nancy G., and Kathleen L. Andereck. 2004. "Factors Predicting Rural Residents' Support of Tourism." *Journal of Travel Research* 43 (2): 131-140.
- Milligan, Glenn W., and Martha C. Cooper. 1988. "A Study of Standardization of Variables in Cluster Analysis." *Journal of Classification* 5 (2): 181-204.
- Nicholson, Nigel, Emma Soane, Mark Fenton-O'Creevy, and Paul Willman. 2005. "Personality and Domain-specific Risk Taking." *Journal of Risk Research* 8 (2): 157-176.
- Norris, Fran H., Susan P. Stevens, Betty Pfefferbaum, Karen F. Wyche, and Rose L. Pfefferbaum. 2008. "Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness." *American Journal of Community Psychology* 41 (1-2): 127-150.
- Orchiston, Caroline, Girish Prayag, and Charlotte Brown. 2016. "Organizational Resilience in the Tourism Sector." *Annals of Tourism Research* 56: 145-148.
- Ouellette, Judith A., and Wendy Wood. 1998. "Habit and Intention in Everyday Life: The Multiple Processes by Which Past Behavior Predicts Future Behavior." *Psychological Bulletin* 124 (1): 54-74.
- Pennington-Gray, Lori, Kiki Kaplanidou, and Ashley Schroeder. 2013. "Drivers of Social Media Use among African Americans in The Event of a Crisis." *Natural Hazards* 66 (1): 77-95.
- Rammstedt, Beatrice, and Oliver P. John. 2007. "Measuring Personality in One Minute or Less: A 10-Item Short Version of the Big Five Inventory in English and German." *Journal of Research in Personality* 41 (1): 203-212.
- R Development Core Team. 2015. *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria. <http://www.R-project.org/>.
- Ritchie, Brent W. 2009. *Crisis and Disaster Management for Tourism*. Bristol: Channel View Publications.
- Robinson, Lyn, and Jim K. Jarvie. 2008. "Post-disaster Community Tourism Recovery: The Tsunami and Arugam Bay, Sri Lanka." *Disasters* 32 (4): 631-645.
- Rossiter, John R. 2002. "The C-OAR-SE Procedure for Scale Development in Marketing." *International Journal of Research in Marketing* 19 (4): 305-335.
- Rossiter, John R. 2011. *Measurement for the Social Sciences: The C-OAR-SE Method and Why It Must Replace Psychometrics*. New York: Springer.
- Sigala, Marianna. 2011. "Social Media and Crisis Management in Tourism: Applications and Implications for Research." *Information Technology & Tourism* 13 (4): 269-283.
- Smith, Bernadette M. M., and L. D. Nelson. 1975. "Personality Correlates of Helping Behavior." *Psychological Reports* 37 (1): 307-310.
- Sönmez, Sevil F., Yiorgos Apostolopoulos, and Peter Tarlow. 1999. "Tourism in Crisis: Managing the Effects of Terrorism." *Journal of Travel Research* 38 (1): 13-18.
- Sönmez, Sevil F., and Alan R. Graefe. 1998. "Influence of Terrorism Risk on Foreign Tourism Decisions." *Annals of Tourism Research* 25 (1): 112-144.
- Stallings, Robert A., and Enrico L. Quarantelli. 1985. "Emergent Citizen Groups and Emergency Management." *Public Administration Review* 45: 93-100.
- Tourism Research Australia. 2011. "The Economic Importance of Tourism in Australia's Regions". <http://industry.gov.au/Office-of-the-Chief-Economist/SkilledOccupationList/Documents/2015Submissions/Australian-Hotels-Association-Attachment-3.pdf> (accessed April 7, 2016).
- Tussyadiah, Iis P., and Juho Pesonen. 2015. "Impacts of Peer-to-Peer Accommodation Use on Travel Patterns." *Journal of Travel Research*. DOI: 10.1177/0047287515608505.
- Vollhardt, Johanna R., and Ervin Staub. 2011. "Inclusive Altruism Born of Suffering: The Relationship Between Adversity and Prosocial Attitudes and Behavior Toward Disadvantaged Outgroups." *American Journal of Orthopsychiatry* 81 (3): 307-315.
- Weaver, David B., and Xin Jin. 2016. "Compassion as a Neglected Motivator for Sustainable Tourism." *Journal of Sustainable Tourism* 24 (5): 657-672.
- Wilson, Jude. 2016. "Disrupted Hospitality – The Impact of the Christchurch Earthquake/s on Accommodation Hosts." *Hospitality & Society* 6 (1): 55-75.
- World Travel and Tourism Council. 2015. "Travel & Tourism Economic Impact 2015 Nepal." <http://www.wttc.org/-/media/files/reports/economic-impact-research/countries-2015/nepal2015.ashx> (accessed July 19, 2016).