The support of the UAE nationals towards EXPO 2020 – a fuzzy logic approach

The aim of the present research is to identify the support of Emirati nationals towards EXPO 2020. Perceived positive and negative event impacts, and perceived individual support were investigated. An fsQCA modelling approach technique was employed in order to measure, estimate and confirm the different casual paths constructs, as well as to test the significance of the paths between different segments. Results indicate positive impacts have a significant and important relationship with tourism perceptions. On the contrary, negative impacts do not have a significant impact on tourism perceptions. The research contributes to the literature and practice.

Key words: Emirati nationals, mega-event, United Arab Emirates, event impacts, perception

Nataša Slak Valek
Associate Professor of Tourism
Zayed University
College of Communication and Media Sciences
Khalifa Bin Zayed City, South Exit Khalifa B
P.O. Box 144534
Abu Dhabi, United Arab Emirates
Phone number: +971 2 599 3779
Email: natasa.slakvaelek@zu.ac.ae

Anestis Fotiadis
Associate Professor of Tourism
Zayed University
College of Communication and Media Sciences
Khalifa Bin Zayed City, South Exit Khalifa B
P.O. Box 144534
Abu Dhabi, United Arab Emirates
Tel: +971 2 599 3473
Email: Anestis.fotiadis@zu.ac.ae

Nataša Slak Valek, Ph.D. in Business, specializes in Tourism. She teaches Tourism related courses at Undergraduate and Graduate level at Zayed University in Abu Dhabi, UAE. Her research focuses on Tourism and Tourism Marketing and, she is interested in Sport Tourism and Creative tourism research as well.
Introduction

Big, large, major, mega-events do not take place in a vacuum and as such, they touch almost every aspect of residents’ lives - social, cultural, environmental, economical (Allen, O’Toole, Harris & McDonnell, 2012). The role of residents is crucial to sustainable development generally (Carley, Smith & Jenkins, 2013) and sustainable tourism development specifically (Látková & Vogt, 2012; Lee, 2013). Thus, it is important to understand and assess residents’ perceptions of, and attitudes towards events and new infrastructure (Choi & Murray, 2010). Changes in the host community affect all residents’ lives by changes in businesses, infrastructure and tourism development. Moreover, residents of a host community need to be informed ahead about planned events in order to better understand how to behave and what to expect as not all impacts are always and only positive. The legacy of an event can be either positive or negative, which has to be considered and studied much before the actual organization of a big event in order to minimize negative impacts.

As a host of EXPO 2020, the United Arab Emirates (UAE) needs to undertake a study considering event impacts. A study among Emirati nationals would be especially important as it will be the first time for the UAE to host a mega event and peoples’ reactions is as yet unknown. Studying a support of local community is not a new idea; community perception towards events was considerably researched in the literature (Látková & Vogt, 2012; Kim, Jun, Walker & Drane, 2015), especially before and after an event in sport (Bull & Lovell, 2007, Zhou & Ap, 2009; Kaplanidou et al., 2013) and in business (Yang Zeng & Gu, 2010; Ye, Scott, Ding & Huang, 2012, Fotiadis 2013). Generally the results of such studies show a high support towards the event, especially prior to the event (Ye et al., 2012), and significant differences in perceived impacts before and after the event (Kapladinou et al., 2013). However, how the support towards an event affects the support to the local tourism development and tourism perception has not been researched before.
To better understand the aim of this research general information about the UAE may help. The UAE is a Constitutional Federation of seven emirates and it is governed by a Federal Supreme Council made up of the seven emirs of Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al Quwain, Ras Al Khaimah and Fujairah. Abu Dhabi’s numbers have remained lower in comparison to the major centre, Dubai, and Abu Dhabi covers the largest area (occupying 86% of the total the UAE land area) and is the richest of seven Emirates as well as being the capital of the UAE (Sharpley, 2002). Until recently, its importance and financial success depended mostly on its oil industry. Based on a review of academic literature (Hashim, 2012; Slak Valek, 2017), government documents (e.g. UAE Vision 2021 National Agenda) and online sources (Statistics Centre of Abu Dhabi, UAE Vision 2021 National Agenda) tourism is now filling a gap in understanding the growth trajectory Abu Dhabi has chosen for overcoming oil dependency.

The tourism statistics for Abu Dhabi are positive for the majority of key hospitality industry statistical parameters, as published by Statistics Center of Abu Dhabi. It shows a significant growth in number of hotels, rooms and guests. Also, the destination brands as for Abu Dhabi as for Dubai, and also local flight companies brands as Emirates as Etihad Airways show success (Kotsi & Slak Valek, 2018). Thus, it is the right time to start ‘using’ worldwide recognized events for country promotion, as EXPO or World Economic Forum (WEF). WEF was organized in Abu Dhabi before, but the impact was not measured or published. This is another reason why EXPO 2020 should not pass without knowing its impact.

The aim of the present research is to identify the support of Emirati nationals people living in the UAE towards EXPO 2020. Specifically, perceived positive and negative events’ impacts, and perceived individual support towards EXPO 2020 will be researched. The effect of impacts on the tourism perception will be researched using a fuzzy logic method. The aim
is to understand if such events can help the local community to better accept tourism and getting a local support towards tourism development. Although EXPO 2020 will take place in Dubai, one of our research aims was to understand the impact to the capital city and the capital Emirate, Abu Dhabi. Thus, data were mainly collected from Emirati nationals living in Abu Dhabi. The findings will be especially important for Abu Dhabi and the rest of the UAE as it is a country in transition between oil dependence and other economies that might substitute oil in the future, where tourism seems to be the most applicable industry.

Literature review

Perception of EXPO in the UAE

Since November 2013, when the UAE won a bid to host the EXPO 2020 in Dubai, the excitement about this mega business event has been very extensively spread in the UAE (Bhavani & Kukunuru, 2016). This excitement is understandable, as based on previous research (Ye et al., 2012) residents of an EXPO host community have had a very positive perception towards hosting this mega event wherever it is organized and indicated a high support for it. De Carlo, Canali, Pritchard & Morgan (2009) have tried to demonstrate how EXPO 2015, organized in Milan, can help in city branding processes. Moreover, they also researched how EXPO helped Milan in positioning the city as a cultural destination, which can offer a heritage experience to tourists.

This idea is consistent with the UAE tourism development and governmental expectations of positioning the UAE as a destination for cultural experiences. Coupled with Dubai’s plan of reaching 25 million visits, 70 per cent of which will be from overseas (EXPO 2020 official website), a local living community would need to show a support towards such a big event. A local support is especially pivotal because a local culture heritage and Emirati authenticity are set to be the fore of EXPO 2020 in order to promote the UAE as a cultural
tourism destination. Emirati nationals are expected to work and be involved as much as possible in the organization of Dubai 2020, thus a support of Emirati nationals is crucial.

Residents’ support

The attitude of local people towards hosting an event has been extensively researched (Gursoy & Kendall, 2006; Kinnunen & Haquito, 2015). Yet, the majority of research covers sport events such as Olympic games (Zhou & Ap, 2009; Ritchie, Shipway & Cleeve, 2009), different sports’ World Cups (Lorde, Greenidge & Devonish, 2011; Kaplanidou et al., 2013) and cycling tours like e.g. Tour de France (Balduck, Maes & Buelens, 2011; Bull & Lovell, 2007) or Tour de Taiwan (Ma & Rotherham, 2015). There are few studies about residents support of EXPO, Jeong (1998) examined residents perception towards’ EXPO 1993 in Daejeon, Korea while Sun & Ye (2010) studied Shanghai EXPO 2010 in comparison with the Olympics in Beijing. EXPO 2010 has received greater attention in academia comparing to EXPOs organized elsewhere (Yu, Wang & Seo, 2012; Chen, 2012; Lamberti, Noci & Guo, 2011, Yang et al., 2010; Ye et al., 2012).

The majority of Shanghai residents in the Yang et al. (2010) study perceived the impacts of EXPO positively, particularly those who were employed in the industries closely related to city image enhancement and consolidation. In the Ye et al. (2012) study residents perception was examined pre- and during the event and it was found that residents’ perception, affective attachment, and attitudes toward the local government became more favorable during the event compared with the results of pre-event. However, it has been generally concluded by several studies (Látková & Vogt, 2012; Choi & Murray, 2010; Sun & Ye, 2010) that mega and major events represent a tool to boost tourism, attract investment, promote the country and facilitate urban redevelopment. Thus, considering previous studies and the fact that the UAE, especially Dubai, has been invested in tourism development in the
last two decades (Sharplay, 2002; Jauncey & Nadkarni, 2014) the present study was developed. However, besides researching the general support toward EXPO 2020 among Emirati nationals, our research also contributes to the literature by studying if and how events’ impacts (positive, negative and individual support) effect the support towards a general tourism development in the country – a tourism perception.

**Methodology**

Data of Emirati nationals were collected in person in 2016. The attitude towards EXPO 2020 was the focus of the survey. The questionnaire was self-administered, but based on previous research and consisted of 4 tested dimensions: tourism perception (Látková & Vogt, 2012), evaluation of positive event impacts (Kaplanidou et al., 2013), negative event impacts (Kim, Juh, Walker & Drane, 2015) and individuals’ support towards the event (Ye et al., 2012). Every tested dimension consisted of statements, which were evaluated on a 5-point Likert scale, where 1 represented totally disagree and 5 shows the highest agreement:

- **Tourism perception in the UAE:** five statements related to hospitality, tourism development support, positive and negative impacts of tourism development and economy.

- **Positive perceived impacts of EXPO 2020** were tested with six statements related to economic impacts, tourism image, psychological and social impacts, infrastructure and the quality of life.

- **Negative perceived impacts of EXPO 2020** were tested with five statements related to traffic, economy, safety, environment and possible conflicts.

- **Individual support towards EXPO 2020** was tested with five statements related to the UAE as a country to host this mega event.
Demographic data were also collected in order to understand and present the sample. Finally, 360 Emirati nationals responded to our questionnaire and they represent a convenient sample of Emirati nationals living in the UAE. The majority of respondents live in the Emirate of Abu Dhabi (80.8%), which is also the largest emirate among seven in the UAE, 11.9% of respondents live in Dubai and 7.3% live in other Emirates. The greatest part of respondents represented a young generation (42.5% were 18-25 years old, 27.5% were 26-35), while 18.6% aged 26-45 years old, 10.8% of respondents were 46-60 and 0.8% were older than 60. 40.8% of the sample had finished high school, 39.7% held a Bachelor’s degree, 12.5% held a master, professional degree or a PhD, and 6.9% of our respondents did not complete a school degree. The gender distribution was equally distributed between 49.9% male and 50.1% of female.

The reliability analysis was carried out on the perceived task values scale comprising 4 items with 21 statements in total. Cronbach’s Alpha value of 0.819 showed the questionnaire achieved highly acceptable reliably. Yet, 2 statements show a much lower mean result (M=2.45 and M=2.62) than other accompanying statements or the average of all statements (M=3.95). Thus these statements were additionally checked with a correlation test. However, r<0.3 in the majority of correlated items, but α=0.818 if items deleted, thus they were retained. Following the high questionnaire reliability, the results can be analyzed and presented in full.

Data Analyses

Fuzzy logic using the statistical software package fsQCA 2.0 for its analysis was used in the present research. The advantage of fsQCA is that it can test one or more different combinations to determine if they are sufficient to obtain a concrete outcome; for example X1*~X2*~X3 can be satisfactory for an outcome (Y) where * is union and ~ is absence or
negation. This analysis was initiated by Zadeh (1965) and fuzzy set was first developed by Smithson 1987. Fuzzy set/Qualitative Comparative Analysis (fsQCA) was initiated by Ragin (2000), and has been further used by several researchers (Fotiadis, Xie, Li, & Huan, 2016; Mendel & Korjani, 2013; Ragin, 2008a). As variables are treated as symmetric, different solutions can lead to the same result, and it is easier to focus on combinational effects (Elliott, 2013). A number of researchers have applied this technique rather than the standard regression approaches for the previously stated reasons (Cheng, Chang, & Li, 2013; Eng & Woodside, 2012; Ganter & Hecker, 2014; Leischnig & Kasper-Brauer, 2015; Skarmeas, Leonidou, & Saridakis, 2014; Stanko & Olleros, 2013; Woodside, 2014), which are also the reasons why it was implemented in the present research.

Another reason why the Fuzzy logic was used is that it can be considered in some cases superior or supplementary to SEM or other traditional methods (Fang, Shao, & Wen, 2016; Vizcaíno & Chousa, 2016). FsQCA was chosen for this study as the research aim is not to focus on the isolated effects of two variables (Xie, Fang, & Zeng, 2016), but the purpose is to investigate all the possible interactions between the variables and the individual and combined affects. The final reason is the ability this method gives to researchers to use medium size or small size samples for their study (Fotiadis, Yeh, & Huan, 2016; Skarmeas, Leonidou, & Saridakis, 2014).

Figure 1: Model of work using fuzzy logic
In the present study, the wanted outcome was a ‘tourism perception’ (fs_trper). The antecedents examined, following the necessary prior calibration for the fsQCA method, were a series of characteristics: negative impacts (fs_neg.), individual support (fs_ind.), and positive impacts (fs_pos.). The questions for those measures also correspond to values on a five point-Likert scale. Some of the original and frequently employed examples of fuzzy numbers and fuzzy set applications are based upon a scale which clearly relates to a continuum that may validly be expressed as a meaningful number (Hassall, 1999). As a 5 point Likert scale was used the continuum in this study was 1-Totally Disagree, 2-Disagree 3-Moderate Agreement 4-Agree, 5-Totally Agree.

Results

FsQCA has different steps and one of the first steps is to calibrate the fuzzy set. All variables must be converted into sets using values in the interval between “0” (non-membership) and “1” (full membership) without abandoning core set theoretic principles (Mendel & Korjani, 2012; Ragin, 2008a, 2008b). Some variables can be considered as a crisp set and in that case it must have standard values of 1 or 0 (Ragin, 2008a). A variable can be reflected as fuzzy when it has a value between 0 and 1 (Eng & Woodside, 2012; Mendel & Korjani, 2012, 2013; Tóth, Thiesbrummel, Henneberg, & Naudé, 2015; Trueb, 2012; Woodside, 2013), where the lower the value the lower the degree of non-membership. This is the reason that three adjustments must be made when the researcher calibrates the set related points at 0.05 for full non-membership, at 0.50 for maximum membership ambiguity, and at 0.95 for full membership. Table 1 shows data that were calibrated, in the case of tie, trust, information and motive the median was 5.00 while for membership and eWOM it was 4.00.
Based on that we could calibrate data on full non-membership, full membership, and maximum membership.

**Table 1:** Data Calibration, the outcome.

<table>
<thead>
<tr>
<th></th>
<th>Fs_trper</th>
<th>Fs_pos.</th>
<th>Fs_neg.</th>
<th>Fs_ind.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>360</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Median</td>
<td>3.80</td>
<td>4.00</td>
<td>3.20</td>
<td>4.00</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.2</td>
<td>1</td>
<td>1.4</td>
<td>1</td>
</tr>
<tr>
<td>Maximum</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

As required by the fuzzy logic method, we verified whether any of the causal conditions might be considered as a necessary condition of the outcome. A condition is necessary when the outcome constitutes a subset of the cases of that causal condition. We also checked consistency scores where “1” indicates that the combination of causal conditions complies with the rule in all cases. In the case for our necessary conditions we used an over the 0.9 threshold to see if a combination of conditions is necessary or almost necessary. Coverage is calculated as a score close to “0”, which would mean that this condition is unimportant. As we can see from the Table 2 the analysis of necessity between different causal conditions related to the outcome consumer perception indicates that no condition meets the above-mentioned requirements. Table 2 also shows the results of this analysis for the presence (fs_trper) and for the absence of tourism perception (˜fs_ trper). None of the conditions (Table 2) fulfill the limited threshold of 0.9 and for this reason, they are not considered necessary for developing a model related to tourism perception as an outcome.
Table 2: Analysis of necessity.

<table>
<thead>
<tr>
<th>Conditions</th>
<th>fs_trper</th>
<th>(\sim )fs_trper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consistency</td>
<td>Coverage</td>
</tr>
<tr>
<td>fs_pos.</td>
<td>0.856903</td>
<td>0.848415</td>
</tr>
<tr>
<td>(\sim)fs_pos.</td>
<td>0.462324</td>
<td>0.761594</td>
</tr>
<tr>
<td>fs_neg.</td>
<td>0.726097</td>
<td>0.814594</td>
</tr>
<tr>
<td>(\sim)fs_neg.</td>
<td>0.574932</td>
<td>0.792254</td>
</tr>
<tr>
<td>fs_ind.</td>
<td>0.789293</td>
<td>0.842695</td>
</tr>
<tr>
<td>(\sim)fs_ind.</td>
<td>0.546105</td>
<td>0.802595</td>
</tr>
</tbody>
</table>

The next step was to make an analysis of the subset aiming to verify the conditions of sufficiency. Causal paths were created, which are the combinations of these causal conditions. The outcome that was examined was ‘tourism perceptions’ in relation to the three antecedents: negative impacts, individual support, and positive impacts. Based on Table 3 we can consider two causal paths as empirically important. Empirical importance stems from the degree to which the causal condition or combination of conditions explains the result. In addition, the empirical importance is assessed by two scores, the raw coverage and the unique coverage, suggested by Ragin (2006). The results indicate that there is no combination of necessary conditions leading to positive tourism perceptions and only individual variable affects positive tourism perception. The configuration of the model exhibits a high overall consistency of 0.81 (> 0.81 threshold) and highlights that memberships in the outcome are highly consistent subsets of causal conditions. In terms of overall coverage, the causal
conditions account for 90% of membership in the solution (very positive tourism perception).

**Table 3: fsQCA case study Results.**

<table>
<thead>
<tr>
<th></th>
<th>Raw coverage</th>
<th>Unique coverage</th>
<th>Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>fs_pos.</td>
<td>0.789294</td>
<td>0.049953</td>
<td>0.842696</td>
</tr>
<tr>
<td>fs_ind.</td>
<td>0.856904</td>
<td>0.117563</td>
<td>0.848415</td>
</tr>
<tr>
<td>Solution Coverage:</td>
<td>0.906857</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution Consistency:</td>
<td>0.810933</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As we can see from the results no combination of positive, negative impacts and individual behaviour can affect tourism perceptions, but antecedent ‘positive impacts’ and ‘individual support’ can significantly affect a positive tourism perception. Positive impacts have significant and important relationship with tourism perception as causal conditions reveal. High levels of positive impacts lead to high tourism perception in 78.9% of cases. Individual support is also important when it is combined as high levels can lead to high tourism perceptions in 85.7% of the cases. The negative impacts don’t seem to have a significant impact on tourism perceptions as the results of the present research indicate.

**Discussion**

This study develops a theoretically grounded set of hypotheses that predict the effects of perceived events’ impacts on tourism perception. Our results show that positive event impacts and individual support of an event may significantly affect tourism perception of Emirati nationals, which was confirmed by our study in case of EXPO 2020 which will be held in the UAE. In contrast, negative event impacts do not significantly affect tourism
perception according to the respondents in our sample. When reading our results it has to be considered that EXPO 2020 Dubai was researched and Emirati nationals were surveyed, where the majority of respondents come from one Emirate, Abu Dhabi. Moreover, EXPO 2020 has not yet happened, thus the perception tested is what residents of the UAE perceive today, which may change at the time of or after the event.

Understanding the perception and attitude to mega-events and to related policies is part of the planning process for sustainability (Ye et al., 2012) and this is why it is important to understand Emirati nationals’ support before the event. Moreover, the time of data collection (prior, during, post) is an especially important variable in our case as the UAE has never experienced organizing mega events such as EXPO or Olympic games before. Thus, the perception of Emirati nationals might change after their first experience, which was confirmed in the study of King, Pizam and Milman (1993). However, Abu Dhabi has hosted another event, which may be considered as a mega event, the World Economic Forum (WEF), but WEF has a more specific audience and it is not open to the public.

EXPO 2020 will be the longest ever mega event hosted in the UAE, as it will last for 6 months. Our hypothesis that ‘positive impacts positively affect the support of Emirati nationals in terms of support towards tourism development’ can be confirmed. Conversely, it was not expected that negative impacts of an event do not have a significant effect on tourism perceptions as it has been indicated by our results. Having said that, an event can only positively influence the community to accept tourism development as negative impacts are not significant. This finding is consistent with the UAE expectations’ as the country has enjoyed a rapid growth in tourism terms (Sharpley, 2002, Slak Valek 2017). Moreover, tourism has taken a leading role in the UAE governmental and strategic documents, such as Abu Dhabi Economic Vision 2030 (The Government of Abu Dhabi, 2008) and Dubai Plan 2012 (Government of Dubai, The executive council, 2015). Emirati nationals do understand
that income of oil needs alternatives and slowly will be replaced by other incomes, thus the need for a supplement economy has become more apparent. Economic diversification has become a challenge in the UAE in the last decade and as confirmed by Hatemi (2016) international tourism might be considered as a sustainable strategy for the UAE to achieve economic growth in the present and future. Thus, the support of Emirati nationals residents can be beneficial for the success of this transitional process and more mega events might be organized in the future in the UAE.

Conclusions and further research recommendation

This research gives rise to several future research opportunities. Since negative event impacts have been shown as not significant in support of tourism development, they should be studied deeply in the future. Our research has included five statements for testing each group of impacts, which should be enlarged in the future research. Moreover, more events, different level of events (major, mega, community events, …) and different nature (sport, business, …) events should be studied and compared in the future, in terms of positive and negative impacts affecting the development of tourism in the host community. As for our specific research and method used, it is also recommended that in a future research a comparison of fuzzy logic results and results of a traditional method (e.g. interval scale data) is developed. This comparison might allow to point out the importance and superiority of the fuzzy logic approach.
References


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