# Behavioral Intentions of Disabled Tourists for the Use of Peer-to-Peer Accommodations: An Application of fsQCA

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**Abstract**

**Purpose**: This empirical study aims to examine the causal models that predict disabled tourists' behavioral intentions to use peer-to-peer (p2p) accommodations. This study also explores the causal models through complex combinations of demographic factors, host attributes, and the levels of perceived charm, convenience, and other service features of the accommodations as a means of describing disabled tourists' behavioral outcomes.

**Design/methodology/approach:** A questionnaire was administrated to measure the study variables. Using the convenience sampling technique, the questionnaires were distributed among disabled individuals with orthopedic disorders who reside in North Cyprus in May 2016. The five respondents were later interviewed about their needs and expectations from p2p accommodations. A set of preliminary tests (for both reliability and validity) were conducted, and descriptive statistics were used based on the scale items. Fuzzy set qualitative comparative analysis (fsQCA) was used to test the proposed research model, which revealed sufficient and consistent conditions leading to behavioral intentions of disabled tourists in their use of p2p accommodations. The predictive validity of the model was then tested.

Finally, the results of the fsQCA were evaluated based on the key tenets of complexity theory.

**Findings:** The findings reveal under which conditions disabled tourists tend to use p2p accommodations. This empirical study has relied upon the use of causal models integrating combinations of demographic variables and host and accommodation place attributes (i.e., charm, convenience, and service features) which were put forth as sufficient predictive configurations of the behavioral outcomes of disabled tourists within the context of a sharing economy. Ultimately, this study find that p2p customers are not limited to travelers with low income levels.

**Research limitations/implications:** The views of people with orthopedic problems in North Cyprus were obtained for testing the configurational model, which means that the results do

not necessarily represent a large range of customers' perspectives. Although this limitation was addressed through the application of a powerful compensatory analytical approach (fsQCA), it is advised that data from tourists with various types of disabilities in other countries be collected for future studies.

**Practical implications:** The results of this study provide practical implications for hosts on how to combine accommodation place characteristics (e.g., charm, convenience, and service)

with their own personal attributes (e.g., knowledge and eagerness) to bolster the disabled tourists' intentions to use p2p accommodations. It is hoped that the results of the fsQCA using the demographic variables presented here will guide businesses toward performing target marketing. This is useful for hosts who wish to attract more disabled tourists, a profitable segment of the market.

**Social implications:** This study draws social attention to the disabled tourists as potential customers in the sharing economy. Conducting an empirical study that considers the social

inclusion of tourists with disabilities in the emerging version of hospitality business is helpful to both the supply and demand sides.

**Originality/value:** To the best knowledge of authors, this is the first empirical study that investigates the indicators of disabled tourists' intentions to use p2p accommodations. This study also adds to the current literature by modeling the behavioral intentions of disabled tourists within a sharing economy using a pragmatic and set-theoretic approach (i.e., fsQCA in conjunction with complexity theory).

**Keywords**: Disabled tourist; orthopedic, behavioral intention; fsQCA; sharing economy; complexity theory.

**Introduction**

Accommodation is one of the key elements of concern in the hospitality industry. Accommodations do, of course, vary significantly from the economical to the luxurious. The type of business based on what has been referred to as a "sharing economy" or "peer economy" has emerged as a new area of interest within the tourism industry, in which people

are using online platforms for the "sharing of consumer goods and services that provide new ways for end-users to generate income from their possessions" (Heo, 2016, p. 1). In the case of p2p accommodations, people use online platforms (e.g., Airbnb) to market accommodations that are available to "rent" by describing the characteristics of each specific place and the distinct services that they offer. Such platforms enable travelers to book these alternative accommodations in order to enjoy a more home-like experience (Hamari *et al*., 2015). It should be noted, though, that a wide range of both tangible (e.g., convenience and service provisions) and intangible (e.g., host attributes) features influence travelers' decisions regarding where to stay (Prud'homme and Raymond, 2013). More specifically, socio-economic factors (e.g., lower prices compared to hotels and opportunities to socially interact with one's host) have boosted the popularity and success of p2p accommodations (Guttentag,

2015; Tussyadiah, 2015). As a result of such increased interest, an investigation into the expectations and motives of disabled travelers regarding the accommodations sector, and more specifically the sharing economy, is important because disabled tourists, given their potential needs for more attention and specialized treatment, are more profitable customers (Burnett and Baker, 2001; Yau *et al*., 2004). What this means is that this is a market of both general economic growth and one of increasing interest due to the fact that factors such as "increasing life-span[s], decreases in communicable diseases, improved medical technology,

and improved child mortality" (Yau *et al*., 2004, p. 947) are yielding more frequent travel among the disabled. As Burnett and Baker state, "despite the critical need to understand the disabled as consumers, the general focus has been on satisfying a set of costly rules for a customer group that is often not even desired . . . This is a serious mistake . . . The potential of the sizeable, accessible, and responsive disabilities market is largely ignored." (2001, p. 4). Some researchers such as Pagán (2012, p. 164) go even further to condemn the tourism industry for committing "subtle discrimination" by ignoring the needs of disabled tourists.

*Purpose and significance of the study*

This empirically-based study designed and tested a configurational model for predicting disabled tourists' behavioral intentions to use p2p accommodations. After an assessment of the relevant literature, the criteria for selecting the accommodations were extracted and integrated—based on consideration of the characteristics of a sharing economy—with the adjusted accommodation attributes for disabled tourists to explore causal conditions for predicting intention to use p2p accommodation. Complexity theory was used as a theoretical underpinning of the proposed conceptual model, which was then tested using fsQCA.

To the best knowledge of the authors, this is the first empirical study to calculate the causal models leading to disabled tourists' behavioral intentions to use p2p accommodations.

However, a great deal of previous research has investigated the various factors and criteria involved in predicting the behavioral outcomes of hotels' customers (e.g., Kandampully and Suhartanto, 2000; Prud'homme and Raymond, 2013). For instance, Han *et al*. (2010) apply a theory of planned behavior for modelling customers' intentions to visit a green hotel. Indicators of the behavioral intentions of customers have also been explored with respect to festival attendees (e.g., Lee *et al*., 2007), airline passengers (e.g., Petrick, 2004), golf travelers (e.g., Hutchinson *et al*., 2009), and restaurant customers (e.g., Ryu and Han, 2010).

Still, the antecedents of disabled tourists' behavioral intentions to use p2p accommodations have not previously been examined. Nevertheless, on the topic of disability in the tourism sector, Kastenholz *et al*. (2015) stress the social inclusion of tourists with disabilities in the hospitality sector, specifically in the emerging sharing economy. The needs, expectations, and criteria required to be met for a disabled tourist to stay in a hotel (Kim *et al*., 2012; Navarro *et al*., 2015; Williams *et al*., 2006) or travel by air (Chang and Chen, 2012) have been identified in several studies. Paying relatively low fees for accommodation, interacting with hosts and the local community, and the delivery of customized services based on users' preferences are some of the motives that encourage individuals, including disabled people, to use p2p accommodations (Guttentag, 2015).

This study contributes to the current literature on disabled tourists by modeling their behavior in the context of a sharing economy through the use of new analytical approaches (i.e., fsQCA with complexity theory). As Darcy (2010) reports, the issue of disabled tourist accommodation is inherently complex, and complexity theory can be used to describe a causal model of the behavioral intentions of people with disabilities in this context. The functionality of fsQCA and complexity theory has already been acknowledged in the modelling of complex interactions of the antecedents leading to individuals' behavioral

outcomes in the tourism and hospitality industry (Hsiao *et al.*, 2015; Olya *et al.*, 2017; Olya and Alipour, 2015; Olya and Altinay, 2016; Olya and Mehran, 2017; Wu *et al.*, 2014).

**Literature review**

*Accessible tourism*

The term "accessible tourism" is defined as the enablement of "people with access requirements, including mobility, vision, hearing and cognitive dimensions of access, to function independently and with equity and dignity through the delivery of universally designed tourism products, services and environments" (Darcy and Dickson, 2009, p. 34). In recent years, scholars have highlighted the significance of accessible tourism for three reasons. First, increasing the number of disabled tourists. Second, identifying this niche market for profit-making, and third, recognition of the civil right to holidays for the disabled is essential (Wan, 2015). In their study, Bi *et al.* (2007) anticipated an expanding market of tourists with physical disabilities; nevertheless, its growth was expected to depend on the efforts of the supply-side in meeting these needs. Open Doors (2003) reported that about 70% of the American disabled—approximately 22,000,000 people—spent US $27 billion during their travels from 2001 to 2002.

Apart from the attractive financial benefits of this market, it is also ethically respectable to facilitate travel opportunities for people with mobility challenges, as travel as a basic human right should be satisfied equally across different populations (Zhang and Cole, 2016). In an important study, Pagán (2015) compares levels of life satisfaction between people both with and without disabilities, revealing that disabled tourists reported higher levels of life satisfaction after their participation in holiday trips. Still, despite the existing demand for accessible tourism, "many people with disabilities do not travel because the facilities and services are not adequate for their needs" (Chang and Chen, 2012, p. 535). Disabled tourists encounter three significant barriers: the economic, the physical, and the

attitudinal (Murray and Sproats, 1990). For instance, after interviewing 32 disabled people, Wan (2015) finds that they experienced physical, human (i.e., lack of communication with staff and the chance to socialize with other visitors), and economic difficulties while visiting an integrated resort.

*Physical disabilities and the hospitality industry*

Singh notes that "the terms 'physical disabilities' and 'orthopedic impairments' are often used interchangeably" (2007, p. 206). This kind of disability "includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member, etc.), impairments caused by disease (e.g., poliomyelitis, bone tuberculosis, etc.), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures)" (U.S. Department of Education, 2001). According to the Open Doors Organization's report (2005), six out of 10 disabled tourists have reported complaints about their accommodation problems, such as physical barriers, or customer service and communication issues. Furthermore, "hundreds of complaints have been filed to the U.S. Department of Justice, not to mention unofficial complaints through various business websites or social networks" (Zhang and Cole, 2016, p. 14).

The process of value co-creation between hotels and disabled customers includes four stages: the period before the visit; the arrival and check-in process; the stay itself; and the checkout process (Navarro *et al*., 2015). Grady and Ohlin (2009, p. 168) point out that "lack of training is one of the major barriers in the hospitality industry to meeting the needs of guests with mobility impairments." In addition, information dissemination is one of the most important factors influencing the decision-making process of disabled tourists (Chang and Chen, 2012; Murray and Sproats, 1990). In their recent study, Zhang and Cole (2016) examined the satisfaction levels of lodging guests with mobility challenges, and found that "staff attitude and capability*"* and "lodging service details" were two frequent factors that

contributed to their satisfaction. Lyu (2017) examines the willingness to pay of Korean disabled tourists (as an attractive niche market), revealing that accommodation accessibility is the most important attribute determining the satisfaction of travelers with mobility disabilities.

*Demographics, place, and host attributes*

Darcy (2010) reports that disabled tourists' preferences for selecting accommodation criteria vary depending upon the sociodemographic variables considered (e.g., age, gender, education level, employment conditions, and country of birth). Adam *et al*. (2016) found that the demographic characteristics of disabled tourists contribute to the formulation of their leisure motivations. However, results of Adam *et al*.'s (2016) study were heterogonous; for example, they reported the leisure motivations of disabled males is different than those of females. In terms of income levels, disabled travelers reported heterogeneous preferences toward leisure motivations. However, the leisure motivations of disabled travelers did not significantly vary among different education level and age groups. Prud'homme and Raymond (2013) found that the gender and education levels of hotel guests have significant effects on their preferences about hotel selection criteria, but age has not shown to have a substantial impact in this respect. Lyu (2017) points out that older disabled tourists expressed more willingness to purchase accessible travel products. Such heterogeneities can be considered as a green light for asymmetrical modeling of behavioral intentions to use p2p accommodation, given that many scholars have acknowledged the complex process of forming behavioral intentions, and have placed emphasis on the inclusion of demographic variables in the asymmetrical modeling of complex tourism phenomena (e.g., Hsiao *et al*., 2015; Olya and Gavilyan, 2016; Wu *et al*., 2014).

Prud'homme and Raymond (2013) measured convenience, cocooning capacity, charm, and sustainable development orientation as four hotel selection criteria that influence

satisfaction and behavioral intentions (in terms of revisiting or making recommendations) of green hotel customers. Hotel room conditions, location, and staff are the key determinants of customers' loyalty (Zhang and Mao, 2012). A review of the literature of disabled tourists and the hospitality nexus shows that the properties of accommodation place (e.g., hotel conditions) and host (e.g., well-trained staff) are key indicators of decision-making results of disabled people (Chang and Chen, Darcy 2010; Kim et al., 2012; Navarro et al., 2014; Lyu, 2017; Zhang and Cole, 2016; Zhang and Mao, 2012). After assessing the online needs of

disabled tourists, Williams et al. (2006) concluded that the accessibility and quality of hotel information is a key decision-making factor which UK hotels failed to provide. Kim et al. (2012) investigated the perceptions of both those on the supply sides (i.e., hotel managers) and disabled guests in terms of reservations, room accommodations and public spaces, and

the qualifications of staff members. They found that all respondents called for the necessity of better staff sensitivity training. In another study, Darcy (2010) highlighted the importance of six criteria—namely, core mobility (e.g., flex-a-bed configuration and bed height), communication (e.g., alternative and adjusted format of guest information and phones with volume control and alert functions), safety (e.g., grab rails in bathroom and handrails throughout), service and security (e.g., room service and clear signage), amenities (e.g., gym

and pool access), and supplementary mobility access (e.g., split level reception desks and independent access entrances)—of the accommodations in hotels from disabled guests' perspectives which may affect their behavioral intentions (i.e., loyalty).

**Theoretical background and the configurational model**

Complexity theory provides the sufficient theoretical support for the research model to predict the causal conditions of disabled tourists' intentions to use p2p accommodations, thus construing it as a complex social phenomenon. This theory posits that the investigation of the net effects of predictive variables does not provide accurate results that are capable of

predicting the causal models that lead to expected outcome condition. Since the prediction of behavioral outcomes is a complex process, a set of complex interactions between antecedents (i.e., conjunctural causation) must be considered as a causal model capable of predicting the conditions leading to a desired outcome (Sehring *et al*., 2013). This complex interaction of antecedents is called "configuration" and the method for identifying this configuration is "configurational modelling" (Rihoux and Ragin, 2009). This approach, in contrast to symmetrical thinking, uses a distinct configuration of causal antecedents to explain the

conditions leading to a set of desired outcomes. This asymmetrical approach is an advancement in theory and methodology for modelling disabled tourists' behavioral outcomes, specifically with respect to the use of p2p accommodations. The following section describes the relevance of fsQCA and complexity theory in more detail. The technical terms

used to describe this approach are explained and compared with those of the conventional symmetrical methods in the work of Olya and Gavilyan (2016).

One of the core tenets of complexity theory, called "equifinality," accounts for how different alternative causal models can explain the conditions leading to a given behavioral outcome. Qualitative comparative analysis (QCA) and fsQCA are two popular set-theoretic methods that identify consistent and sufficient models for predicting behavioral outcomes in smaller population (Ragin, 1987). Consistency (what proportion of observed cases is consistent with the designated pattern) and coverage (the relative importance of different paths to an outcome) are two criteria for refining and selecting causal models that can explain disabled tourists' behavioral intentions to use p2p accommodations (Ragin, 2008).

A Venn diagram is used to design the proposed configurational model (Figure 1). A set of demographic variables are selected as the ingredients of a causal configuration for predicting the behavioral intentions to use p2p accommodations (i.e., outcome). The causal models based on the demographic configuration for simulating the study outcome are

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indicated by arrow A. Three criteria for selecting an accommodation place (charm, convenience, and service features) and host attributes are combined and used as antecedent configurations of disabled tourists' behavioral intentions to use p2p accommodations (see arrow B in Figure 1). The experiences of respondents who used p2p accommodations are added to the configurational model as a causal ingredient. All antecedents, including demographic variables, place and host attributes, and the prior experience with p2p were combined to serve as complex causal configuration (arrow C) for indicating the outcome conditions (i.e., behavioral intentions).

**Figure 1**

**Methodology**

*Data and procedure*

Disabled individuals with orthopedic impairments who live in North Cyprus were targeted as the sample for this empirical study. Using the convenience sampling technique, a survey was administered after notice was given and permission was obtained from the Disabled Association of North Cyprus in May 2016. To increase the response rate, the questionnaires were distributed in person to participants (Lee, 2013). This was helpful because the research team took this opportunity to notify the anonymity and confidentiality of the study results, and to explain the aims of the study. This is also considered a procedural remedy for mitigating common method variance (Podsakoff *et al*., 2003). Five respondents agreed to participate in an interview regarding their specific requirements for p2p accommodations.

A back-translation method was used to translate the scale items from English to Turkish (McGorry, 2000). The comprehensibility of the items was checked by conducting a pilot study with five samples. The results revealed that none of the questions was vulnerable to ambiguity issues. The questionnaire consisted of two sections. The first part presented 25 items for measuring the study variables (including charm, convenience, service features, and

host attributes). The second part included the demographic variables, such as age, gender, education level, income level, and experience of the stay at a p2p accommodation.

*Measurements*

Six items were extracted from studies by Grady and Ohlin (2009), Prud'homme and Raymond (2013), and Darcy (2010), which were measured using a 7-point Likert scale ranging from 1 (extremely unimportant) to 7 (extremely important). To measure an accommodation's level of charm (e.g., quietness, comfort of the room(s), security, cleanness,

access to accurate information, and positive review comments), eight questions were adapted from the work of Prud'homme and Raymond (2013) and Williams *et al*. (2006). Convenience

(e.g., accessibility to tourist attractions, ability to access on-site facilities, special designs for disabled tourists, and internet access) and service features (e.g., availability of home appliances, entertainment, breakfast included in the price, and shuttle service) were each measured by four items originally used by Chang and Chen (2012) and Prud'homme and Raymond (2013). Three items were extracted from the work of Currás-Pérez *et al*. (2013) and

Prud'homme and Raymond (2013) to measure the behavioral intentions to use p2p accommodations. These constructs were rated from 1 (extremely disagree) to 7 (extremely agree). The scale items and response anchors appear in Table 1.

Out of 32 people with orthopedic disorders who reside in North Cyprus and were contacted for this study, 21 agreed to participate in the survey. As noted in the *Theoretical background and proposed configurational model* section, fsQCA is a practical approach for testing models involving small and intermediate-sized Ns (e.g., 5–50) (Ragin, 2008). With a response rate of 65%, 33% of respondents were 38–47 years of age, 24% were 28–37 years of age, 24% were 48–57 years of age, 14% were older than 57 years, and 5% were 18–27 years of age. A total of 48% of the participants were men, and 52% were women. Forty-three percent of the respondents had high school diploma, 28% had master's degree, 19% had no

high school diploma, 5% had bachelor's degree, and 5% had doctoral degree. Half of the respondents earned \$30,000–\$49,999 per year, 38% earned less than \$30,999, and 12% earned \$50,000–\$69,999.

*Data analyses*

A set of preliminary tests, including those conducted for reliability and validity, were performed before configurational model testing. Descriptive statistics of the scale items were calculated, which provided useful information for hosts who are interested in which attributes are most important to the disabled tourists. Cronbach's alpha was calculated for all of the constructs to check the internal consistency of the study measures. To check the composition of the scale items, exploratory factor analysis using the principal components method with the varimax rotation method was performed. The Harman's single-factor analysis, a statistical remedy for common method bias, was performed to check for the emergence of a general factor (Podsakoff *et al*., 2003).

The proposed configurational model was tested using fsQCA, and the results were then evaluated based on the key tenets of complexity theory. Configurational modeling was conducted with the use of fsQCA software (Ragin, 2008), which includes three steps. First, data was calibrated from its crisp value into fuzzy form. The transformation of the values of the study variables, which were measured on the 7-point scale, into fuzzy set membership scores—ranging from 1.00 (full membership) to 0 (full non-membership)—called calibration. Three qualitative anchors were used to calibrate the interval data into fuzzy set membership scores. Seven were specified as full membership in a set with a value of 1, three represented a crossover point with a value of 0.5, and one was used for full non-membership in a set with value of 0 for all variables (Ragin, 2007). Data calibration was performed using fsQCA software.

Second, a truth table algorithm was generated, which presented a list of causal conditions that describe how to achieve a high level of behavioral intentions on the part of disabled tourists to use p2p accommodations. Third, data for the counterfactual analysis for selecting consistent and sufficient causal conditions was obtained from the truth table (Ragin, 2008). This approach is based on Boolean algebra, which utilizes coverage and consistency as two criteria for selecting sufficient and consistent causal models leading to the outcome condition (i.e., behavioral intentions). In other words, "consistency assesses the degree to

which a subset relation has been approximated, being analogous to a correlation [and] coverage assesses the empirical relevance of a consistent subset, analogous to a coefficient of determination" (Hervas-Oliver *et al*. 2015, p. 2656). The formulas for calculating coverage and consistency are provided in equation 1 and equation 2, respectively.

$$\text{Coverage:} (X_i \le Y_i) = \sum (\min(X_i, Y_i)) / \sum (Y_i) \quad \text{(Equation 1)}$$

$$\text{Consistency:} (X_i \le Y_i) = \sum (\min(X_i, Y_i)) / \sum (X_i) \quad \text{(Equation 2)}$$

In these equations, Xi denotes case i's membership score in set X, and Yi denotes case i's membership score in the outcome condition (Ragin, 2008).

While symmetrical methods offer a single sufficient antecedent for predicting a given outcome, fsQCA explores a recipe of antecedents as a complex sufficient configuration for simulating outcome conditions (Dul, 2016). As Olya and Mehran (2017) reports, an asymmetrical approach addresses the drawbacks of traditional symmetrical approaches, such as "multicollinearity issues, non-normality of data sets, disregard of occurrences of contrarian cases and ignorance/control of other factor effects in the model," (p. 149) by considering a set of antecedents as a causal recipe for predicting tourist's behavioral intentions. High levels of intentions to use p2p accommodations among disabled people can be described in terms of ≥ one causal recipe(s), not just a net effect of simple antecedents. In a given causal recipe, each antecedent (e.g., income level) can play both a positive and negative role in indicating the

desired behavioral intentions. This role depends on the features of the other antecedents in the causal recipe (Woodside, 2017; Wu *et al*., 2014).

This study addressed the concern of Wu *et al*. (2014) who stated that "unfortunately, only a handful of studies report on predictive validity; nearly all studies report only on fit validity" (p. 1667). The predictive validity of the configurational model was checked by dividing the sample into two subsamples and testing the model that emerged from subsample 1 using the data of subsample 2 (Olya and Altinay, 2016; Olya and Gavilyan, 2016; Olya and Mehran, 2017; Wu *et al*., 2014). The fuzzy XY plots were sketched to illustrate the asymmetric associations between the causal recipes (X) and the behavioral intentions to use p2p accommodation (Y). The fsQCA results were assessed with the key tenets of complexity theory (Woodside, 2013).

**Results and Discussion**

*Preliminary and descriptive statistics analyses*

The results of the reliability test (Cronbach's alpha), the validity test (exploratory factor analysis), and the means and standard deviations of the scale items are presented in Table 1. The alpha coefficients corresponding to all factors were higher than .7, which verified the existence of internal consistency among the measurement scales (Cortina, 1993). The alpha coefficient for behavioral intentions was .87; for host attributes .73; for charm .88; for convenience .71; and for service features.79 (cf. Table 1). The results of the exploratory factor analysis showed that all items were loaded under expected factors (without any cross-loading issues), which met the recommended threshold level ($\lambda > .45$). The eigenvalues of the factors were greater than 1 (Table 1). According to the results of Harman's single-factor analysis, the percentages of the variances were relatively low, and no general factor emerged, indicating that common method variance is not a serious concern (Podsakoff *et al*., 2003).

**Table 1 here**

The means of the scale items revealed that eagerness to provide services (Mean = 6.19), knowledge about disabled people (Mean = 6.67), and the social personality of a host are important (Mean = 6.05) to the respondents (Table 1). These results are in line with the findings of Grady and Ohlin (2009) and Kim and Lehto (2013). With regards to the charm of the place, except for quietness (Mean = 5.57) and room appeal (Mean = 5.43), all items received relatively high scores (Mean > 6). Darcy (2010) and Shaw and Coles (2004) obtained the same findings in their own studies. Accessibility emerged as the most important

convenience factor for disabled tourists. Similarly, Chang and Chen (2012) reported that inaccessibility issues in air travel negatively affected the attitudes and behaviors of disabled travelers. In the present study, respondents rated the availability of entertainment (e.g., music, TV, magazines) as the most important service features. This is in accordance with the

findings of Kastenholz *et al.* (2015) and Kim and Lehto (2013). Hosts of p2p accommodations can consider the aforementioned items in order to positively influence the behavioral intentions of disabled tourists.

*Results from fsQCA*

The results of fsQCA showing the causal recipes, including the demographic factors (see arrow A in Figure 1), for predicting disabled tourists' behavioral intentions to use p2p accommodations are presented in Table 2. According to the results, three sufficient and consistent causal models describe the conditions leading to a high score of behavioral intentions (coverage = .68, consistency = .97). Model 1 explains that older, male, and less-educated respondents have high intentions to use p2p accommodations. Since the fsQCA results are calculated based on Boolean algebra, * represents "and" and ~ indicates "negation of condition" (i.e., low level of study variable). For example, Model 2 (*gender*\**~edu*\**~incom*) demonstrated that disabled tourists who are female (*gender=female,*

~*gender=male)* and (*) less educated (~*edu*) and (*) with a lower income (~*incom*) have high intentions to use p2p accommodations (*behv*) (see Table 2).

The third causal model leading to a high level of behavioral intentions focuses on older, female respondents who have lower incomes (*Model 3: ag\*gender\*~incom*). These results are in line with those reported by Adam et al. (2016), who found the leisure motivations of disabled tourists based on their socio-demographic background to be heterogonous. More specifically, in this study, the association of gender with the behavioral intentions of disabled tourists was heterogeneous. In Model 1, males expressed increased intentions, but in Model 2, females reported high scores with respect to their behavioral intentions to use p2p accommodation.

In terms of age, elderly people with disabilities appear to have more intentions to use p2p accommodations (Models 1 and 3 in Table 2). This is in accordance with the results reported by Lyu (2017), who indicates that there is a higher level of willingness to purchase accessible travel products among older disabled tourists. As shown in Models 2 and 3, income levels negatively influenced the behavioral intentions of disabled tourists to use p2p accommodations. This is similar to the findings of Murray and Sproats (1990) and Wan (2015) who identified economic barriers as a significant challenge that disabled tourists have been faced with.

According to the fsQCA results (Models 1 and 2), less educated disabled tourists have high intentions to use p2p accommodations. Interestingly, Prud'homme and Raymond (2013) reported that the criteria for the selection of a green hotel were less important to educated customers. Although the association of demographic variables with the study outcomes were heterogonous, the inclusion of demographic variables in the configurational modeling of behavioral outcomes is significant (Hsiao *et al*., 2015; Olya and Gavilyan 2016; Wu *et al*., 2014). Because these causal recipes guide hosts to confirm bookings of disabled tourists

whose demographic characteristics match one of the three causal models (model 1-3 in Table 2), it means that the tourists are more likely to have intended to use p2p accommodations.

**Table 2 here**

As shown in Table 3, two causal models emerged based on place and host configuration (see arrow B in Figure 1) which explain the recipes for achieving the behavioral intentions to use p2p accommodations. Interestingly, disabled tourists who have not experienced a situation in a sharing economy reported charm, convenience, and host attributes as complex configurations leading to higher levels of intentions to use p2p accommodations (*Model 1 in Table 3: ~expe\*hos\*con\*char*), while some of the respondents demonstrated a high degree of intentions to use p2p accommodations when host attributes, service features, convenience, and charm are at a high level (*Model 2 in Table 3: hos\*ser\*con\*char*).

In both Models 1 and 2, host attributes functioned as a positive indicator of the study outcome. What this means is that personality, willingness, awareness, and the general knowledge of the host about guests with disabilities is considered as an antecedent of the behavioral intentions of disabled tourists to use p2p accommodation. This is similar to the findings of past studies that emphasized the role of staff in ensuring the satisfaction and loyalty of the disabled tourists (Chang and Chen, 2012; Wan, 2015; Zhang and Cole, 2016; Zhang and Mao, 2012). As Kim *et al*. (2012) notes, disabled tourists expect to meet staff who have attended training programs pertaining to the needs of people with physical disabilities.

These results have also revealed that service and place attributes, such as charm and convenience, are key predictors of disabled tourists' behavioral intentions to use p2p accommodations. Darcy (2010) and Zhang and Cole (2016) also explored the service features of accommodations as one indicator of the behavioral outcomes of disabled tourists. Furthermore, the importance of room accommodations (including features such as charm and

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convenience) were also highlighted by Kim *et al.* (2012) and Zhang and Cole (2016). Along the same lines, Prud'homme and Raymond (2013) found that charm and convenience are two main criteria for selection.

**Table 3 here**

Combinations of the demographic variables and accommodation and host attributes were considered as antecedents of the outcome condition (arrow C in Figure 1). The fsQCA results showed that four causal models simulated conditions that led to high scores for behavioral intentions to use p2p accommodations (Table 4). For example, in model 3, older, male, and less-educated respondents who had experienced p2p accommodations reported high degrees of charm, convenience, service, and host attributes as influential conditions for using p2p accommodations. Interestingly, those using p2p accommodations do not exclude disabled tourists with low income levels. As appeared in model 4, older, male, and less-educated respondents with high income levels and with prior experience with p2p accommodations also use this type of accommodation when the place and the host's attributes are considered to be suitable (Table 4).

Charm (e.g., quietness, comfort of the room(s), security, cleanliness, access to accurate information, and positive review comments) positively contributed to a high intentions of disabled tourists to use p2p accommodation. In other relevant studies, the importance of quietness and the comfort of the place (Shaw and Coles, 2004), safety and security (Kastenholz *et al.*, 2015; Kim *et al.*, 2012), and providing information to the disabled tourists (Williams *et al.*, 2006) were highlighted. Darcy (2010) and Yau *et al.* (2004) emphasized on accessibility and convenience as important criteria for the selection of hotels by disabled guests. According to the fsQCA results combining all antecedents, service features play a positive role in indicating the behavioral intentions of disabled tourists to use p2p accommodations. This is in line with the findings of Bi *et al.* (2007), Darcy (2010),

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Kastenholz *et al*. (2015), and Pagán (2015), who reported that disabled tourists consider service as a key criterion for selecting a hotel.

**Table 4 here**

The results of the predictive validity tests are provided in Table 5. Model 1 (*ag\*~gender\*~edu*) using subsample 1 was calculated (coverage: .46, consistency: .96) and tested with the data of subsample 2 (XY plot A. 1). The X axis represents the causal model (i.e., Model 1), and the Y axis shows the outcome (i.e., behavioral intentions to use p2p accommodation). Model 1 (*ag\*gender\*~incom*) explored from subsample 2 was tested using data from subsample 1 (XY plot A. 2). The fuzzy XY plots in Table 5 show the asymmetrical relationships of the causal models with outcome conditions, which provided evidence of the predictive validity of the configurational model based on the magnitude of coverage, and consistency for predicting the causal model with another sample.

**Table 5 here**

**Conclusion and Implications**

*Remarks on findings*

Accessible tourism is a profitable and expanding market, and equal access to hospitality services is a social imperative. This study focused on disabled tourists who have received less attention in the hospitality industry, specifically in the context of a sharing economy. Many scholars have recommended conducting more empirical studies to investigate the particular needs and perspectives of disabled tourists. In response to such recommendations, the present study measured disabled tourists' behavioral intentions to use p2p accommodations. Since economic, physical, and attitudinal factors were identified as the main barriers mitigating against the disabled tourists' intentions for travel, p2p accommodations can be a promising solution for relieving such difficulties. The improvement in social interactions between hosts and guests and the more competitive prices are the two main advantages of p2p

accommodations over other facilities considered to be part of the official hospitality industry. In the age of the internet, disabled tourists can easily examine the attributes of a place, the services provided, and host's background and awareness about their needs and demands before making travel arrangements.

*Theoretical implications*

This study theoretically and methodologically contributes to the current literature in the field through the application of a new analytical method (fsQCA) in conjunction with complexity theory. This empirical study has revealed how the complex combination of the demographic variables of disabled tourists, host and place attributes (e.g., charm, convenience, and services) function as a causally sufficient configuration of the behavioral intentions to use p2p accommodation. The results of the fsQCA have demonstrated that host attributes, charm, and the convenience of a place are consistent antecedents of disabled tourists' behavioral intentions to use p2p accommodations. This study has also shown that p2p accommodations do not only appeal to customers with low income levels. Disabled tourists with high income levels also intend to use this type of accommodation (see Model 4 in Table 4: *ag\*~gender\*~edu\*incom\*expe\*char\*con\*ser\*hos*).

The results of the fsQCA were supported by the key tenets of complexity theory. As shown in Table 4, a simple antecedent (e.g., host attributes) is necessary in all four causal models, but it is insufficient to predict the behavioral intentions to use p2p accommodations. In other words, the host attributes along with other antecedents (i.e., complex configurations of other antecedents) simulate the conditions leading to the behavioral outcome. Therefore, the first tenet of complexity theory is supported. There is evidence in support of the "recipe principle," which is the second tenet of complexity theory. It posits that a complex configuration of two or more simple antecedents can predict behavioral outcomes both

sufficiently and consistently. As outlined in Table 3 (Model 1 and 2), a complex interaction of four antecedents is sufficient for a consistently high score of behavioral intentions.

Unlike symmetric approaches, achieving a high score of behavioral outcomes is not explained here merely by one causal model. As presented in Table 4, there are four causal models that describe the conditions leading to high scores for behavioral intentions to use p2p accommodations. Thus, the third tenet, called the "equifinality principle," is supported. As explained in the results section, the income levels of disabled tourists can function as both

positive (Table 4, Model 1–3) and negative (Table 4, Model 4) indicators in causal models of behavioral intentions. This result supports the fourth tenet of complexity theory, which postulates that an individual feature (attribute or action) of each antecedent depends on the attributes (e.g., presence or absence) of other antecedents in a causal model. According to the fifth tenet of complexity theory, when coverage is less than 1.00 for any one causal model, this means that a given causal model is relevant for some but not all cases. For all of the causal models in this study, coverage was less than 1.00 (cf. Table 2–4). Therefore, the fifth tenet of complexity theory is also supported.

*Practical implications*

Hosts can ensure the confidence of disabled customers by explaining that they will be hosted by a social person. As included in the definition of accessible tourism, "equity" and "dignity" are two important values that the respondents expect the hosts to acknowledge. One of the respondents noted that "I would like to be hosted with someone who is comfortable in dealing with me." Hosts can hone their professionalism in this respect if they improve their self-management and problem solving-skills. They can also express their willingness to take care of disabled guests and obtain adequate awareness and knowledge about the needs and expectations of disabled people with orthopedic problems. It is suggested that hosts learn

more by becoming involved in training programs, and that they share these qualifications in the description of their place presented on online platforms.

In terms of place attributes, people with disabilities are generally expected to select a convenient place. As one of the respondents stated, "I would select a place where it is nearby by a restaurant and touristic attractions". She added, "I would be grateful if the place has enough space for moving with wheelchairs or the slope of a ramp. I would be happy to be able to easily open the entrance door and do my work without the help of others safely. For example, wide doors and the height of the bed, dresser, sink, and toilet are really important to me in order to feel like I am in a home-like environment." Hosts of p2p accommodations must be aware that the architecture of construction—such as parking, ramps, elevators, stairs, entrance, doors, corridors, bathrooms, and rest rooms—needs to be consolidated in a way that is easily accessible for users who are orthopedically disabled. For example, the dimensions of furniture and beds need to be both suitable and adjustable. The provision of appropriate signage and instructions for the facilities and services designed for users with orthopedic disabilities are recommended for p2p accommodation hosts or businesses.

Apart from design and practical arrangements, cleanliness and quaintness are some of the charming attributes that disabled customers are considering in their selection of a place in the context of a sharing economy. One of the respondents insisted, "I need to be able to bring and use my personal stuff, such as cream, medicines, and technical equipment." Hosts can either inform the setting up of these items or provide pictures on the webpage to illustrate that the place that they are offering is safe, clean, and well-designed for guests with disabilities. The dissemination of accurate information about hosts, services, and place attributes is very important in ensuring satisfaction and loyalty of disabled tourists. Furthermore, since users with orthopedic disabilities may be faced with somewhat unpredictable problems, it is recommended that hosts provide information about the location of potentially required

services/products, including hospitals and stores which are both conveniently located and accredited. As users have this ability to share their experiences by posting comments about the place after their stays, hosts must carefully provide and deliver the required services and arrangements.

This study revealed that people with disabilities, like those without disabilities, do intend to use p2p accommodations. This study therefore has social implications in line with the two following recommendations made by the World Health Organization (2011) about disabled individuals: 1. Increase public awareness and understanding about disability; 2. Strengthen and support research on disability. Considering the social significance of providing equal access to such facilities for disabled tourists, it is recommended that online platforms (e.g., Airbnb) provide a specific directory or link for easy access for both the host and disabled guests to use p2p accommodations efficiently. This would also enhance the awareness and attention of other users toward the importance of equal access and opportunity regarding p2p accommodations. Governments can also contribute to this social movement by establishing supportive regulations (e.g., tax exemptions for hosts) and by providing consultancy/subsidiary assistance for designing and equipping these places to ensure that safe, secure, and comfortable accommodation is provided for all. NGOs can also become involved by organizing educational programs for the hosts and businesses to teach them how to be a hospitable and professional host for the disabled.

*Limitations and pathways for future research*

This study deepens our understanding of the behavioral intentions of orthopedically disabled tourists regarding p2p accommodations. The application of fsQCA, a set-theoretic method, with complexity theory has provided both methodological and theoretical advances with respect to this particular issue. However, there are some limitations which may require future studies. For example, this study selected a relatively small number of people with

orthopedic problems. While the study provided evidence of the predictive validity of the configurational model and used fsQCA as a powerful tool in modeling the behavioral outcomes as derived from a small-sized sample, it would be valuable to repeat this study in different countries in which the number of disabled tourists, and the diversity of their impairments, would be higher. Further studies can also collect the views of those on the supply-side (e.g., hosts and managers of online platforms) regarding their intentions to contribute to the promotion of equal access for disabled tourists to p2p accommodations. It is

also recommended innovative facilities be identified, along with the implementation of creative actions to improve the access, mobility, and quality of services specified for travelers with orthopedic disability in the context of p2p accommodation. Finally, assessing the risks of using p2p accommodations from both the guest's and host's perspectives is also suggested as a recommendation for future research.

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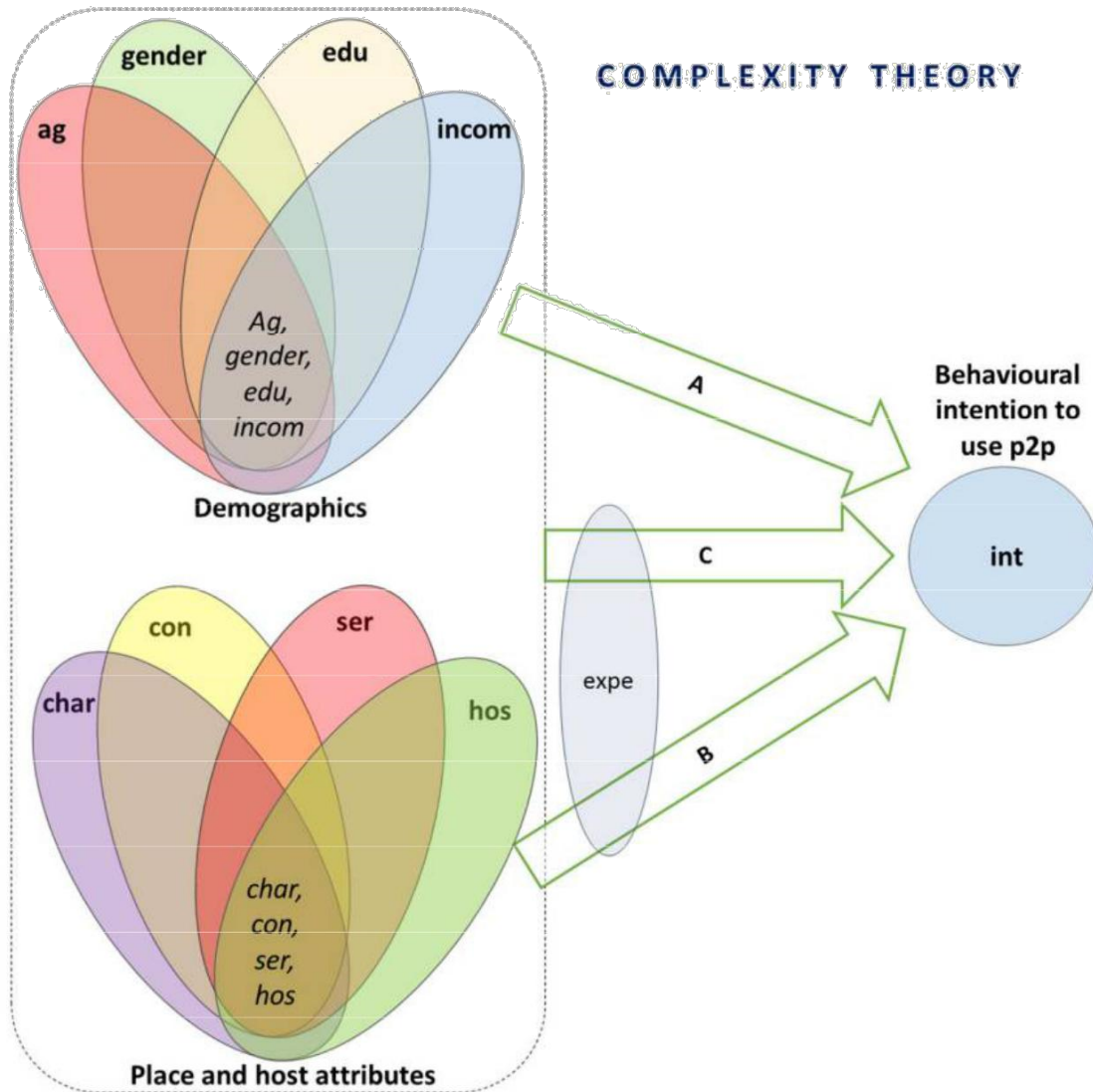
*NOTE*: ag stands for age; edu is educational level; income is income level; expe stands for prior experience of respondents with p2p accommodations; hos is host attributes; ser is service features; con is convenience; and char is charm.

Figure 1. Proposed configurational model

Table 1. Results of descriptive statistics of scale items, reliability, and exploratory factor analysis

| Scale items | Mean | Std. | λ | Eigen value | % of variance | α |
|---|---|---|---|---|---|---|
| *Behavioral intention to use p2p* [b] (Currás-Pérez et al., 2013; Prud'homme & Raymond, 2013) | *5.94* | *.86* | | *5.72* | *9.71* | *.87* |
| I like to stay in p2p accommodations | 5.90 | 1.00 | .63 | | | |
| I plan to select a p2p accommodations in my next travel | 5.81 | 1.12 | .79 | | | |
| I will recommend p2p accommodations to my friends. | 6.10 | 1.00 | .85 | | | |
| *Host attributes* [a] (Darcy, 2010; Grady & Ohlin, 2009; Prud'homme & Raymond, 2013) | *5.82* | *.89* | | *2.47* | *6.37* | *.73* |
| I am willing to stay at a place in which host expresses his/her eagerness for providing services | 6.19 | .87 | .77 | | | |
| I am willing to stay at a place where host is knowledgeable about disabled people. | 6.67 | .58 | .68 | | | |
| I prefer to select a place that host's gender is same as mine. I will prefer to stay at a place where host's culture is close to my culture. | 4.81 | 2.06 | .61 | | | |
| | 5.33 | 1.88 | .84 | | | |
| I am willing to stay at a place where host is a social person. | 6.05 | 1.32 | .86 | | | |
| I am willing to receive a positive impression by checking hosts' profile in social medias. | 5.86 | 1.15 | .72 | | | |
| *Charm* [b] (Prud'homme & Raymond, 2013; Williams et al., 2006) | *6.15* | *.50* | | 3.09 | 7.84 | .86 |
| Quietness | 5.57 | 1.80 | .58 | | | |
| Comfort of the room/s | 6.52 | .98 | .64 | | | |
| Appealing room/s | 5.43 | 1.08 | .53 | | | |
| Security | 6.24 | .83 | .77 | | | |
| Good review comments | 6.19 | .98 | .62 | | | |
| Price | 6.29 | 1.27 | .79 | | | |
| Cleanness | 6.71 | .72 | .78 | | | |
| Providing high quality pictures and accurate information of the place in the webpage. | 6.29 | 1.35 | .61 | | | |
| *Convenience* [b] (Chang & Chen, 2012; Prud'homme & Raymond, 2013) | *6.36* | *.59* | | *1.85* | *7.22* | *.71* |
| Accessibility to the touristic attractions | 6.33 | .86 | .82 | | | |
| Ability to access | 6.67 | .58 | .89 | | | |
| Special design for disabled tourist | 6.19 | .93 | .74 | | | |
| Internet access | 6.24 | .89 | .64 | | | |
| *Service features* [b] (Chang & Chen, 2012; Prud'homme & Raymond, 2013) | *5.98* | *1.20* | | *2.53* | *4.85* | *.79* |
| Home appliances (e.g. coffee maker) | 6.05 | 1.50 | .64 | | | |
| Entertainment (e.g. music, TV, Magazines) | 6.14 | 1.01 | .54 | | | |
| Breakfast included in the place price | 5.86 | 1.88 | .51 | | | |
| Shuttle service | 5.86 | 1.59 | .74 | | | |

*Note*: a: measured using 7-likert scale ranging from 1 (Extremely unimportant) to 7 (Extremely important); b: gauged by 7-likert scale ranging from 1 (Extremely disagree) to 7 (Extremely agree); λ is factor loading value; α is Cronbach's alpha. Source of scale items are presented in the parenthesis.

Table 2. Casual models of behavioral intention based on demographics configuration (A)

| Models for predicting high score of outcomes | Raw coverage | Unique coverage | Consistency |
|---|---|---|---|
| **A**: *behv = f(ag, gender, edu, incom)* | | | |
| *Model 1*. ag*~gender*~edu | .32 | .32 | .97 |
| *Model 2*. gender*~edu*~incom | .26 | .04 | .97 |
| *Model 3*. ag*gender*~incom | .31 | .09 | .99 |
| | | | |
| *Solution coverage: .68* | | | |
| *Solution consistency: .97* | | | |

*Note:* ag stands for age; edu is educational level; incom is income level. Gender is a dichotomous variable, 0 is male and 1 is female.

Table 3. Casual models of behavioral intentions based on place and host attributes configuration (B)

| Models for predicting high score of outcomes | Raw coverage | Unique coverage | Consistency |
|---|---|---|---|
| **B**: *behv = f(expe, hos, ser, con, char)* | | | |
| *Model 1*. ~expe*hos*con*char | .62 | .03 | .97 |
| *Model 2*. hos*ser*con*char | .91 | .32 | .98 |
| *Solution coverage:* .95 | | | |
| *Solution consistency:* .98 | | | |

*Note:* expe stands for prior experience of respondents with p2p accommodations; hos is host attributes; ser is service features; con is convenience; and char is charm.

Table 4. Casual models of behavioral intentions based on combination of all antecedents (C)

| Models for predicting high score of outcomes | Raw coverage | Unique coverage | Consistency |
|---|---|---|---|
| **C**: *behv = f(ag, gender, edu, incom, expe, char, con, ser, hos)* | | | |
| *Model 1*. ag*~edu*~incom*~expe*char*con*ser*hos | .28 | .15 | .97 |
| *Model 2*. gender*~edu*~incom*~expe*char*con*ser*hos | .17 | .04 | .97 |
| *Model 3*. ag*gender*~incom*expe*char*con*ser*hos | .14 | .14 | .98 |
| *Model 4*. ag*~gender*~edu*incom*expe*char*con*ser*hos | .08 | .08 | 1.0 |

*Solution coverage:* .56
*Solution consistency:* .97

*Note:* ag stands for age; edu is educational level; income is income level; expe stands for prior experience of respondents with p2p accommodations; hos is host attributes; ser is service features; con is convenience; and char is charm.

Table 5. Results of predictive validity

| Models for predicting high score of outcomes | Raw coverage | Unique coverage | Consistency | Models for predicting high score of outcomes | Raw coverage | Unique coverage | Consistency |
|---|---|---|---|---|---|---|---|
| **Subsample 1**: *behv = f(ag, gender, edu, incom)* | | | | **Subsample 2**: *behv = f(ag, gender, edu, incom)* | | | |
| *Model1*.ag*~gender*~edu | .46 | .46 | .96 | *Model1*.ag*gender*~incom | .48 | .15 | .98 |
| *Solution coverage*: .46 | | | | *Model2*. gender*~edu*~incom | .42 | .08 | .96 |
| *Solution consistency*: .96 | | | | *Solution coverage*: .57 | | | |
| | | | | *Solution consistency*: .96 | | | |
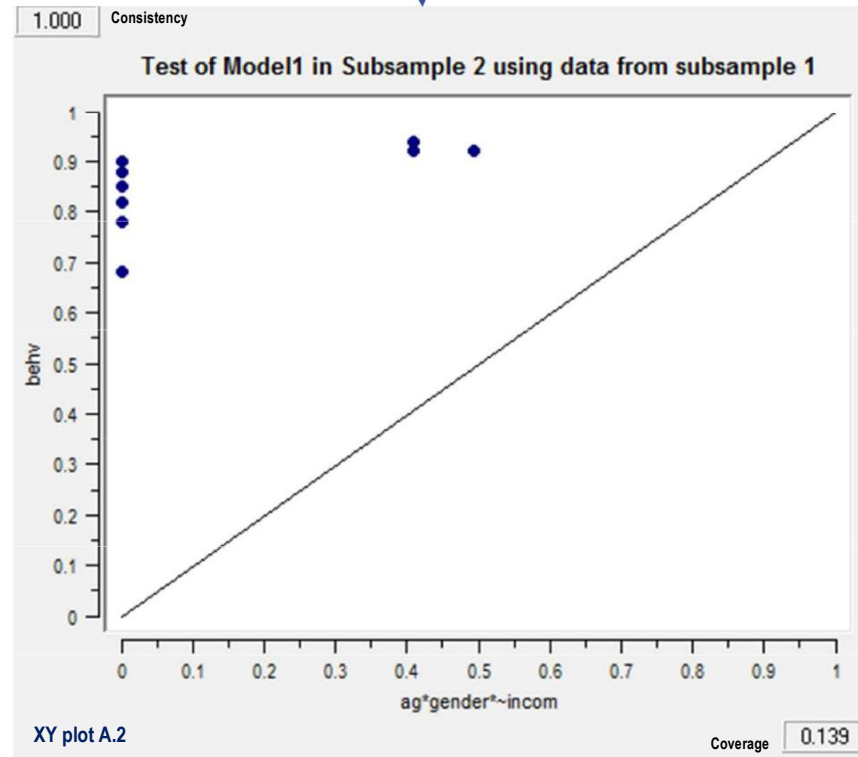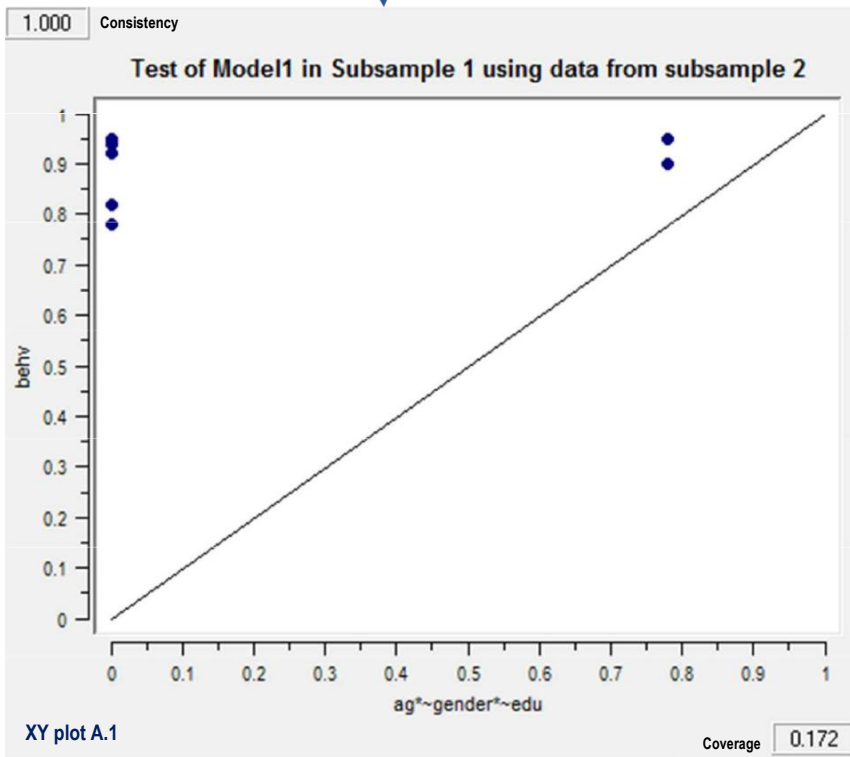


*Note*: X axis is causal model and Y axis is outcome (behavioral intention). 0: full non-membership, 1: full membership.