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The Rise of the Sharing Economy in Tourism: Exploring Airbnb Attributes for the Veneto Region

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Abstract

In just a couple of years, the sharing economy grew out to become a significant segment of the holiday accommodation market. Online peer-to-peer marketplaces allow people to offer rooms or entire houses to tourists, with Airbnb being the biggest and most famous example. This paper aims to give an insight into explaining which factors and attributes influence the success of Airbnb accommodations in the Veneto Region, using occupancy as a proxy. We analysed characteristics of 19624 Airbnb accommodations. The logistic regression model identifies a number of influential attributes which can be divided between locational characteristics, being located in attractive tourism destinations, and accommodation characteristics, for example the price, rating, number of previous bookings and the status of the host. The quantitative analysis allows to create an attractiveness scale, which is analysed for geographic patterns.

Keywords

sharing economy, peer-to-peer marketplaces, Airbnb, attractiveness, tourism policy

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1. Introduction

The increasing success and diffusion of new online peer-to-peer marketplaces (P2P) is enhancing the paradigm of the so-called “sharing economy” also within the tourism field by creating a new competitor of the traditional market for tourism accommodation. In fact, nowadays, anyone can rent rooms or entire apartments easily and simply by becoming global users of one of the many worldwide community-based online services. The clearest example of this new phenomenon is Airbnb that allows users (hosts) to rent their assets to other people (guests) for a short or long period offering very competitive prices, services of good quality and unexpected locations for an overnight stay. Both hosts and guests are ordinary people who decide to get in touch through the platform controlled by a third body, usually a private company as in the case of Airbnb.

As reported in its official website, Airbnb is (at the present) connecting more than 65,000 cities and 191 countries accumulating more than 150 million of Guests and three million of Listings Worldwide.

It is usual to distinguish the motivations for participating in sharing economy in three typologies: technological, economic and social. These motivations are not universally applicable to all the different specific sectors, goods and services of the sharing economy. The motivations driving participation in car sharing may differ from those powering the sharing of music, books, or apartments.

Consequently, distinctions and in-depth analysis are essential in order to capture how sharing economy is evolving in certain fields.

With regards to tourism accommodation, where the price is probably a key-reason why people increasingly prefer to spend their vacation by choosing the non-traditional forms of accommodation, it seems reasonable to assume that other factors are equally crucial to explain this new practice. Trust and transparency as well as accommodation features, destination’s image, locations and the level of the hosts in the participating in the Airbnb community are the final mixture playing an increasing role in Web 2.0 consumer’s choice.

Considering the case of Veneto’s region, one of the most attractive touristic regions globally with over 17 million of arrivals and over 63 million of overnights stays in 2015 (mainly due to the stainless appeal of top notch attractions like Venice, Verona, Lake Garda, the Dolomites, the Coastal Resorts and its numerous cities of art), this paper aims then to explore the principal attributes behind the rise of the non-traditional market for tourism accommodation, ultimately outlining a profile of the new tourist 2.0. and which features are able to influence tourist accommodation decision-process.

This research also aims to show that it makes sense to approach the issue of the sharing economy in tourism in general and that of non traditional forms of tourism accommodation in particular using a quantitative angle, also because quantitative studies on this subject that are still very hard to come around

2. The Concept of the Sharing Economy and Its Application in Tourism

The sharing of goods, services, ideas, or skills is certainly not a revolutionary practice but today, thanks to new Web 2.0 technologies and online P2P platforms specially developed to facilitate this type of transaction, it is taking on dimensions more and more important also creating new players competing with traditional commerce. A "new era of sharing" is opening

up thanks to the Internet (Belk, 2010) profoundly changing our ways to consume but also produce. This era is that of the "sharing economy" described by Botsman and Rogers (Botsman & Rogers, 2010) as "an economic model driven by network technologies that enables things and skills to be shared or Exchanged in ways and on a scale not possible before". Hamari et al., 2015 define the sharing economy as a "peer-to-peer-based activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based services online". Usually these shared assets are under-utilized, tangible, granted for money and temporarily (Frenken et al., 2015). Depending on the good, service or sharing model offered by the online platform, under the label of the sharing economy are being developed the most varied forms of the online sharing and new terms such as "collaborative consumption" (Botsman & Rogers, 2010) , "access-based consumption" (Bardhi & Eckhardt, 2012; Belk, 2014), "the mesh" (Gansky, 2010), "commercial sharing systems" (Lamberton and Rose 2012), "product-service systems" (Mont 2002) are emerging although "it is sometimes difficult to discern where sharing ends and commerce begins" (Belk, 2014th). Botsman & Rogers, 2010 recognize three different categories of online sharing: 1) the Product service systems, platforms that allow members to use, for a fee, an asset without any transfer of ownership (e.g Zipcar) 2) the Redistribution markets focused on the reallocation of unused resources (e.g., eBay or BMW's "Drive Now") 3) the Collaborative lifestyle platforms that allow people to share and exchange intangibles goods and services such as time, skills, money, knowledge, experience or space (e.g TaskRabbit). Anyhow, all these "sharing and collaborative consumption practices" have in common "the temporary access of non-ownership models of consumer goods and services " as well as "their reliance on the Internet and Web 2.0" (Belk, 2014b).

On account of the importance of this phenomenon, the scientific literature on sharing economy is exploring several perspectives of research from those concerning psychological features (e.g. Lamberton & Rose,2012; Belk, 2010) to those relating to the technological development (e.g. Cohen & Kietzmann, 2014; John, 2012). Significant is the interest in the issue of legality (e.g. Guttentag, 2013; Malhotra & Van Alstyne, 2014; Rifkin, 2014), finance and business models (e.g. Boesler,2013; Hamari, Sjöklint, & Ukkonen, 2015) as well as in sustainability (e.g. Mont, 2004) or the implications for specific markets and goods such as tourism, cars, toys and creative industry (e.g. Martin and Shaheen 2011; Belk 2014, Giesler, 2008; Ozanne, & Ballantine, 2010).

The scientific research in the field of the motivations why people take part in the sharing economy is still not fully explored (Tussyadiah, 2015), especially from a quantitative point of view (Hamari, 2015).

It is usual to distinguish three different typologies of motivations: technological, economic and social. The progress of information and communication technology is facilitating the sharing of goods and services by rendering it more frequent, easy and widespread (Botsman & Rogers, 2010). The ICT assists users during their online operation and allows searching for goods or persons (Lahti & Selosmaa, 2013).

The mentioned P2P platforms together with collaborative/sharing platforms (e.g., Wikipedia, YouTube), social networks (e.g. Facebook, LinkedIn), blogs or virtual game worlds and other Web 2.0 facilities have encouraged the practice of sharing to the point of making it an ordinary activity of everyday life.

Additionally, due to the economic recession, triggered by the financial crisis of 2008, people have become more careful about their spending behaviour by experimenting alternative solutions of purchasing (Gansky, 2010). The online sharing is an answer to such needs,

proposing rentals, loans, discounts, gifts, or free sharing of goods and services. The online market allows getting competitive prices due to direct connection of buyers and sellers, reducing the intermediation costs but also activating mechanisms of free-riding, as in the case of the music, film or software market. Economical motivations are significantly similar in the case of car-sharing (Bardhi and Eckhardt, 2012) or P2P accommodation (Tussyadiah and Pesonen, 2015).

The social motivations may cover different aspects. The people exchange goods and services for solidarity and for the welfare of the community. But the sharing in the Web 2.0 allows consumers to amplify the sense of belonging to a community by leaving comments, suggestions and impressions. The internet is a relevant “social environment” offering users interpersonal relationships and the possibility of gaining social approval (Wirtz, B. et al., 2010). Collaborative consumption platforms may also allow users to make new friends and get to know new people (Botsman & Rogers, 2010) virtually as well as physically (Tussyadiah I.P., 2015). Finally, other studies are focused on the environmental benefits of the sharing economy understood as a social and behavioural model that encourages collaboration, recycling and less use of resources. The result is that more and more people decide, in an autonomous way, to participate in these practices of sharing to support a more sustainable use and redistribution of resources (Hamari et al., 2015; Piscicelli et al., 2015). Within the limits of the existing, already limited, literature regarding this topic, the considerations to explain the reasons for participation in the online sharing are often adapted in the context of the tourism sector.

In fact, the travel and hospitality industry has been heavily involved in the development of ICT and WEB 2.0 (OECD, 2016). BlaBlacar, Lyf, car2go and Zipcar are transforming the touristic transport. New companies such as Airbnb, Home Away, Couchsurfing and Cosmopolit are strongly influencing the way of overnight stays. Botsman & Rogers (2011) argue that in the case of tourism the most important reasons why people use the alternative solutions of the sharing economy are economical and social character. The economic rewards are achieved thanks to the competitive prices offered (Tussyadiah, 2015). This is clear especially considering the accommodation industry but also with regard to the savings reachable by sharing the transportation costs as in the case of car sharing (Bardhi & Eckhardt, 2012). Other authors (e.g. Oven and Garibaldi, 2015, Sigala, 2015) identified, in addition to the economic reasons, other motivations such as those related to tourism sustainability and to the opportunity to experiment new alternative tourism experiences that create additional value (Guttentag, 2013). Moreover, considering the hospitality industry, the online offers to stay in inimitable accommodation facilities vary due to the wide range of rented assets (Wortham, 2011) but also due to the locations (Guttentag 2013). The social motivations are relevant as well. Through the online platform dedicated to tourism, people experience a sense of belonging in the “community” (Tussyadiah, 2015). Accessing to the tourism offers of the sharing economy, users also have the opportunity to cohabit with the local community (Botsman and Rogers 2011; Gansky 2010). Finally, the recent technological development of the online sharing platforms is improving the tourism product supplies and their integration (Shaheen et al., 2012; Camatti, 2013) increasing the interest of the tourist for this type of services.

3. The Explosive Rise of Airbnb in Veneto Region

The phenomenon commonly known as Airbnb has grown in the last years all over the world, especially in urban destinations, where it represents a big player in hospitality industry. In this paper, we want to focus on the Airbnb impact in one of the major European tourist area, Veneto Region in north-east of Italy. The total number of facilities representing Veneto hospitality in Airbnb is 19,624 divided in 12,382 entire house/apt, 5,077 private rooms, 199 shared rooms and 1,966 facilities that is not possible to determinate a specific category type. The typology of the Airbnb lodging indicated by the hosts in the facility page are diversified by property type mainly categorized in Apartments (12,294), Bed and Breakfast (2,673), Houses (1,897), villas (425) and other typologies (710). The total number of potential beds offered by Airbnb platform in Veneto region is 70,804.

In comparison with official hospitality industry in Veneto Region Airbnb has a big piece of the cake. The total number of hotels in Veneto Region, from 1 to 5 stars, is 53,428 which can maximum offer 707,406 beds to Veneto region tourists. This means that Airbnb represents the 37% of the total number of official hotel facilities and the 10% of the number of hotel beds in the entire region (see table 1).

The big impact of Airbnb on Veneto tourist industry is started from 2011, we can count 373 bookable houses in that year, but Airbnb has been effectively established as a new player from 2013 when the total number of the lodgings were more than 2000. The number of accommodations has more than doubled each year from 2013 with a significant grown during the two-year period of 2015-2016.

It is possible to underline a strong presence of Airbnb lodgings in all the seven administrative provinces of Veneto region. Province of Venice has the biggest part of the accommodation, almost 50% of the total, following by the province of Verona (22%), Padua (8%) and Treviso (7%), Belluno (6%), Vicenza (5%) and Rovigo (1%). Urban destinations have a big part of the Airbnb facilities, especially the two main destinations of the region, Venice (7,150 accommodations) and Verona (1,892), but it is possible to find accommodations in all the art cities of the region (Padua, Treviso and Vicenza in addition to Venice and Verona) and in the tourism regional systems as the dolomites, the mountains, Lake Garda and in the Adriatic Sea coastal area.

In the last 12 months (from November 2015 to November 2016) the total number of bookings of Veneto's accommodation in Airbnb website reached 278,709 bookings (or 15 bookings per lodging on average). Entire house/apt has received the 67.5% of the total number of bookings, while private rooms have received the 31%. Only 1% of the bookings are referred to shared rooms. The occupancy rate of the accommodations of the entire Region is 0.34, it means a little bit more than one day to three. The average length of the visit of the Airbnb users who decided to stay in Veneto region for an holiday is 4.2 days. The average price of an accommodation in Veneto region is 131 € per night and the potential income of the entire region for all the lodgings of Airbnb website is around 2,318,195 €.

4. Methodology

One of the specific purposes of our paper is to adopt a quantitative approach to explain the evolution of Airbnb in the Veneto Region capturing the most important factors that drive people to use this online platform. Doing that is possible to underline the significant decision

making factors of the 278,709 users who decided to stay and book an Airbnb accommodation for their holiday in Veneto Region. The choice to use the Airbnb data is twofold. First, this site is the most important and popular online market for accommodation and therefore undoubtedly representative of the sharing economy phenomenon. Second, the structure of the site allows to get a wide set of practical information to release a quantitative representation of the motivations driving participation. More specifically, the following cluster of information can be used for this purpose: characteristics of the accommodation (including prices); location of the structures; host activities and role in Airbnb community. Each of these groups are linked to the three types of motivation to participate in the sharing economy (social, economical and technological).

Our analysis considers two methods of data exploitation according to the aims of the present work.

The first approach intends to use a regression model with the aim of identifying the primary factors that influence the choices of Airbnb service users. The variable of interest is the recorded occupancy rate of all the Veneto Airbnb facilities. If our variable under consideration is expressed as a logarithm, as the other regressed variables, the obtained coefficient will be an elasticity rate. This can measure the percentage change of the regressed variable per each change of 1% of the occupancy rate variable. If the other variables are not expressed as a logarithm, cause of their peculiarity and type some of the variables haven't a quantitative characteristic as for example location and lodging typology, the obtained coefficient of the regression model is not anymore referred to the elasticity of a 1% change of the occupancy rate but it is a response of a unit change in absolute terms. These variables are expressed as dummy, variables that takes the value 0 or 1 to indicate the absence or presence of some categorical. Dummy variables are used as devices to sort data into mutually exclusive categories (such as business ready/no-business ready). The occupancy rate index has been taken as starting point of the regression model. The occupancy rate at a hotel is the number of available rooms that are occupied over a period (e.g. a month, a quarter or a year). Occupancy rate for Airbnb lodgings is the level, calculated from 0 to 1, of rented days compared to the total amount of available and bookable days in a year. In hospitality field occupancy rates for hotel and peer-to-peer hospitality can be useful for examining trends in the facility's growth and tourist behaviour as well as to develop rural, peripheral or less-developed areas of a tourist destination. An indicator of the integrity of the regression model is the R^2 value. This value, indicated from 0 to 1, demonstrates the trustworthiness of the analysis for the entire model. In this case is it possible to say that the coefficient of determination ($R^2 = 0.6064$) represents appropriately the response of the variables.

For the purpose of the present work, as mentioned above, the analysed variables are structured in three different topics: the first one collects all the variables related to the characteristics of the accommodation such as type of the lodging (private room or shared room), Number of Bookings in the last twelve months, price per night, number of bedrooms, number of received reviews and overall rating. The second one are related to the location of the structures categorized by art cities (Belluno, Padua, Rovigo, Treviso, Venice, Verona and Vicenza) and tourism typology (Garda Lake, seaside, Mountains, Spa). The third category is mainly referred to the host activities and role in Airbnb community. In this section, it is possible to find variables about host attributes as Superhost certificate (Superhosts are experienced hosts who provide a shining example for other hosts, and extraordinary

experiences for their guests. Once a host reaches Superhost status, a badge will automatically appear on their listing and profile to help you identify them), security deposit, cleaning fee, business ready (Business Travel Ready listings must be an Entire Home/Apt. The listing must be no smoking, and can't have pets on the property. The listing must also have Business Travel Ready amenities such as Wireless Internet, a laptop-friendly workspace and the possibility to do a self check-in. Listings must have at least 3 star rated reviews and a 7-day cancellation policy), instant book, number of photo (photo_under and photo_over the total average) and response time (in minutes). Superhost, business ready and instant booking are regressed as dummy variables.

Considering the objectives of the this work, we also performed a second test based on "attractiveness" index according to the procedures developed in Principal Component Analysis (PCA) (Jolliffe, 2002; Bishop, 2006; Diamantaras and Kung, 1996). This type of analysis allows relational phenomena to emerge that would otherwise not be observable through direct processing of the accessible variables involved. This test is designed to reinforce the regression's results with more information on the dependencies between variables explaining why people are "attracted" by participation in the sharing economy, in our case represented by Airbnb services and products (apartments and tourist destinations). The variables used are therefore: the price per night, the number of bookings, the number of user reviews, the user evaluation and the superhost certificate issued by Airbnb as well as 'business ready' status.

We expect the following positive or negative dependencies to emerge for the index variables:

1. price relates with a negative sign; higher accommodation prices lead to lower facility attractiveness values
2. number of bookings relates with a positive sign; a high booking rate implies that the accommodation facilities are more attractive
3. number of reviews relates with a positive sign; the greater the number of reviews the greater the visibility and, in turn, the higher the attractiveness level
4. the perceived quality of service relates positively; higher scores in this parameter imply higher facility attractiveness
5. Superhost qualification relates with a positive sign; this is an acknowledgement awarded directly by Airbnb as a mark of quality, it increases the degree of attractiveness perceived by accommodation seekers
6. Business Ready status relates with a positive sign

We shall apply PCA analysis also to generate a geographical distribution of the most attractive accommodation sites in the Veneto Region.

5. Research Outcomes

5.1 Variables influencing occupancy rate

The linear regression model performed in order to describe the Airbnb listing variables that affect much more the tourist decision process to choose and book an accommodation in Veneto Region shows the following results (see table 2):

ACCOMMODATION CHARACTERISTICS

- Private and shared rooms have been regressed to understand which Airbnb typology has the more impact on occupancy rate. The two typologies have been analysed in comparison to entire house/Apt listing. The negative results of the private and shared room illustrate the strong probability and the propensity of the tourist to book an entire house or apartment instead of a private or a shared room;
- The number of bookings is strictly related to the occupancy rate, in fact the regressed value is positive and the highest value of this section;
- One of the most crucial results is concerning the price of the Airbnb listings. The elasticity of the occupancy rate regarding the price per night is a negative elasticity: an increasing of 1% of the price per night the occupancy rate decreases of 0.37%. If the elasticity is relatively inelastic, it is possible to say the appeal of an Airbnb accommodation is not so connected with the price. An increase of the price the occupancy is negatively affected in a less than proportional trend;
- The number of bedrooms in a house or apartment is not so important as we can see from the regression result of 0.067, probably because tourists are willing to know how many number of beds an Airbnb can offer instead of how many rooms has a flat (the tourist favourite listing type is the entire house);
- The number of reviews has a negative result, but it is a really low value (-0.066). It means that is not so important for the tourist decision process how many reviews has a listing but the quality of them;
- Another key point of the regression model results is related to the overall rating of a listing. The perceived quality of a structure is a significant variable that helps the decision-making process of a tourist who wants to spend his/her holiday period in Veneto Region. The value of 0.66 strongly demonstrates an elasticity to the occupancy rate, more high is the occupancy rate more high is the perceived quality of the accommodation.

LOCATION

All the variables have been regressed in comparison with the total number of listings in Veneto Region. The obtained results are the coefficients that show the relevance of a specific location in the Region. Locations are divided in art cities and territories.

- Art Cities: Verona (0.40), Venice (0.22) and Vicenza (0.36) have positive results of the regression model. This could signify a high attractivity of those destinations. If a listing is located in those cities it could have a higher occupancy rate. Padua has a positive result (0.18) but lower than the other cities. Rovigo (0.44) has a positive result but the standard error of the regression is high (even it could be considered as significant) so it is not possible to say properly if this destination has a strong appeal or not able to affect the decision-making process. Treviso has a not significant value so it is not possible to determinate a relation between this location and the occupancy rate. Belluno has a negative result (-0.39) so it is potential to estimate that this art city is not as attractive as other cities or location in Veneto Region.

- Territories: Garda Lake (0.82) and Mountains (0.39) regressed variables have a positive result that can determine the attractiveness of these territories and tourist fields. In comparison of all the listings in Veneto Region, the one located in Garda Lake territory and in the Veneto Mountain area have more influence in the occupancy rate index. This can be related to the longer seasonality of this tourist products (possibility to visit Garda Lake territories and mountain area all year long) compared to beach tourism (purely summer season) that have a positive result (0.24) but not as high as the other variables. Listings in Veneto Spa tourism area have positive influence (0.29) in occupancy rate values in comparison with all the accommodations in Veneto Region.

COMMUNITY ASPECTS

- The most important results about the community aspect variables is the status of Superhost that positively affects the occupancy rate (0.15). Superhost can be a certificate of the high quality of the listing, but also an indicator of a good level of trust and a good behaviour of the host in the Airbnb community;
- Security deposit and cleaning fee are costs determined by the host. These costs are characteristics of the listing but also, they can be indicator of the host activities in the community (hosts can take care about the cleaning of the house to give a better service to the guests). Both the results are positive, but the coefficients are not so high. Those variables have not a strong impact of occupancy rate even if they have positive influence;
- Business Ready, Instant booking, photo_over 22 and photo_under 8 are regressed variables with no significant results. For those characteristics expressed in dummies is not possible to determine if they can affect or not the occupancy rate;
- Response Time is a regressed variable with a negative coefficient. That means a higher response time is an indication of a less occupancy rate variance. This is a feature of host behaviour in the community, as a good community member the responses should be as quickly as possible.

5.2 An attractiveness index

A principal component analysis has been conducted to better understand the significant variables related to the characteristics of a listing and some aspects related to type of the destination and location. With this analysis, it has been built an attractivity index of the Airbnb listings (11986 analysed accommodations) keeping in consideration the principal variables and information of the type of accommodation. Those variables that have been used to create the PCA are price per night, number of bookings, number of reviews, perceived quality (overall rating), Superhost and Business ready. The result of the principal component analysis is a linear combination with which is possible to multiply the value of the standardised variable. With this results is possible to group together some listings to understand attractiveness of Airbnb and then mapping them to see if it possible to find some geographical pattern.

To build the attractiveness index has been used the first component (Comp1) that hypothetically concerns a low price, high number of bookings, high number of reviews, high perceived quality (high rate) with the status of Superhost and Business ready.

The results of the analysis (see table 3) are all positive excluding the result related to the price per night:

- Price per night: negative result (-0.061) if the prices are higher, less attractive are the lodgings;
- Number of booking: positive result (0.65) if an accommodation receives more booking, the same listings appears more attractive;
- Number of reviews: positive result (0.66) more reviews has a listing more this listing is attractive;
- Perceived quality: positive result (0.14) a higher rate (positive rate) is an indication of higher attractiveness;
- Superhost: positive result (0.32) this Airbnb recognition is itself a quality index, so the structures that have it are more attractive than the others;
- Business ready: slightly positive result (0.048) business ready lodgings are more attractive than no-business ready ones.

Thanks of the creation of this attractiveness index is it possible to create a ranking of Airbnb listings based on the six analysed variables and subsequently, map them to understand in which destinations those more attractive accommodation are located.

In this section, we present three different level of attractiveness of Airbnb listings (see table 3):

- attractive excellences, 1% of the total number of listings has the higher value of attractiveness index. Those accommodations are mostly located in the two main tourist destinations of Veneto Region (Venice and Verona). Besides the historical centre of Venice, it is possible to underline the presence of these lodgings also in the mainland in all the Venice municipality. A little number of accommodations are located in Padua and in Treviso but they existence is limited in this level of attractiveness. The high attractiveness detected in these structures is not due solely to the features and services offered, but probably is due to the attractiveness represented by the cities and destinations themselves (Figure 1);
- high level of attractiveness, 5% of the total number of Veneto Region Airbnb has a high level of attractiveness. These listings are mostly located in the historic centres of the art cities, Verona, Padua and Treviso in fact grow in number of structures, Venice metropolitan area expands, covering a big part of the mainland and some close destinations as the Brenta Riviera (but also the islands of Lido and Pellestrina inside the Venice lagoon). It is remarkable to point out the growing of structures located in the Lake Garda area and in Vicenza art city (Figure 2);
- medium-high level of attractiveness, 10% of the total number of listings. Mapping these accommodations is possible to identify all the art cities in Veneto Region (Venice and Verona in the first place as attractive destinations, but also Padua, Treviso and Vicenza). The territory that goes from Venice to Treviso is almost covered by Airbnb facilities. Thanks of this medium-high level of attractiveness is also possible to identify the thematic tourists systems of the Region, identifying structures located in the North Adriatic coast (sea and beaches tourism), and in the mountain area (dolomites and mountain tourism). It is also possible to identify a small number of facilities in the areas of the hills and in the Spa tourism system area in the Province of Padua (Abano and Montegrotto) (Figure 3).

6. Conclusions

In this research two different kinds of analysis have been applied to discover factors and attributes able to influence the success of Airbnb accommodations in the Veneto Region. Going deeply on every single variable of the studied dataset it is possible to understand which indicator affects, in a prominent way, on the occupancy rate and, indirectly on the Airbnb users decision making-process that want to spend an holiday period in Veneto. Those variables can be summarized and clustered in three different issues:

1. "Entire House" and "Price per Night" are the strongest variables related to the appeal of the accommodation. Entire houses or apartments are booked more often than private or shared rooms and listing price is a key factor of the elasticity of the occupancy rate. In fact, the price influences negatively the occupancy rate. However, the willingness to pay of the users such that any increase of the price level leads to a diminishing demand that is less than proportional;
2. Airbnb listing location is a key factor that influences in a strong way the occupancy rate. Urban destinations as Verona and Venice, as tourism territories as Garda Lake and Mountains have more appeal to the tourists and are able to attract more people that will book an accommodation with Airbnb platform. This can be confirmed using the attractiveness index built through the principal component analysis that shows geographical patterns and attractive listing concentrations in the main tourist destinations of the region;
3. Airbnb is a peer-to-peer platform. As the nature of this sharing communities the role of the members is very important to enhance trust and user relations. With this research, it is possible to figure out the main variables of host behaviour in the platform, in particular the response time (to a lower response time to the booking request fulfils a higher occupancy rate) and the status of Superhost (quality of the facilities and a professional host behaviour).

The present study and results aspire to enrich the recent literature interested in analysing quantitatively the phenomenon of sharing economy from the consumer's perspective.

The understanding of consumer behaviour may not only support the development of new technologies more attentive to the real user's needs but also improve the marketing strategies of many companies of online market. At the same time, the companies of traditional commerce should pay more attention to these consumption trends in order to identify appropriate adaptation strategies.

Although it has not been clearly demonstrated the real impact of sharing economy on traditional hospitality industry, this phenomenon should be constantly monitored and not be underestimated. Future research, through the analysis of the specific social and environmental motivations able to drive user participation, could finally be directed to understand the sharing economy impacts in terms of sustainable development of a tourist destination.

References

- Belk, R. (2010). Sharing. *Journal of consumer research*, 36(5), 715-734.
- Belk, R. (2014)a. Sharing versus pseudo-sharing in Web 2.0. *The Anthropologist*, 18(1), 7-23.
- Belk, R. (2014)b. You are what you can access: Sharing and collaborative consumption online. *Journal of Business Research*, 67(8), 1595-1600.
- Bardhi, F., & Eckhardt, G. M. (2012). Access-based consumption: The case of car sharing. *Journal of Consumer Research*, 39(4), 881-898.
- Bishop, C. M. (2006). Pattern recognition. *Machine Learning*, 128, 1-58.
- Boesler, M. (2013). The rise of the renting and sharing economy could have catastrophic ripple effects. *Business Insider*, 12.
- Botsman, Rachel, and Roo Rogers. "What's mine is yours." The rise of collaborative consumption (2010).
- Botsman, R., & Rogers, R. (2011). What's mine is yours: how collaborative consumption is changing the way we live. London: Collins.
- Camatti, N., Pattanaro G., Marek M. (2012) Nuove tecnologie e nuove prospettive per la governance dei sistemi turistici, XXXIII Conferenza italiana scienze regionali
- Denning, S. (2014). An economy of access is opening for business: five strategies for success. *Strategy & Leadership*, 42(4), 14-21.
- Diamantaras, K. I., & Kung, S. Y. (1996). Principal component neural networks: theory and applications. John Wiley & Sons, Inc.
- Forno, F., & Garibaldi, R. (2015). Sharing Economy in Travel and Tourism: The case of home-swapping in Italy. *Journal of Quality Assurance in Hospitality & Tourism*, 16(2), 202-220.
- Frenken, K., Meelen, T., Arets, M., & van de Glind, P. (2015). Smarter regulation for the sharing economy. *The Guardian*, 20.
- Giesler, M. (2008). Conflict and compromise: drama in marketplace evolution. *Journal of Consumer Research*, 34(6), 739-753.
- Gansky, L. (2010). *The mesh: Why the future of business is sharing*. Penguin.
- Guttentag, D. (2015). Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector. *Current issues in Tourism*, 18(12), 1192-1217.
- Lahti, V. M., & Selosmaa, J. (2013). *A fair share: Towards a new collaborative economy*. Atena.
- Lamberton, C. P., & Rose, R. L. (2012). When is ours better than mine? A framework for understanding and altering participation in commercial sharing systems. *Journal of Marketing*, 76(4), 109-125.

Hamari, J., Sjöklint, M., & Ukkonen, A. (2015). The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology*.

John, Nicholas A. "Sharing and Web 2.0: The emergence of a keyword." *new media & society* 15.2 (2013): 167-182.

Jolliffe, I. (2002). *Principal component analysis*. John Wiley & Sons, Ltd.

Malhotra, A., & Van Alstyne, M. (2014). The dark side of the sharing economy... and how to lighten it. *Communications of the ACM*, 57(11), 24-27.

Martin, E., & Shaheen, S. (2011). The impact of carsharing on household vehicle ownership. *ACCESS Magazine*, 1(38).

Mont, O. (2004). Institutionalisation of sustainable consumption patterns based on shared use. *Ecological economics*, 50(1), 135-153.

OECD. Publishing. (2016). *OECD Tourism Trends and Policies 2016*. OECD Publishing.

Ozanne, L. K., & Ballantine, P. W. (2010). Sharing as a form of anti-consumption? An examination of toy library users. *Journal of Consumer Behaviour*, 9(6), 485-498.

Piscicelli, L., Cooper, T., & Fisher, T. (2015). The role of values in collaborative consumption: insights from a product-service system for lending and borrowing in the UK. *Journal of Cleaner Production*, 97, 21-29.

Rifkin, J. (2014). *The zero marginal cost society*. Frankfurt ua.

Shaheen, S. A., Mallery, M. A., & Kingsley, K. J. (2012). Personal vehicle sharing services in North America. *Research in Transportation Business & Management*, 3, 71-81.

Sigala, M. (2017). Collaborative commerce in tourism: implications for research and industry. *Current Issues in Tourism*, 20(4), 346-355.

Sundararajan, A. (2013). From Zipcar to the sharing economy. *Harvard Business Review*, 1.

Tussyadiah, I. P. (2015). An exploratory study on drivers and deterrents of collaborative consumption in travel. In *Information and communication technologies in tourism 2015* (pp. 817-830). *Springer International Publishing*.

Tussyadiah, I. P., & Pesonen, J. (2016). Impacts of peer-to-peer accommodation use on travel patterns. *Journal of Travel Research*, 55(8), 1022-1040.

Zervas, G., Proserpio, D., & Byers, J. W. (2014). The rise of the sharing economy: Estimating the impact of Airbnb on the hotel industry. *Journal of Marketing Research*.

Tables and figures

Table 1. Airbnb listings and hotels in Veneto Region

| | Airbnb | Hotel* | % of Airbnb on hotel |
|--|--------|---------|----------------------|
| total number of facilities | 19.624 | 53.428 | 37% |
| total number of beds | 70.804 | 707.406 | 10% |
| * source: ISTAT Italian National Institute of Statistics | | | |

Table 2. Regression model on occupancy rate

| Occupancy Rate LTM | Coef. | Std. Err. | P> t |
|------------------------|------------|-----------|-------|
| Private room | -0,4357177 | 0,0191434 | 0,000 |
| Shared room | -0,4742574 | 0,0691919 | 0,000 |
| Number of Bookings LTM | 0,6884545 | 0,008053 | 0,000 |
| Price per Night | -0,3725303 | 0,0175145 | 0,000 |
| Bedrooms | 0,0670395 | 0,0191368 | 0,000 |
| Number of Reviews | -0,0661556 | 0,0066228 | 0,000 |
| Overall Rating | 0,6664617 | 0,0546188 | 0,000 |
| Belluno_city | -0,3901464 | 0,1245361 | 0,002 |
| Padua_city | 0,1821755 | 0,0368755 | 0,000 |
| Rovigo_city | 0,4387062 | 0,2096173 | 0,036 |
| Treviso_city | -0,0066552 | 0,0520611 | 0,898 |
| Venice_city | 0,2243557 | 0,0247664 | 0,000 |
| Verona_city | 0,4030109 | 0,0271323 | 0,000 |
| Vicenza_city | 0,3567771 | 0,057272 | 0,000 |
| Garda Lake | 0,8237743 | 0,0308461 | 0,000 |
| SAdriatic coastal area | 0,2408073 | 0,0389961 | 0,000 |
| Dolomiti/Mountains | 0,3917421 | 0,0356159 | 0,000 |
| Spa | 0,2944429 | 0,0901674 | 0,001 |
| Superhost | 0,1460976 | 0,0205351 | 0,000 |
| Security Deposit | 0,0001066 | 0,000042 | 0,011 |
| CleaningFee | 0,0018537 | 0,0002364 | 0,000 |
| Business Ready | 0,0194374 | 0,0313345 | 0,535 |
| Instant booking | 0,0083494 | 0,0181455 | 0,645 |
| photo_over | -0,0434028 | 0,0263795 | 0,100 |
| photo_under | -0,0287781 | 0,0454369 | 0,527 |
| Response Time | -0,006957 | 0,0027524 | 0,011 |
| _cons | -2,432,406 | 0,1114955 | 0,000 |

Table 3. Principal component Analysis

| Component | Eigenvalue | Proportion | Cumulative |
|-----------|------------|------------|------------|
| Comp1 | 1,77941 | 0,2966 | 0,2966 |
| Comp2 | 1,1771 | 0,1962 | 0,4928 |
| Comp3 | 1,00794 | 0,1680 | 0,6607 |
| Comp4 | 0,986568 | 0,1644 | 0,8252 |
| Comp5 | 0,744334 | 0,1241 | 0,9492 |
| Comp6 | 0,304647 | 0,0508 | 1,0000 |

Principal components (eigenvectors)

| Variable | Comp1 | Comp2 | Comp3 |
|--------------------|---------|---------|---------|
| price per night | -0,0614 | 0,0035 | 0,7458 |
| number of bookings | 0,6547 | -0,2534 | 0,0617 |
| number of reviews | 0,6663 | -0,1956 | 0,0121 |
| user evaluation | 0,1398 | 0,7292 | 0,1146 |
| superhost | 0,3190 | 0,5882 | 0,0398 |
| business ready | 0,0482 | 0,1404 | -0,6520 |

Table 4. Distribution of attractiveness index

| Percentiles | Values |
|-------------|-----------|
| 1% | 0,0611879 |
| 5% | 0,0829132 |
| 10% | 0,0920645 |
| 25% | 0,1052807 |
| 50% | 0,1306947 |
| 75% | 0,2038303 |
| 90% | 0,3002583 |
| 95% | 0,3749229 |
| 99% | 0,5487266 |

| | |
|------------------------------------|-----------|
| <i>Number of analysed listings</i> | 11.986 |
| <i>Standard Deviation</i> | 0,0999264 |
| <i>Variance</i> | 0,0099853 |

Figure 1, Attractive excellences

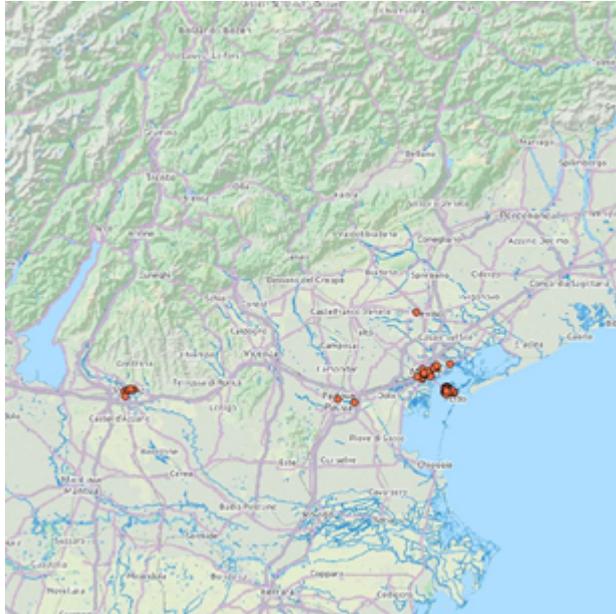


Figure 2, High Attractive listings

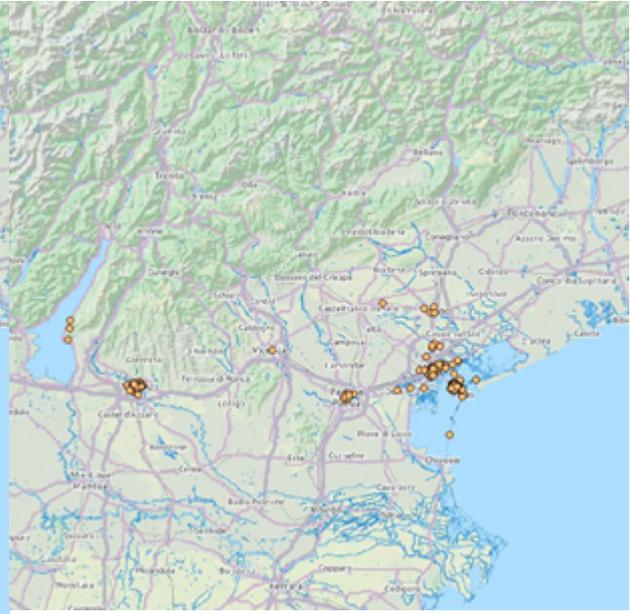


Figure 3, Medium-high attractive listings

