

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

Nature-based solutions and their potential to attract the young generations

This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1761273> since 2024-12-18T14:17:23Z

Published version:

DOI:10.1016/j.landusepol.2020.105176

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

NATURE-BASED SOLUTIONS AND THEIR POTENTIAL TO ATTRACT THE YOUNG GENERATIONS

Authors

Chiara Giachino, PhD, Assistant Professor, Department of Management, University of Torino, Corso Unione Sovietica, 218bis, Torino, Italy; email: chiara.giachino@unito.it

Giulio Pattanaro, Independent researcher, Brussels, Belgium; email: giuliopattanaro@gmail.com

Bernardo Bertoldi, Assistant Professor, Department of Management, University of Torino, Corso Unione Sovietica, 218bis, Torino, Italy; email: bernardo.bertoldi@unito.it

Luigi Bollani, Assistant Professor, ESOMAS Department, University of Torino, Corso Unione Sovietica, 218bis, Torino, Italy; email: luigi.bollani@unito.it

Alessandro Bonadonna, PhD, Assistant Professor, Department of Management, University of Torino, Corso Unione Sovietica, 218bis, Torino, Italy; email: alessandro.bonadonna@unito.it

Abstract

This study aims to explore how Nature-Based Solutions (NBS) can impact on a specific territory investigating how are perceived by the young generations, and to see if NBS are capable of attracting young visitors in a specific area. The young generations are generally considered as being more sensitive towards nature and sustainability issues. In this context, planning and developing NBS may prove to be a powerful instrument to raise the interest of young people towards formerly degraded urban area and ecosystems. The results of a survey focused on a specific area, involving 1,543 university students, demonstrate that gender is the factor that most influences the perception of NBS. Females tend to have a good knowledge and a positive perception of NBS, and they are also prone to visit sites where NBS are present; in contrast, males emerge as a very heterogeneous group, with different levels of knowledge and perception of NBS, as well as different attitudes towards visiting NBS sites. The results of this study are expected to help decision-makers plan the

development of NBS sites and target potential visitors. Further research on the topic is finally recommended.

Keywords: Nature-based Solutions, Tourism destination, Generation Y, Generation Z, Youth tourism, Urban tourism

NATURE-BASED SOLUTIONS AND THEIR POTENTIAL TO ATTRACT THE YOUNG GENERATIONS

Abstract

This study aims to explore how Nature-Based Solutions (NBS) are perceived by the young generations, and to see if NBS are capable of attracting young visitors to a specific area. Young generations are generally considered as being more sensitive towards nature and sustainability issues. In this context, planning and developing NBS may prove to be a powerful instrument to raise the interest of young people towards formerly degraded urban and peri-urban areas and ecosystems. The results of a survey focused on a specific NBS site and involving 1,543 university students demonstrate that gender is the factor that most influences the perception of NBS. Females tend to have a good knowledge and a positive perception of NBS, and they are keen to visit sites where NBS are present; in contrast, males emerge as a very heterogeneous group, with different levels of knowledge and perception of NBS among them, as well as different attitudes towards visiting NBS sites. The results of this study are expected to help decision-makers plan the development of NBS sites and target potential visitors. Further research on the topic is finally recommended.

Keywords: Nature-based Solutions, Tourism destination, Generation Y, Generation Z, Youth tourism, Urban tourism

1. Introduction

The implementation of NBS is likely to engender environmental but also social and economic benefits. In urban areas, for example, developing green roofs and green walls or encouraging

the re-vegetation of riverbanks may contribute to mitigating extreme weather conditions resulting from climate change but may also improve the quality of life of the local population and generate new job opportunities. Territories can benefit from the implementation of NBS since making natural environments more accessible and enjoyable is likely to attract visitors who are interested in nature and are sensitive to sustainability issues.

People can perceive NBS in different ways, with some people being more positive towards their implementation and others having a more sceptical or negative view (Line and Costen, 2017). Recent studies (Cavagnaro and Staffieri, 2015; Olsen et al., 2007; Schoolman et al., 2016; Hopkins, 2017; Tomalty and Mallach, 2015; Miller et al., 2017) and the Fridays for Future movement have shown that young generations are more and more interested in issues like climate change and the over-consumption of natural resources. They are very concerned about the impact of their activities on the environment, and such concern may drive their choices and behaviours in choosing a destination, for example. Understanding the relevance and impact of environmental concerns on the attitude of young generations is therefore of paramount importance. Young generations constitute a large consumer group and their preferences and choices are expected to shape the future of sectors, like, for instance, tourism (Giachino et al., 2019; PWC, 2011; Richards, 2005).

The relation between young generations and tourism has been largely explored by literature (Barton et al., 2013; Bonadonna et al., 2017; Giachino et al., 2019; Kim et al., 2015; Lama, 2018; Mohsin and Alsawafi, 2011; Oktadiana et al., 2020; Richards and Wilson, 2004; Rita et al., 2018; Robinson & Schanzel, 2019; Staffieri, 2016; Tsai & Chen, 2019) with particular emphasis on the drivers that guide their decision to visit a certain destination (Barton et al., 2013; Bonadonna et al., 2017; Kim et al., 2015; Lama, 2018; Mohsin and Alsawafi, 2011; Rita et al., 2018; Thrane, 2008; Xu et al., 2009), on their consumption behaviour (Şchiopu et al., 2016) and on the way new technologies and the digital influence such behaviour (Liu et

al., 2018; Femenia-Serra et al., 2019b; Femenia-Serra and Ivars Baidal, 2018; Femenia-Serra and Neuhofer, 2018; Loda et al., 2010). However, the extent to which young generations' growing concern for the environment influences their tourism behaviour needs further investigation.

The present paper represents an attempt to fill this gap, by focusing on the knowledge and perception that young generations have of NBS and on the capacity of NBS to attract visitors towards a given territory.

After presenting an overview of the main literature on NBS, the paper focuses on the outline and discussion of the results of a survey involving 1,543 university students, belonging to GenY and GenZ were involved in this study. In this case, 18-22 years old university students were considered as belonging to Gen Z, 23-37 years old university students were considered as belonging to Gen Y (Table A.1).

Some conclusions and implications for decision-makers and destination managers will be presented, together with the suggestion for future research on the topic.

2. Literature Review

2.1. Nature-Based Solutions

Nature-Based Solutions (NBS) have been defined as 'actions which are inspired by, supported by or copied from nature' (European Commission, 2015a); they aim at 'enhancing sustainable urbanisation, restoring degraded ecosystems, developing climate change adaptation mitigation and improving risk management and resilience' (European Commission, 2015a). In order to address these societal challenges, NBS make use of existing natural solutions or develop new solutions by mimicking nature. Examples of NBS include planting trees alongside roads so as to trap particulates and prevent air pollution, encouraging re-vegetation of riverbanks, actively repairing and constructing sand dunes in order to

preserve coastal areas, planting green roofs and green walls to encourage the interception of rainfall in urban settings, or converting brownfields in green areas (European Commission, 2015b).

In literature, the concept of NBS builds upon and complements already-existing notions and approaches like ‘natural capital’, ‘ecosystem services’, or ‘green infrastructure’ and acts as a sort of umbrella term (van den Bosch and Sang, 2017). All these concepts promote the maintenance, enhancement, and restoration of biodiversity and ecosystems as a means to address environmental challenges like biodiversity loss and the effects of climate change (Kabisch et al., 2016; Nesshöver et al., 2017) but also as a design and planning tool for ‘ecologically sensitive urban development’ (Scott and Lennon, 2016).

In comparison to traditional engineered structures or ‘hard’ adaption measures (for example, flood barriers), NBS may prove to be less costly, more flexible and adaptable, and may generate multiple benefits, rather than serving only the particular purpose (e.g., flood protection) that they have been built for (Brink et al., 2016; Keesstra et al., 2018). In addition to environmental benefits, NBS are considered to bring a wide range of additional benefits, for the society and the economy. Greening brownfields, for example, may have a positive impact on the health and quality of the lives of the local population and may strengthen neighbourhood social ties (Kazmierczak, 2016) and some cities try to implement green solutions to favourite urban regeneration (Sanchez et al., 2018). Raymond et al. (2017) mention ten different challenges that NBS may help to tackle: climate mitigation and adaptation, water management, coastal resilience, green space management, air quality, urban regeneration, participatory planning and governance, social justice and social cohesion, public health and well-being, and economic opportunities and green jobs. Some urban Tourism could also benefit from the implementation of NBS. The report of an expert group who supported the European Commission in defining a research and innovation policy

agenda in the field of NBS (European Commission, 2015b) quotes some examples of ongoing initiatives in Europe—for example, the Sigma Plan in Belgium—where boosting local tourism is considered as one of the expected positive effects. These initiatives are about the application of NBS to protect and restore fragile natural environments and make them more accessible and enjoyable by residents and other visitors. Despite the relevance of NBS for tourism, tourism literature has not reported on concrete examples of the implementation of NBS and the term NBS itself is not being used (Mandić, 2019).

2.2. The importance of developing flexible and locally-adapted NBS

The concern for equity and social justice plays a central role in ensuring the effective implementation of NBS and, at a broader level, of ecosystem-based adaptation (Brink et al., 2016; Kabisch et al., 2016; Scott and Lennon, 2016). In the case of urban planning, for example, Scott and Lennon (2016) pay particular attention to the risk of gentrification and the consequent displacement of low-income populations resulting from the rise of property prices which follows nature-led urban regeneration.

The effective implementation of NBS may also be jeopardised by a series of potential barriers. With a focus on urban planning, Kabisch et al. (2016) identify five categories of barriers: the scepticism among some citizens and policy-makers in relation to the effectiveness of NBS in comparison to other more conventional instruments; the disconnect between policy-makers' usual preference for short-term actions and the long-term vision needed to implement NBS; the risk of discontinuity, with short-term actions in support of NBS not being part of a long-term plan and strategy; the potential silo approach of the different actors involved in the design and implementation of NBS; and the economic growth paradigm that tends to limit investments in green development processes.

In order to overcome these barriers and ensure effective implementation of NBS, the adoption of a multi-disciplinary, multi-stakeholder, and flexible approach appears to be crucial.

In designing and developing NBS, it is also important to take ‘a problem-focused, rather than a traditional disciplinary approach’ (Brink et al., 2016), thus breaking down silos and integrating inputs from different disciplines and areas of expertise: ecology, natural sciences, risk management, and urban planning, and so on. For example, some methodologies, tools, and models from the domain of social sciences may support NBS developers in tackling and enhancing the social acceptance of the proposed solutions.

Strictly linked to the adoption of a multi-disciplinary approach are the involvement and engagement right from the problem-definition stage of a wide range of actors (Raymond et al., 2017). New modes of governance need to be implemented in order to ensure collaboration and constant dialogue and exchange of knowledge and expertise among stakeholders (Kabisch et al., 2016) and communities (Wondirad and Ewnetu, 2019). The local community should be given the opportunity to bring in what Brink et al. (2016) call ‘people’s situatedness in, and knowledge of, their local socioecological milieu’. The involvement and support of the people who are the most directly affected by the development of one or more NBS are equally essential to ensure that the implementation of these solutions is effective. The importance of obtaining support from local residents becomes a prerequisite for the design, development, and implementation of a sustainable solution, not only from an environmental point of view (Bramwell and Sharmann, 1999; Nunkoo and Gursoy, 2017; Olya and Gavilyan, 2017).

As the report (European Commission, 2015b) of the NBS expert group of the European Commission strongly highlights, the involvement of different actors may also generate another positive effect; that is, the design and development of innovative business models, leveraging public funding but also private investments.

The combination of different disciplines, areas of expertise and typologies of actors are all elements contributing and characterising those ‘site adapted processes of co-designing, co-implementation, and co-management’ (van den Bosch and Sang, 2017) that are peculiar to NBS. These processes, in turn, make it possible for NBS to be flexible and adaptable, which provides an advantage, as mentioned before, over traditional engineered structures or ‘hard’ adaption measures. Similarly, the adoption of a flexible and locally-adapted approach is important to attract tourists to a given NBS site. The positive impact of such tourism strongly depends on the capability of planners to collect and take into account the perception and potential inputs of the different stakeholder groups in a given destination (Ho et al., 2017).

2.3. Young generations and travel behaviour

A company, or, more in general, an organisation, needs to analyse and understand the specific characteristics, behaviours and expectations of the age groups that it wants to target (e.g. Kotler, 2000; Mulvey et al., 2019; Schewe and Nobles, 2000; Shulga et al., 2018).

Understanding in particular the characteristics of the younger generations is key to predict the evolution and future market trends of a given sector (e.g. Huang and Lu, 2017; Lissitsa and Kol, 2016; Taylor and DiPietro, 2018).

Several studies have been focusing on the behaviours and preferences of the younger generations, notably GenY and GenZ (e.g., Atkin and Thach, 2012; Arora and Dhole, 2019; Felzensztein, 2011; Foot, 2001; Hoover, 2009; Kultalahti and Viitala, 2015; Montana and Petit, 2008; Nowak et al., 2006; Weiler, 2005). GenY is being described as a generation who has been strongly influenced by media and technological development and who has experienced new problems in society such as violence (Lancaster and Stillman, 2004); Gen Y was born in the 1980s up until 1995 (McKinsey, 2018; Nowak et al., 2006). Born after 1995 (McKinsey, 2018; Hoxha and Zeqiraj, 2019), GenZ has generally been described as edgy,

urban-focused, and idealistic (Kotler, 2000). GenY is the first generation to show a strong interest in environmental issues (Olsen et al., 2007): sustainability principles are influencing their behaviours (Hopkins, 2017; Miller et al., 2017; Schoolman et al., 2016; Tomalty and Mallach, 2015) and affecting their purchasing decisions (Yoka, 2014; Gazzola et al., 2017; Gallenti et al., 2019). GenZ appears to be even more environmental oriented (Su et al., 2019; Dabija et al., 2019).

Other studies focused on the travel sector, looked at these generations' – and at GenY's in particular – desire and motivations to visit and travel (Barton et al., 2013; Bonadonna et al., 2017; Kim et al., 2015; Lama, 2018; Mohsin and Alsawafi, 2011; Rita et al., 2018; Thrane, 2008; Xu et al., 2009), consumption behaviours (Şchiopu et al., 2016), at the role and influence played by new technologies and social media (Liu et al., 2018; Loda et al., 2010) as well as at the importance placed on social responsibility (Ferris, 2011).

As far as travel and tourism are concerned, the context of life may influence the choice of destination and the perception of the place visited. This is the case of tourists belonging to Gen Z (Robinson and Schänzel, 2019) but also of Millennials (Bernardi, 2018) as well as of other population groups (Jennings, 2010). When they travel, Gen Z members seek adventure and fun, they want to escape their everyday life and feel involved and socialise (Haddouche and Salomone, 2018; Robinson and Schänzel, 2019; Tavares et al., 2018); the same is true for Millennials, who are also very interested in natural and cultural heritage as well as in local food (Rita et al., 2019; Giachino et al., 2019). Gen Z members are afraid of losing an opportunity if they do not travel (Smith, 2018) thus confirming the fear of missing out phenomenon, which is common to Millennials as well (Przybylski et al., 2013). Differently from Millennials, Gen Z members do not appear to be influenced by the more restrictive security rules which have been introduced as a consequence of terrorist attacks; on the contrary, for some of them these rules have even contributed to making travel destinations

safer (Alvarez et al., 2020; Bacon and Buzinde, 2019, Robinson and Schänzel). GenZ members appear to be sensitive to biodiversity (Robinson and Schänzel, 2019) and, as it happens for Millennials as well, rely extensively on the information provided by social media and new technologies both in planning their holidays and during their visit (Ketter, 2020; Liberato et al., 2019a; Liberato et al., 2019b; Robinson and Schänzel, 2019; Skinner et al., 2018; Willems et al., 2019).

2.4. Young generations and the use of technology

The use of new technologies and social media characterise young generations: Millennials have rapidly learn how to use digital devices, and GenZ members were even born with digital devices (Forbes, 2019).

Young generations use digital tools to connect and get more information from travellers from all over the world (Oktadiana et al., 2020; Tsai & Chen, 2019; Veiga et al., 2017), to plan their trips (Erdeji & Dragin, 2017; Jamal and Habib, 2020) and to access smart destinations (Femenia-Serra et al., 2019a).

Millennials usually plan their travel and select their destinations by using the web, where they gather feedback and opinions from other travellers (Erdeji & Dragin, 2017). The smartphone is also widely used to plan holidays, as most Millennials consider it as a time-saving tool (Jamal and Habib, 2020). Young generations' familiarity and wide use of new technologies do have an impact on destinations, which have to become smart. In smart destinations, new technologies are available to simplify mobility and provide solutions helping young generations to save time and money (Expòsito-Izquierdo et al., 2017).

While some research on the way smart destinations are perceived by the young generations has been carried out recently (Femenia-Serra et al., 2019b; Femenia-Serra and Ivars Baidal, 2018; Femenia-Serra and Neuhofer, 2018), the knowledge and perception of NBS among

young generations remains rather unexplored. The analysis of some pilot experiences involving young generations in the design of locally-adapted NBS – see the case, for example, of Vejle in Denmark (Frantzeskaki, 2019) – appears to show though that NBS sites have the potential to capture the attention of GenY and GenZ.

3. Material and Methods

The aim of this paper is i) to investigate the knowledge and perception of Nature Based Solutions among young generations (notably, GenY and GenZ), and ii) to understand if the presence of NBS can contribute to attract young visitors towards a specific territory. To achieve this aim, the authors administered an online questionnaire to university students belonging to both GenY and GenZ. In order to facilitate the understanding of what NBS are, the questionnaire included the concrete example of an NBS site with potential to attract visitors. The NBS site mentioned in the questionnaire – called *Green Crown* ('Corona Verde', in its original denomination in Italian) – is located in the peri-urban area of Turin, the city where the university of the respondents is based. The Green Crown initiative aims to create a 'green' belt around Turin made of the natural heritage of metropolitan parks, rivers, and rural areas, so as to improve the quality of life in the metropolitan area of Turin (Figure 1). The initiative wants to promote the conservation of natural spaces inserted in the urban fabric as well as to redevelop the metropolitan area. The Green Crown project is of strategic importance for the Piedmont Region – the region to which Turin belongs – and it has been supported by the European Regional Development Fund. Through the Green Crown project, the forests and parks that surround Turin have become part of a network that also incorporates the Royal Residences of the Turin-based Savoy Family (Stupinigi, Reggia della Venaria, Palazzo Reale, Villa della Regina).

The metropolitan area of Turin has been already the object of several international studies focusing on some tourism products which are specific to the area, like the *Salone del Gusto* and *Terra Madre* fairs (Parkins and Craig, 2009), local street food initiatives (Alfiero et al., 2019), and the *Porta Palazzo* market (Gilli and Ferrari, 2018; Peira et al., 2018).

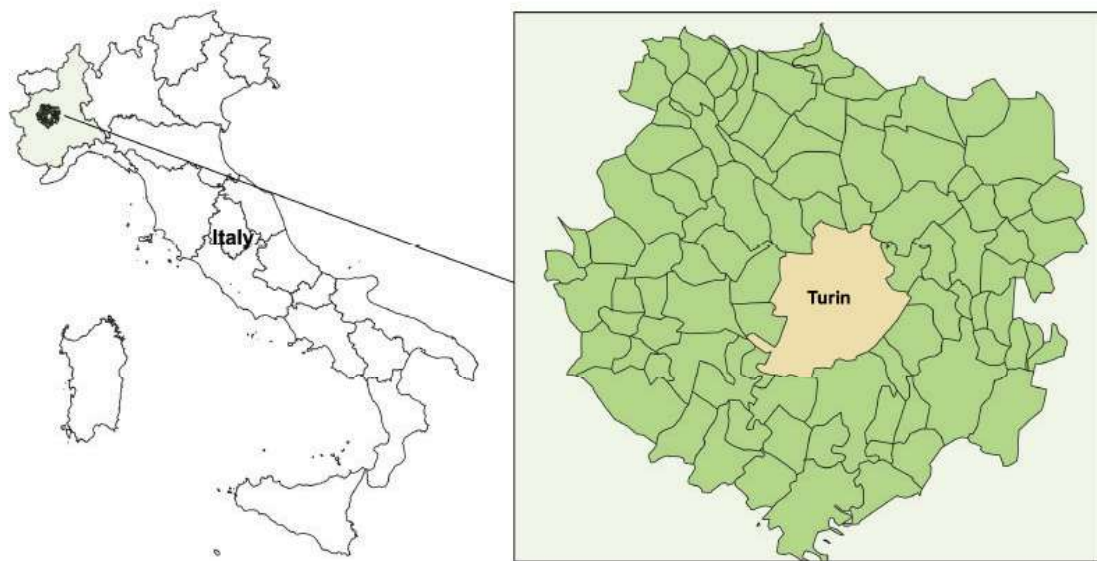


Figure 1. The Corona Verde area (Green Crown area)

In the design of the questionnaire, the authors opted for closed-ended questions in order to facilitate the statistical analysis of the data and information. A preliminary version of the questionnaire was tested on 40 students belonging to both GenY and GenZ. The purpose of this test was to detect potential errors and mistakes and to identify any structural weaknesses. Based on the feedback thus received, additional information on the Green Crown project was added to the final version of the questionnaire.

The questionnaire wanted to test the following four hypotheses: H1: GenY have a good knowledge of NBS; H2: GenZ have a good knowledge of NBS; H3: Gen Y is interested in visiting NBS sites; H4: Gen Z is interested in visiting NBS sites.

The final version of the questionnaire as it was sent to students consisted of four parts. The first part was about the demographic, social, and educational characteristics of the respondents; e.g., gender, age, municipality of residence, nationality, qualification, and education. The second part of the questionnaire investigated the level of knowledge and awareness of NBS. Respondents were asked, for example, whether they had heard about NBS, and if they associate NBS to a means to reduce pollution and increase the quality of life of people in urban areas. The respondents were also asked whether they could identify any example of NBS infrastructure and initiatives close to their place of residence. The third part of the questionnaire was dedicated to investigating the tourism behaviours of young generations and assessing the tourism dimensions and potential of NBS. Among other things, respondents were asked if the presence of NBS has ever played (or may play) a role in the choice of their holiday destinations. The fourth part of the questionnaire was dedicated to the Green Crown project. Students were asked i) if they had already visited the area, ii) whether they consider the Green Crown Project as a valid initiative to preserve the ecosystem and the human habitat, and iii) whether they would ever consider (or had already considered) the Green Crown area as an option for a short holiday. A brief presentation of the aims of the study was provided in the text of the invitation email.

Considering young generations' preference of to communicate online (e.g. Casalegno et al., 2019; Cavagnaro and Staffieri, 2015; Giachino et al., 2019; Tsai & Chen, 2019; Velčovská and Hadro, 2018), the questionnaire was sent in the first week of July 2018 via email by the University of Turin's communication team. Two weeks later, when the survey was closed, 1,543 students had replied (Table A.1).

The data collected through the questionnaire were analysed using descriptive statistics, followed by multivariate statistical techniques. With the multivariate methods, not only is the frequency of the different items of each variable considered, but also the relationships among

the quantitative variables and the items of the categorical variables (Benzecri, 1973; Greenacre, 2017; Hotelling, 1933). As recommended by literature (Benzecri, 1973; Greenacre, 2017), an integrated view of the relationships among the variables was adopted so as to identify the characteristics of the different groups of respondents.

A Principal Component Analysis (PCA) was carried out twice, on a set of variables corresponding to the questions—each of them based on a 7-point Likert scale—with the purpose of identifying the most important quantitative variables, called *dimensions* or *factors*. The first PCA focused on the importance attributed by the respondents to the different characteristics of NBS; the second PCA contributed to a reduction of the variables linked to the respondents' awareness of the Green Crown project.

In both PCAs, the first five PCA dimensions, which gave a solid structure of the correlations amongst the data, were used as inputs for a Hierarchical Cluster Analysis (HCA), using squared Euclidean distance as a similarity measure and the Ward method to group sample units by response affinity.

The clusters so identified - which divide the respondents in a partition, i.e. each subject is assigned to a unique cluster – became accessible as items of a qualitative variable. A Multiple Correspondence Analysis (MCA) was then carried out in order to examine the main qualitative variables of the questionnaire as a whole, including cluster membership from the two previous analyses. R software, FactoMineR (Escofier and Pagès, 2008), and CA (Nenadic and Greenacre, 2007) were used for this purpose.

Variables used in the MCA analysis, item labels and related description were inserted in Table A.1 and the MCA factor map is reported in Figure A.1.

4. Results

The respondents to the questionnaire were 1,543, distributed as follows by gender and age (Table 1).

SAMPLE (no.)	1,543
GENDER (%)	
Female	65.72
Male	34.28
AGE (%)	
18-22	52.95
23-29	41.22
30-37	5.83

Table 1. Sample distributed by gender and age.

Females represent 66% of the sample and males 34%; the majority of the respondents (53%) belong to GenZ, while 47% of respondents are part of Gen Y and do represent the so-called Millennials.

Through the factorial dimensions of the MCA (the first five dimensions were considered for this purpose), the analysis of the responses led to the identification of five groups of respondents, as it can be observed in Figure 2 and, for each of these clusters some characteristics emerged.

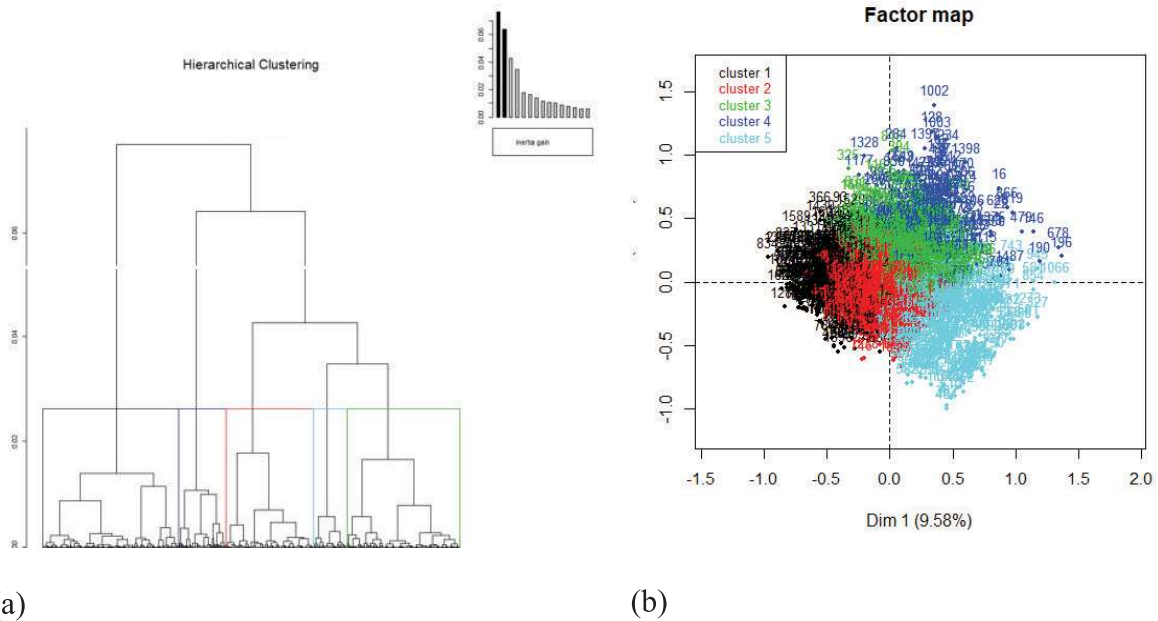


Figure 2. Clusters obtained by the HCA (after the MCA). On the left, the dendrogram shows the chosen distance level to identify the clusters (a). On the right, each cluster is represented with its specific elements (b).

The first cluster is comprised of GenZ males (18–22) and the younger males of GenY (23–29) and represents 23.91% of the respondents. The characteristics of this cluster are as follows: a good level of awareness, knowledge, and importance attributed to NBS (*NBSheard.yes*; *NBSquant_High*) also in view of selecting NBS areas as a tourism destination (*NBSpast_tourism.yes*; *NBSnow_tourism.yes*; *NBSwe_tourism.yes*). They members of this cluster have a good level of awareness of the Green Crown project (*GrCr_been_there.yes*) and have enjoyed the areas (*GrCrDora.yes*; *GrCrLanzo.yes*; *GrCrPo.yes*; *GrCrSangone.yes*) and sites (*GrCrResidTo.yes*; *GrCrResidOutTo.yes*) related to the project. The members of this cluster consider the area of the Green Crown project as a potential destination for a short holiday (*GrCr_more_days.yes*).

The second cluster is mainly composed of GenZ females (18–22) and the younger females of GenY (23–29) and accounts for 30.40% of the respondents. This cluster has no awareness

and knowledge of NBS (*NBSpast_tourism.unawares*; *NBSheard.no*); however they are interested in the idea (*NBSquant_High*) and they recognise the tourism potential of NBS (*NBSnow_tourism.yes*; *NBSwe_tourism.yes*). This cluster is not familiar with the Green Crown project (*GrCr_been_there.no*; *GrCr_been_there.?*), and the Green Crown areas tend not to be visited by this group (*GrCrLanzo.no*; *GrCrDora.no*; *GrCrPo.yes*). **The cluster, though, is aware and knowledgeable about** the Savoy residences, which are also part of the project (*GrCrResidTo.yes*; *GrCrResidOutTo.yes*). **The members of this cluster see the** Green Crown project area as a potential destination for a short holiday (*GrCr_more_days.yes*) and consider the Green Crown project as a useful initiative to preserve the ecosystem and the human habitat (*GrCr_Ecosystem.sensible*).

The third cluster is made by GenZ males (18–22). This group has no knowledge of NBS (*NBSheard.no*) and represents the 22.10% of the respondents. The member of this cluster attribute a medium level of importance to NBS (*NBSquant_Med*) and do not have a clear view of the tourism potential of NBS areas (*NBSnow_tourism.?*; *NBSwe_tourism.if.it.happens*; *NBSturin.?*). Knowledge of the Green Crown project is limited (*GrCr_been_there.?*), even if some members have already visited some of the areas involved in the project (*GrCrPo.yes*; *GrCrDora.yes*) as well as the royal residences (*GrCrResidTo.yes*; *GrCrResidOutTo.yes*). NBS are considered as a useful resource for the environment, as they help to preserve water and soil but also agricultural activities (*GrCr_Crops.sensible*).

The fourth cluster is comprised of GenY males (23–37) and accounts for 9.46% of respondents. This group has no knowledge of NBS in the area of Turin (*NBSturin.no*; *NBSpast_tourism.no*), attributes a low to medium importance to NBS (*NBSquant_Low*; *NBSquant_Med*), and does not consider NBS areas as potential tourism destinations (*NBSnow_tourism.no*; *NBSwe_tourism.no*; *NBSturin.?*). This group has no awareness of the Green Crown project (*GrCr_been_there.no*; *GrCr_more_days.no*), although its members

have already paid sporadic visits to some of the sites involved in the project

(GrCrResidTo.yes).

Finally, the fifth cluster is characterised by GenZ males, who are 14.13% of the respondents.

This part of GenZ are not concerned or have a negative attitude towards both NBS

(NBSheard.no; NBSpast_tourism.no; NBSnow_tourism.?) and the Green Crown project

(GrCr_been_there.no; GrCrResidTo.no; GrCrResidOutTo.no; GrCrPo.no; GrCrDora.no;

GrCrSangone.no; GrCrLanzo.no).

To summarise, the cluster analysis identified five groups with different attitudes and

behaviours towards NBS and the Green Crown project. Cluster_2 is comprised mainly of

females and is characterised by a positive attitude towards NBS. The other clusters tend to be

dominated by males and are characterised by a positive attitude towards NBS and the Green

Crown project (Cluster_1), indifference towards NBS and the Green Crown project

(Cluster_3), indifferent to negative attitude towards NBS and the Green Crown project

(Cluster_4), and negative attitude towards NBS and the Green Crown project (Cluster_5).

5. Discussion and conclusions

Young generations play a relevant role in the development of different sectors, including

tourism. For this reason, the characteristics of young generations, and the specific factors that

influence such characteristics, need to be studied in depth (e.g. Forbes, 2019; Arora and

Dhole, 2019; Giachino et al., 2019; Casalegno et al., 2019; Atkin and Thach, 2012).

Some studies have already investigated how young generations plan their travels (e.g. Erdeji

and Dragin, 2017; Jamal and Habib, 2020; Ketter, 2020; Liberato et al., 2019a; Liberato et

al., 2019b; Robinson and Schänzel, 2019; Skinner et al., 2018; Willems et al., 2019), value

sustainability aspects (e.g., Dabija et al., 2019; Hopkins, 2017; Miller et al., 2017; Olsen et

al., 2007; Schoolman et al., 2016; Su et al., 2019); the relevance of technology has also been

investigated, including in terms of influence on the selection of smart cities as tourism destinations (e.g. Femenia-Serra et al., 2019a). On the same line, this research has analysed more in depth the behaviour of the young generations, with a focus on the influence of NBSs in their choices and decisions.

In addition to identifying five main clusters of respondents with different attitudes and behaviours towards NBS and the Green Crown project, the analysis of the replies of 1,514 students has highlighted two interesting elements. First, young generations appear to be interested in NBS: both GenY and GenZ have a discrete level of knowledge and awareness of what NBS are and most of their members consider the presence of NBS in a given area as an element which could favour the selection of such area as tourism destination. This appears to be in line with young generations' general interest toward sustainability (e.g Hopkins, 2017; Miller et al., 2017).

Second, the outcome of our research on GenY and Gen Z shows that the perception and knowledge of NBS vary considerably according to the gender of the respondents. The cluster analysis indicates that the fact of belonging to a gender is more powerful than the fact of belonging to GenY or GenZ in explaining the degree of knowledge of NBS and the attitude towards visiting an NBS site. The female population from both GenY and GenZ who responded to the questionnaire appears to be very interested in these type of solutions and would consider an NBS site for their holidays. On the contrary, young males do not behave as a homogeneous group in relation to NBS and there is a high variability regarding the willingness to travel or spend some free time in an NBS site. GenZ males (18–22) appear to be divided into two main groups: one group is positively oriented towards NBS and the Green Crown project, with a high propensity to travel for NBS reasons, whereas a second group has a more negative attitude towards NBS. The same divide exists within the younger GenY males (23–29), with some of them being very positively oriented towards NBS and the

tourism potential of a site such as the Green Crown project, whereas others tend to have a rather negative attitude towards NBS.

Nevertheless, the results confirm that environmental considerations do influence young generations' travel choices and behaviours, as it was pointed out by literature (Hopkins, 2017; Miller et al., 2017; Olsen et al., 2007; Schoolman et al., 2016). The development of NBS can therefore contribute to attracting young people, and young females above all, to some specific areas, thus generating promising tourism flows (European Commission, 2015b).

It is here worth reminding, though, that, as highlighted by literature, the development of NBS requires a problem-focused approach (Brink et al., 2016) and the involvement and engagement of different typologies of stakeholders (Brink et al., 2016; Raymond et al., 2017). Furthermore, as it happens for smart destinations in general, it is necessary to use the right channels to communicate with young people and offer them in a fast and user-friendly way the information, products and services that they are looking for (Femenia-Serra et al., 2019a; Jamal and Habibi, 2020; Tsai and Chen, 2019; Veiga et al., 2017).

6. Implications and future research

This study provides some insights on the knowledge and awareness of NBS among young generations and on the influence that the presence of NBS may have in the selection of a given destination.

Decision makers and destination managers should take into account and value the good knowledge and high interest in NBS observed among young people, notably within the female population. The development of such solutions may indeed contribute to attracting young tourists towards a given destination.

The outcome of this study also reinforces the importance of actively involving young generations in the design and implementation of NBS and NBS sites. As highlighted by literature, the involvement of a wide range of stakeholders is key for the successful and effective implementation of NBS (Bramwell and Sharmann, 1999; Brink et al., 2016; Nunkoo and Gursoy, 2017; Olya and Gavilyan, 2017), and some positive pilot experiences involving of young people in the design of locally-adapted NBS already exist (Frantzeskaki, 2019).

The present research also demonstrates that more efforts should be put into promoting and communicating what NBS are and what advantages they can bring to a specific territory. For many respondents, it was difficult to clearly define and recognise NBS, and this despite their interest towards NBS.

Effective promotional and communication campaigns could also help to boost tourism in some NBS areas. The present study has demonstrated that young generations, and females above all, are open and keen to visit NBS sites. Young generations are key to set the evolution of the tourism sector (Atkin and Thach, 2012; Richards, 2005); it is important to invest efforts and resources in promoting NBS sites towards this specific group of consumers. In NBS sites, it is also worth offering products and services (e.g., activity-based tourism) which are tailored to the needs of the young generations.

Future studies on the awareness and tourism potential of NBS could focus on older generations, so as to draw a comparison with what has been observed in the case of young generations. While the present study focused on the area of Turin in Italy, future research could collect some insights and data from other regions of Europe and elsewhere. Finally, the relations among tourism development, the presence of NBS, and the involvement of the local community in the design and implementation of NBS initiatives could be further explored.

References

- Alfiero, S., Bonadonna, A., Cane, M., Lo Giudice, A. (2019), Street food as a tool for promoting tradition, territory and tourism, *Tourism Analysis*. In press
- Alvarez, M., Campo, S., Fuchs, G. (2020). Tourism in conflict zones: animosity and risk perceptions. *International Journal of Culture, Tourism, and Hospitality Research*, 14 (2), pp. 189-204.
- Arora, N., & Dhole, V. (2019). Generation Y: Perspective, engagement, expectations, preferences and satisfactions from workplace; a study conducted in Indian context. *Benchmarking: An International Journal*.
- Atkin, T., & Thach, L. (2012). Millennial wine consumers: risk perception and information search. *Wine Economics and Policy*, 1(1), 54-62.
- Bacon, L.E., & Buzinde, C.N. (2019). Perceptions of terror stricken tourism destinations. *Journal of Tourism and Cultural Change*, 17 (5), pp. 594-608. DOI: 10.1080/14766825.2018.1502298
- Barton, C., Haywood, J., Jhunjhunwala, P., & Bhatia, V. (2013). Travelling with Millennials. *BCG perspectives*.
- Benzecri, J. P. (1973). *L'Analyse des données*. Dunod.
- Bernardi, M. (2018). Millennials, sharing economy and tourism: the case of Seoul. *Journal of Tourism Futures*, Vol. 4 No. 1, pp. 43-56.
- Bonadonna, A., Giachino, C., & Truant, E. (2017). Sustainability and Mountain Tourism: The Millennial's Perspective. *Sustainability*, 9(7), 1219. DOI: 10.3390/su9071219
- Bramwell, B., & Sharman, A. (1999). Collaboration in local tourism policy making. *Annals of tourism research*, 26(2), 392-415. DOI: 10.1016/S0160-7383(98)00105-4

- Brink, E., Aalders, T., Adam, D., Feller, R., Henselek, Y., Hoffmann, A., Ibe, K., Matthey-Doret, A., Meyer, M., Negrut, N. L., Rau, A.-L., Riewerts, B., von Schuckmann, L., Törnros, S., von Wehrden, H., Abson, D. J. & Wamsler, C. (2016). Cascades of green: a review of ecosystem-based adaptation in urban areas. *Global Environmental Change*, 36, 111-123. DOI: 10.1016/j.gloenvcha.2015.11.003

- Casalegno, C., Giachino, C., & Bertoldi, B. (2019). A New Generation for the Wine Industry. *Micro & Macro Marketing*, 28(1), 49-70.

- Cavagnaro, E., & Staffieri, S. (2015). A study of students' travellers values and needs in order to establish futures patterns and insights. *Journal of Tourism Futures*, 1(2), 94-107. DOI: 10.1108/JTF-12-2014-0013

- Dabija, D.-C., Bejan, B.M., Dinu, V. (2019). How sustainability oriented is generation z in retail? A literature review. *Transformations in Business and Economics*, 18 (2), pp. 140-155.

- Erdeji, I., & Dragin, A. (2017). Is cruising along European rivers primarily intended for seniors and workers from Eastern Europe? *Geographica Pannonica*, 21(2), 115–123

- Escofier, B., & Pagès, J. (2008). *Analyses factorielles simples et multiples: objectifs, méthodes et interprétation*. Dunod.

- European Commission (2015a) *Towards an EU Research and Innovation policy agenda for Nature-Based Solutions & Re-Naturing Cities Final Report of the Horizon 2020 Expert Group on 'Nature-Based Solutions and Re-Naturing Cities'*. Luxembourg: Publications Office of the European Union.

- European Commission (2015b) *Towards an EU Research and Innovation policy agenda for Nature-Based Solutions & Re-Naturing Cities Final Report of the Horizon 2020*

Expert Group on 'Nature-Based Solutions and Re-Naturing Cities' (full version).

Luxembourg: Publications Office of the European Union.

- Expósito-Izquierdo, C., Expósito-Márquez, A., & Brito-Santana, J. (2017). Mobility as a Service. *Smart Cities: Foundations, Principles, and Applications*. Hoboken, NJ: John Wiley & Sons, Inc. <http://dx.doi.org/10.1002/9781119226444.ch15>.
- Felzensztein, C. (2011). The Chilean wine industry: New international strategies for 2020. *Emerald Emerging Markets Case Studies*, 4(2), 1-12.
- Femenia Serra, F., & Neuhofer, B. (2018). Smart tourism experiences: conceptualisation, key dimensions and research agenda.
- Femenia-Serra, F., & Ivars-Baidal, J. A. (2018). Do smart tourism destinations really work? The case of Benidorm. *Asia Pacific Journal of Tourism Research*, 1-20.
- Femenia-Serra, F., Neuhofer, B., & Ivars-Baidal, J. A. (2019b). Towards a conceptualisation of smart tourists and their role within the smart destination scenario. *The Service Industries Journal*, 39(2), 109-133.
- Femenia-Serra, F., Perles-Ribes, J. F., & Ivars-Baidal, J. A. (2019a). Smart destinations and tech-savvy millennial tourists: hype versus reality. *Tourism Review*.
- Ferris, S. P. (2011). Millennials, social networking and social responsibility. In *Virtual Communities: Concepts, Methodologies, Tools and Applications* (pp. 277-291). IGI Global.
- Foot, D. K. (2001). Canadian education: Demographic change and future challenges. *Education Canada-Toronto-*, 41(1), 24-27.
- Forbes (2019). How Generation Z Is Changing Travel For Older Generations. Available at <https://www.forbes.com/sites/geoffwhitmore/2019/09/13/how-generation-z-is-changing-travel-for-older-generations/>

- Frantzeskaki, N. (2019). Seven lessons for planning nature-based solutions in cities. *Environmental Science & Policy*, 93, 101-111.
- Gallenti, G., Troiano, S., Marangon, F., Bogoni, P., Campisi, B., Cosmina, M. (2019). Environmentally sustainable versus aesthetic values motivating millennials' preferences for wine purchasing: evidence from an experimental analysis in Italy. *Agricultural and Food Economics*, 7 (1), art. no. 12. DOI: 10.1186/s40100-019-0132-x
- Gazzola, P., Colombo, G., Pezzetti, R., Nicolescu, L. (2017). Consumer empowerment in the digital economy: Availing sustainable purchasing decisions. *Sustainability (Switzerland)*, 9 (5), art. no. 693. DOI: 10.3390/su9050693
- Giachino, C., Truant, E., Bonadonna, A. (2019). Mountain tourism and motivation: millennial students' seasonal preferences. *Current Issues in Tourism*. DOI: 10.1080/13683500.2019.1653831
- Gilli, M., & Ferrari, S. (2018). Tourism in multi-ethnic districts: The case of Porta Palazzo market in Torino. *Leisure Studies*, 37(2), 146-157.
- Greenacre, M. (2017). *Correspondence analysis in practice*. Chapman and Hall/CRC.
- Haddouche, H., & Salomone, C. (2018). Generation Z and the tourist experience: tourist stories and use of social networks. *Journal of Tourism Futures*, Vol. 4 No. 1, pp. 69-79
- Ho, J. A., Chia, K. W., Ng, S. I., & Ramachandran, S. (2017). Problems and stakeholder responsibilities in island tourism: The case of Tioman Island in Malaysia. *Journal of Hospitality & Tourism Research*, 41(4), 445-474.
- Hoover, E. (2009). The millennial muddle: How stereotyping students became a thriving industry and a bundle of contradictions. *The Chronicle of Higher Education*. Available online: <https://www.chronicle.com/article/The-Millennial-Muddle-How/48772>

- Hopkins, D. (2017). Destabilising automobility? The emergent mobilities of generation Y. *Ambio*, 46(3), 371-383. DOI:10.1007/s13280-016-0841-2.
- Hotelling, H. (1933). Analysis of a complex of statistical variables into principal components. *Journal of educational psychology*, 24(6), 417.
- Hoxha, V. & Zeqiraj, E. (2019). The impact of Generation Z in the intention to purchase real estate in Kosovo. *Property Management*, 38(1), 1-24.
<https://doi.org/10.1108/PM-12-2018-0060>
- Huang, Q., & Lu, Y. (2017). Generational perspective on consumer behavior: China's potential outbound tourist market. *Tourism Management Perspectives*, 24, 7-15.
- Jamal, S., & Habib, M. A. (2020). Smartphone and daily travel: How the use of smartphone applications affect travel decisions. *Sustainable Cities and Society*, 53, 101939.
- Jennings, G. (2010), "Research processes for evaluating quality experiences: reflections from the 'experience field(s)'", in Morgan, M., Lugosi, P. and Ritchie, B.J.R. (Eds), *The Tourism and Leisure Experience: Consumer and Managerial Perspectives*, Channel View Publications, Bristol, pp. 81-98.
- Kabisch, N., Frantzeskaki, N., Pauleit, S., Naumann, S., Davis, M., Artmann, M., Haase, D., Knapp, S., Korn, H., Stadler, J., Zaunberger, K. & Bonn, A. (2016). Nature-based solutions to climate change mitigation and adaptation in urban areas: perspectives on indicators, knowledge gaps, barriers, and opportunities for action. *Ecology and Society*, 21(2). DOI:10.5751/ES-08373-210239
- Kazmierczak, A. (2016) Multifunctional green infrastructure and climate change adaptation: brownfield greening as an adaptation strategy for vulnerable communities? *Planning Theory & Practice*, 17(2), 280-289.

- Keesstra, S., Nunes, J., Novara, A., Finger, D., Avelar, D., Kalantari, Z., & Cerdà, A. (2018). The superior effect of nature based solutions in land management for enhancing ecosystem services. *Science of the Total Environment*, 610, 997-1009. DOI: 10.1016/j.scitotenv.2017.08.077

- Ketter, E. (2020). Millennial travel: tourism micro-trends of European Generation Y. *Journal of Tourism Futures*. DOI: 10.1108/JTF-10-2019-0106

- Kim, H., Lee, S., Uysal, M., Kim, J., & Ahn, K. (2015). Nature-based tourism: Motivation and subjective well-being. *Journal of Travel & Tourism Marketing*, 32(sup1), S76-S96. DOI:10.1080/10548408.2014.997958

- Kotler, P. (2000). *Marketing management, millennium ed.* Prentice Hall.

- Kultalahti, S., & Viitala, R. (2015). Generation Y—challenging clients for HRM?. *Journal of Managerial Psychology*, 30(1), 101-114.

- Lama, A. V. (2018). Millennial leisure and tourism: The rise of escape rooms. *Cuadernos de Turismo*, 41, 743-746. DOI: 10.6018/turismo.41.327181

- Lancaster, L. C., & Stillman, D. (2004). When generations collide: how to solve the generational puzzle at work. In *The Management Forum Series* (pp. 1-5).

- Liberato, P., Aires, C., Liberato, D., Rocha, Á. (2019a). Generation Z and the Technology Use During a Trip. *Advances in Intelligent Systems and Computing*, 930, pp. 77-90. DOI: 10.1007/978-3-030-16181-1_8

- Liberato, P., Aires, C., Liberato, D., Rocha, Á. (2019b). The Destination Choice by Generation Z Influenced by the Technology: Porto Case Study. *Advances in Intelligent Systems and Computing*, 918, pp. 32-44. DOI: 10.1007/978-3-030-11890-7_4

- Line, N. D., & Costen, W. M. (2017). Nature-based tourism destinations: A dyadic approach. *Journal of Hospitality & Tourism Research*, 41(3), 278-300.
- Lissitsa, S., & Kol, O. (2016). Generation X vs. Generation Y—A decade of online shopping. *Journal of Retailing and Consumer Services*, 31, 304-312.
- Liu, H., Wu, L., & Li, X. (2018). Social Media Envy: How Experience Sharing on Social Networking Sites Drives Millennials' Aspirational Tourism Consumption. *Journal of Travel Research*, DOI: 10.1177/0047287518761615
- Loda, M. D., Coleman, B. C., & Backman, K. F. (2010). Walking in Memphis: Testing one DMO's marketing strategy to millennials. *Journal of Travel Research*, 49(1), 46-55. DOI: 10.1177/0047287509336476
- Mandić, A. (2019). Nature-based solutions for sustainable tourism development in protected natural areas: a review. *Environment Systems and Decisions*, 1-20.
- McKinsey (2018). 'True Gen': Generation Z and its implications for companies. Available at <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/true-gen-generation-z-and-its-implications-for-companies>
- Miller, N. J., Yan, R. N. T., Jankovska, D., & Hensely, C. (2017). Exploring US Millennial consumers' consumption values in relation to traditional and social cause apparel product attributes and purchase intentions. *Journal of Global Fashion Marketing*, 8(1), 54-68. DOI:10.1080/20932685.2016.1261040
- Mohsin, A., & Alsawafi, A. M. (2011). Exploring attitudes of Omani students towards vacations. *Anatolia—An International Journal of Tourism and Hospitality Research*, 22(01), 35-46.
- Montana, P. J., & Petit, F. (2008). Motivating Generation X and Y on the job and preparing Z. *Global Journal of Business Research*, 2(2), 139-148.

- Mulvey, M. S., Lever, M. W., & Elliot, S. (2019). A Cross-National Comparison of Intragenerational Variability in Social Media Sharing. *Journal of Travel Research*, 0047287519878511.
- Nenadic, O., & Greenacre, M. (2007). Correspondence analysis in R, with two-and three-dimensional graphics: The ca package. *Journal of statistical software*, 20(3).
- Nesshöver, C., Assmuth, T., Irvine, K. N., Rusch, G. M., Waylen, K. A., Delbaere, B., Haase, D., Jones-Walters, L., Keune, H., Kovacs, E., Krauze, K, Kylvik, M., Rey, F., van Dijk, J., Vistad, O. I., Wilkinson, M. E. & Wittmer, H. (2017). The science, policy and practice of nature-based solutions: An interdisciplinary perspective. *Science of the Total Environment*, 579, 1215-1227. DOI: 10.1016/j.scitotenv.2016.11.106
- Nowak, L., Thach, L., & Olsen, J. E. (2006). Wowing the millennials: creating brand equity in the wine industry. *Journal of Product & Brand Management*, 15(5), 316-323. DOI:10.1108/10610420610685712
- Nunkoo, R., & Gursoy, D. (2017). Political trust and residents' support for alternative and mass tourism: an improved structural model. *Tourism Geographies*, 19(3), 318-339. <https://doi.org/10.1080/14616688.2016.1196239>
- Oktadiana, H., Pearce, P. L., & Li, J. (2020). Let's travel: Voices from the millennial female Muslim travellers. *International Journal of Tourism Research*, <https://doi.org/10.1002/jtr.2355>
- Olsen, J. E., Thach And, L., & Nowak, L. (2007). Wine for my generation: exploring how US wine consumers are socialized to wine. *Journal of Wine Research*, 18(1), 1-18. DOI:10.1080/09571260701526816

- Olya, H. G., & Gavilyan, Y. (2017). Configurational models to predict residents' support for tourism development. *Journal of Travel Research*, 56(7), 893-912.
<https://doi.org/10.1177/0047287516667850>
- Parkins, W. and Craig, G. (2009), "Culture and the politics of alternative food networks", *Food, Culture and Society*, Vol. 12 No. 1, pp. 77-103
- Peira, G., Bollani, L., Giachino, C., & Bonadonna, A. (2018). The Management of Unsold Food in Outdoor Market Areas: Food Operators' Behaviour and Attitudes. *Sustainability*, 10(4), 1180. DOI:10.3390/su10041180
- Przybylski, A.K., Murayama, K., DeHaan, C.R. and Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, Vol. 29 No. 4, pp. 1841-8.
- PWC (2011). Millennials at Work. Reshaping the Workplace. URL: http://www.pwc.ru/en_RU/ru/hr-consulting/publications/assets/millennials-survey.Pdf.
- Raymond, C. M., Frantzeskaki, N., Kabisch, N., Berry, P., Breil, M., Nita, M. R., Geneletti D. & Calfapietra, C. (2017). A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas. *Environmental Science & Policy*, 77, 15-24.
<https://doi.org/10.1016/j.envsci.2017.07.008>
- Richards, G. (2005). ISTC/UNWTO survey on student and youth tourism among national tourism administrations/organizations. *Tendances des Marchés Touristiques édition*, 95-123.
- Richards, G., & Wilson, J. (2004). The international student travel market: Travelstyle, motivations, and activities. *Tourism Review International*, 8(2), 57-67. DOI: 10.3727/1544272042782183

- Rita, P., Brochado, A., & Dimova, L. (2018). Millennials' travel motivations and desired activities within destinations: A comparative study of the US and the UK. *Current Issues in Tourism*, 22 (16), pp. 2034-2050. DOI: 10.1080/13683500.2018.1439902
- Robinson, V.M., Schänzel, H.A. (2019). A tourism inflex: Generation Z travel experiences. *Journal of Tourism Futures*, 5 (2), pp. 127-141. DOI: 10.1108/JTF-01-2019-0014
- Sánchez, F. G., Solecki, W. D., & Batalla, C. R. (2018). Climate change adaptation in Europe and the United States: A comparative approach to urban green spaces in Bilbao and New York City. *Land use policy*, 79, 164-173.
- Schewe, C. D., & Noble, S. M. (2000). Market segmentation by cohorts: the value and validity of cohorts in America and abroad. *Journal of marketing management*, 16(1-3), 129-142.
- Ţchiopu, A. F., Padurean, A. M., Ţală, M. L., & Nica, A. M. (2016). The influence of new technologies on tourism consumption behavior of the millennials. *Amfiteatru Economic Journal*, 18(Special Issue No. 10), 829-846.
- Schoolman, E. D., Shriberg, M., Schwimmer, S., & Tysman, M. (2016). Green cities and ivory towers: how do higher education sustainability initiatives shape millennials' consumption practices?. *Journal of Environmental Studies and Sciences*, 6(3), 490-502. DOI:10.1007/s13412-014-0190-z.
- Scott, M. & Lennon, M. (2016) Nature-based solutions for the contemporary city. *Planning Theory & Practice*, 17(2), 267-270.
- Shulga, L. V., Busser, J. A., & Kim, H. (2018). Generational profiles in value co-creation interactions. *Journal of Hospitality Marketing & Management*, 27(2), 196-217.

- Skinner, H., Sarpong, D., White, G.R.T. (2018). Meeting the needs of the Millennials and Generation Z: gamification in tourism through geocaching. *Journal of Tourism Futures*, 4 (1), pp. 93-104. DOI: 10.1108/JTF-12-2017-0060
- Smith, A. (2018). Generation Z is the most Regretful of all Ages about Missed Travel Opportunities, *Lonely Planet*, 15 May, available at: www.lonelyplanet.com/news/2018/05/14/generation-z-missed-travel-opportunities/ (accessed 23 June 2020)
- Staffieri, S. (2016). L'esperienza turistica dei giovani italiani (Vol. 52). Sapienza Università Editrice.
- Su, C.-H., Tsai, C.-H., Chen, M.-H., Lv, W.Q. (2019). U.S. sustainable food market generation Z consumer segments. *Sustainability (Switzerland)*, 11 (13), 3607. DOI: 10.3390/su11133607
- Tavares, J.M., Sawant, M., Ban, O. (2018). A study of the travel preferences of generation Z located in Belo Horizonte (Minas Gerais - Brazil). *e-Review of Tourism Research*, 15 (2-3), pp. 223-241.
- Taylor Jr, S., & DiPietro, R. B. (2018). Generational perception and satisfaction differences related to restaurant service environment. *International Journal of Hospitality & Tourism Administration*, 19(4), 374-396.
- Thrane, C. (2008). The determinants of students' destination choice for their summer vacation trip. *Scandinavian Journal of Hospitality and Tourism*, 8(4), 333-348. <https://doi.org/10.1080/00220620802588797>
- Tomalty, R., & Mallach, A. (2015). *America's urban future: Lessons from north of the border*. Island Press.

- Tsai, T.-H., & Chen, C.-M. (2019). Mixed logit analysis of trade-off effects between international airline fares and fences: A revenue management perspective. *Current Issues in Tourism*, 22(1), 265–275.
- Van den Bosch, M., & Sang, Á. O. (2017). Urban natural environments as nature-based solutions for improved public health—A systematic review of reviews. *Environmental Research*, 158, 373-384. DOI: 10.1016/j.envres.2017.05.040
- Veiga, C., Santos, M. C., Águas, P., & Santos, J. A. C. (2017). Are millennials transforming global tourism? Challenges for destinations and companies. *Worldwide Hospitality and Tourism Themes*, 9(6), 603–616.
- Velčovská, Š., & Hadro, D. (2018). Generation Y Perceptions and Expectations of Food Quality Labels in the Czech Republic and Poland. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 66(1), 325-334.
<https://doi.org/10.11118/actaun201866010325>
- Weiler, A. (2005). Information-seeking behavior in generation Y students: Motivation, critical thinking, and learning theory. *The journal of academic librarianship*, 31(1), 46-53.
- Willems, K., Brengman, M., Van Kerrebroeck, H. (2019). The impact of representation media on customer engagement in tourism marketing among millennials. *European Journal of Marketing*, 53 (9), pp. 1988-2017. DOI: 10.1108/EJM-10-2017-0793
- Wondirad, A., & Ewnetu, B. (2019). Community participation in tourism development as a tool to foster sustainable land and resource use practices in a national park milieu. *Land use policy*, 88, 104155
- Xu, F., Morgan, M., & Song, P. (2009). Students' travel behaviour: a cross-cultural comparison of UK and China. *International Journal of Tourism Research*, 11(3), 255-268. DOI: 10.1002/jtr.686

- Yoka, R. (2014). The greening of the parking industry—best practices, and a new certification program for parking structures. *Journal of Green Building*, 9(4), 61-77.

DOI:10.3992/1943-4618-9.4.61.

Appendices

Variables	Items	Descriptions	Distributions per Type
sex.age	sex.age=M.18_22	Male Generation Z – 18–22y	0.1698
	sex.age=F.18_22	Female Generation Z – 18–22y	0.3597
	sex.age=M.23_29	Male Generation Y – 23–29y	0.1510
	sex.age=F.23_29	Female Generation Y – 23–29y	0.2612
	sex.age=M.30_37	Male Generation Y – 30–37y	0.0220
	sex.age=F.30_37	Female Generation Y – 30–37y	0.0363
NBS	NBSheard=NBSheard.yes	I have heard about it	0.1173
	NBSheard=NBSheard.no	I know nothing about it	0.8827
	NBSquant=NBSquant_High	NBS are very important	0.6364
	NBSquant=NBSquant_Med	NBS are of average importance	0.3143
	NBSquant=NBSquant_Low	NBS are not important	0.0493
	NBSsturin=NBSturin.yes	I know that there are NBS in Turin	0.2359
	NBSsturin=NBSturin.no	I know that there aren't any NBS in Turin	0.0927
	NBSsturin=NBSturin.?	I'm not sure if there are any NBS in Turin	0.6714
	NBSpast_tourism=NBSpast_tourism.yes	I have chosen a holiday on the basis of there being an NBS	0.1439
	NBSpast_tourism=NBSpast_tourism.no	I have never chosen a holiday on the basis of there being an NBS	0.4731
	NBSpast_tourism=NBSpast_tourism.unawares	Maybe I went to a resort with NBS, but I am not sure	0.3830

	NBSnow_tourism=NBSnow_tourism.yes	Currently, I plan my holidays on the basis of there being NBS	0.6727
	NBSnow_tourism=NBSnow_tourism.no	Currently, I do not plan my holidays on the basis of there being NBS	0.0862
	NBSnow_tourism=NBSnow_tourism.?	Currently, I don't know if I will plan my holiday on the basis of there being NBS	0.2411
	NBSwe_tourism=NBSwe_tourism.yes	NBS could be a good idea for a weekend trip	0.6630
	NBSwe_tourism=NBSwe_tourism.no	NBS are not a good idea for a weekend trip	0.0415
	NBSwe_tourism=NBSwe_tourism.if.it.happens	NBS might be a good idea for a weekend trip	0.2955
GREENCROWN	GREENCROWNquant=GrCr_Ecosystem.sensible	The Green Crown Project is useful for the ecosystem and human culture	0.7991
	GREENCROWNquant=GrCr_Crops.sensible	The Green Crown Project is useful for water, soil and agricultural activities	0.2009
	GrCr_staying_more_days=GrCr_more_days.yes	The Green Crown Project is a good idea for planning a short holiday	0.3850
	GrCr_staying_more_days=GrCr_more_days.no	The Green Crown Project is not a good idea for planning a short holiday	0.6150
	GrCr_be_there_in_person=GrCr_been_there.yes	I have been to the Green Crown Area	0.3292
	GrCr_be_there_in_person=GrCr_been_there.no	I have never been in the Green Crown Area	0.4154
	GrCr_be_there_in_person=GrCr_been_there.?	Maybe I have been to the Green Crown Area, but I didn't know it was called that	0.2553
	GrCrDora=GrCrDora.yes	I have been there (Dora)	0.5638
	GrCrDora=GrCrDora.no	I have never been there (Dora)	0.4362
	GrCrLanzo=GrCrLanzo.yes	I have been there (Lanzo)	0.2126
	GrCrLanzo=GrCrLanzo.no	I have never been there (Lanzo)	0.7874

GrCrPo=GrCrPo.yes	I have been there (Po)	0.8788
GrCrPo=GrCrPo.no	I have never been there (Po)	0.1212
GrCrSangone=GrCrSangone.yes	I have been there (Sangone)	0.1970
GrCrSangone=GrCrSangone.no	I have never been there (Sangone)	0.8030
GrCrResidOutTo=GrCrResidOutTo.yes	I have been there (The Savoy Family Castles in the Province of Turin)	0.7388
GrCrResidOutTo=GrCrResidOutTo.no	I have never been there (The Savoy Family Castles in the Province of Turin)	0.2612
GrCrResidTo=GrCrResidTo.yes	I have been there (the Savoy Family Castles in Turin)	0.8134
GrCrResidTo=GrCrResidTo.no	I have never been there (the Savoy Family Castles in Turin)	0.1866

Table A.1. Variables used in the MCA analysis, item labels and related description.

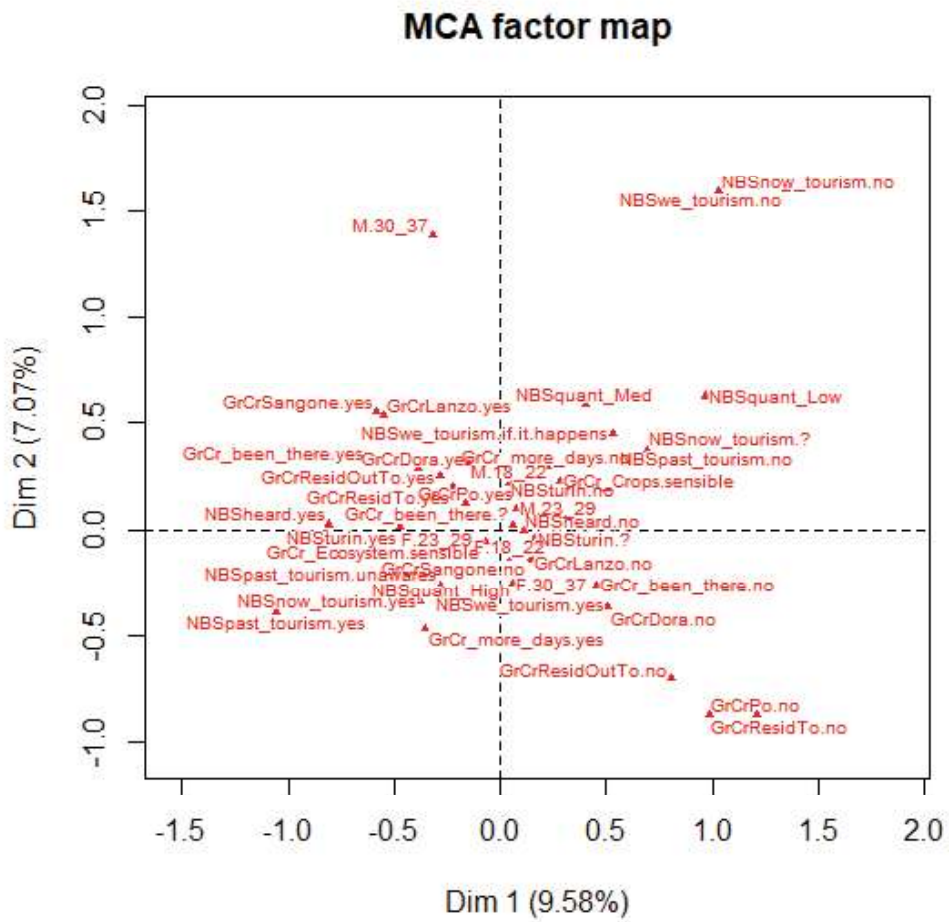


Figure A.1. MCA factor map