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Value Co-creation, Collaborative Consumption and Willingness to Pay within the Tourism Industry: A Meta-Regression Analysis

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Abstract

Value co-creation in tourism industry represents an opportunity both to exchange experiences and strengthen the relationship between producers and consumers. Value co-creation concern also environmental issues. People are willing to pay a premium price to share utilities since they develop sustainable and environmentally friendly strategies and permit to co-create value. Sharing consumption facilitates the collaborative behavior enhancing value co-creation. A meta-regression analysis of stated preferences was conducted to estimate willingness to pay (WTP) for environmental concerns, sharing and collaborative consumption, value co-creation within the tourism industry. The analysis accounted for the differences in the elicitation format, such as contingent valuation as well as choice experiment. The results showed that there is a strong relationship between value co-creation and willingness to pay a premium price for shared consumption. Particularly, car-sharing, value co-creation and CO₂ emissions have positive significant effects on WTP.

JEL Classification: *Z3, Q5, Q56, D16*

Keywords: *Environmental sustainability, Sharing and collaborative consumption, Tourism, Value co-creation, Meta-regression, Willingness to pay*

Affiliations and acknowledgments

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1 Introduction

This study concerns the willingness to pay a premium price to co-create value by sharing tourism experiences enhancing environmental sustainability. Tourists are willing to pay for sharing consumption. This is because they want to participate to the value co-creation process. The production of co-created value is considered as an element characterizing the travel experience. Value co-creation may concern different issues as environmental sustainability, give, and get opinions, social life, and collaborative behavior. Thus, collaborative and sharing consumption might be identified as new ways to co-create value affecting environmentally sustainable tourism.

The tourist feels the need to co-create value through his travel experience as well as tourism producer offers them a value proposition. This new relationship has led to more frequent sharing and collaborative strategies. Moreover, the value co-creation increases when the sharing experience is environmentally friendly concerned. During this sharing process, tourists generate value, which is perceived as a benefit, utility, and emotional bond (Woodruff, 1997). This value represents a criterion for making choices and judgments. The sharing value includes characteristics like: “temporary access”, nonownership and redistribution of material goods” (Kathan *et al.*, 2016, p.663). The customer perception of economic value is defined as the maximum price that customers are willing to pay (Hinterhuber, 2004). It has been used as a conversion method to value customer experience (Lau *et al.*, 2013). There is a linkage between co-creation activities and tourists’ WTP a premium price influenced by the co-created value in the sharing economy (Zhang *et al.*, 2018). It should be noted that natural characteristics are considered non-market goods because there is no conventional market for measuring the actual supply and demand for them. Therefore, it is possible to create, through WTP, a hypothetical market where environmental goods might be valued and then saved (Willis, 1989). Tourism consumption value is the ultimate factor that explains tourist preferences for “service attributes, attribute performances, and consequences” and purchasing behaviors (Woodruff, 1997, p.142). Shared experiences constitute an important role in tourism demand. Thus, the tourists are willing to pay a premium price when they positively recognize such experiences. This experience is co-created through the relationships between companies and customers and consumer -consumer (Saarijärvi *et al.*, 2013). Tourists move everywhere to meet other people and spend time together (Huang and Hsu, 2010; Prebensen and Foss, 2010). During their travels, they establish social relationships and co-create “value” (Wilks, 2011). Co-creation is a new paradigm, in which the interaction among people allows to create value. The interaction helps to develop new business opportunities and to improve the travel experience. Customer value may represent a more personalized and holistic experience since it is a subjective assessment of both positive and negative service renderings.

There is a link between sharing consumption and customer value proposition based on free peer-to-peer sharing of goods and services facilitated by on-line platforms. Sharing activities involves collaborative creation, production distribution and consumption (Schor, 2014).

The paper uses a meta-regression analysis (MRA) to determine how important the value co-creation is and how it influences tourists’ willingness to pay for a premium price to share environmentally friendly consumption experience. MRA is the systematic review of empirical economic evidence on given hypotheses and phenomena (Stanley *et al.*, 2013). MRA is useful to integrate econometric evaluation, usually regression coefficients. This study may contribute, theoretically, to the literature on the collaborative and sharing consumption, focusing on value co-creation and its relationship with the willingness to pay a premium price for environmentally

friendly practices. Moreover, it helps entrepreneurs in the sharing economy to define different kinds of value co-created by their services. Analysis results offer implications for further research and practice.

2 Literature Review

In a hypercompetitive market based on immaterial consumption's features, the tourism ecosystem provides a plethora of experiences (Hunter *et al.*, 2015) created and shared innovatively through technologies. Tourism is a global market where services are exchanged. Services involve goods, information and technology (Ge *et al.*, 2019), which represent the products provided by tourism enterprises to customers. The value of tourism products comes from the collaborative behaviour as well as from the sharing consumption. In such a way, tourism is a dynamic ecosystem characterized by relationships between producers and customers and between customer and customer to contribute to the sustainable competitive advantage in the long run (Gretzel *et al.*, 2015).

The analysis is conducted through the research of terms like "sharing and collaborative consumption", "value co-creation", "willingness to pay" and "environmental sustainability". The literature review, therefore, is divided in different paragraphs showing the meaning of these topics.

Sharing and collaborative consumption

According to Belk (2007) (p.126) sharing regards "the process of distributing what is ours to others for their use and the process of receiving or taking something from others for our use". Sharing and collaborative consumption affect the tourism industry (Hamari *et al.*, 2015) and they are expected to be ecologically sustainable (Prothero *et al.*, 2011). Sharing consumption is thought to be a successful activity, able to reduce greenhouse gas emissions as well as to increase tourism experience. Hence, it can relate to sustainability and represents an environmentally friendly practice (Pricewaterhouse International Ltd., 2015). Sharing consumption as car-sharing or bike-sharing, for example, leads to cost savings by eliminating traffic accidents, on-street parking, can be reduced with less air pollution and greenhouse gas emissions will decrease (Fagnant and Kockelman, 2015; Burns, 2013). Moreover, it has particular characteristics like non-ownership, temporary access (Kathan *et al.*, 2016) and also affordability, sense of community and trust between suppliers and customers (Pricewaterhouse International Ltd., 2015; Kathan *et al.*, 2016). Therefore, throughout sharing and collaborative consumption, tourists activate value as well as enhancing sustainability.

Value co-creation

Co-creation is a "collaborative and peer-like process of producing a new value, both materially and symbolically" (Galvagno and Dalli, 2014, p. 645). According to the service marketing theory (Grönroos, 1982), the interaction between service users and providers contribute to the value co-creation, enhancing tourist well-being (Grönroos, 2011; Saarijärvi *et al.*, 2013), contrary to the traditional marketing theory, which affirms that consumption destroys value. Co-creation is based on participatory and interactive experience (Prahaland and Ramaswamy, 2004). Collaboration strategies allow mutual benefits, helping the value co-creation process through tourist experience (Gretzel *et al.*, 2015). Moreover, when tourists co-create their

own experience (Prebensen and Foss, 2010), their satisfaction is positively affected by their vacation experiences (Mathis *et al.*, 2016). Tourists participating in co-creating value process are more satisfied than passive agents (Navarro *et al.*, 2016). The value co-creation comes from a “joint production process” (Zhang *et al.*, 2018, p. 2), which occurs indirect interactions between customers and service providers as well as among customers to customers. It arises through the application of resources provided by firms to consume the services, improving tourists’ well-being (Grönroos, 2011; Saarijärvi *et al.*, 2013). Social innovations enabling sharing consumption to fulfil its sustainability through a new model of value co-creation. Tourists take advantage of sharing services and help to solve environmental problems promoting sustainable consumption and value co-creation to contribute sustainable urban living (Lan *et al.*, 2017). Furthermore, access-based consumption has lower ecological footprints rather than ownership-based consumption as well as being cheaper and easier to maintain (Schaeffers *et al.*, 2016; Lawson *et al.*, 2016). The co-created value is considered as a functional, emotional, and social component. Thus, the co-created value may assume different meaning:

- improving tourism experience through innovation.
- generating less environmental pollution.
- enhancing environmentally friendly and sustainable practices for the tourism industry.
- rewarding ethical behaviour of a firm.
- leading to costs savings

Interaction and value co-creation

Sharing and collaborative consumption (Belk, 2014; Hamari *et al.*, 2015) retrieve to value co-creation through interaction (Grönroos, 2011; Gronroos and Voima, 2013; Saarijärvi *et al.*, 2013; Vargo *et al.*, 2008). Customers perceive co-created values through the interaction and increase their willingness to pay a premium price. Interaction supports collaborative behaviour, less demand for consumer goods let helps “a new economy that could help take on problems such as pollution and excessive energy usage” (Prothero *et al.*, 2011, p. 36). Innovative experience for tourists is co-created through interaction, for instance, Airbnb introduced a matching system that is based on personalization and memorable experience. It is possible to collect tourists’ preferences and match them with the hosts and experiences that meet their needs (Roderick, 2016).

Value co-creation and environmental sustainability

The value co-creation for environmental sustainability suggests that providers interact with customers to improve mutual values as well as to enhance the natural capital’s value. The environmental advantages linked to the value co-creation, due to the sharing consumption refer to “lower overall resource deployment”, and extended product life spans (Kathan *et al.*, 2016). Sharing systems users consider sustainability aspects as an added value that comes from the co-creation process, with the more important utilitarian advantages. Sharing helps to reduce environmental harm. Environmental practices may be considered as an ancillary service that provides intangible benefits to guests (Kang *et al.*, 2012; Manaktola and Jauhari, 2007). It means that value co-creates tourists’ psychological-emotional need for “self-esteem” (Sen and Bhattacharya, 2001). The ethic of a firm assumes importance for tourists’ purchasing decisions. Customers, in general, show positive attitudes towards a firm that engages in a case of concern to customers (Simon, 1995). Tourists are willing to pay a premium price to reward ethical

behavior of entrepreneurs. There is empirical evidence about the relationship between tourists' concern for the environmental issues and willingness to pay a premium for green initiatives for the tourism industry (Kang *et al.*, 2012; Dutta *et al.*, 2008; Bhattacharya and Sen, 2004; Huber *et al.*, 2001).

The willingness to pay for value co-creation in sharing consumption

The willingness to pay (WTP) represents the maximum price a tourist is willing to pay to obtain a specified good or service (Smith, 1994). Tourists are willing to pay a premium price to co-create value sharing goods and services. Moreover, people seem to be interested to pay more for adopting collaborative and sharing services (Hao *et al.*, 2019). Tourists improve their WTP a price for their experience since they perceive co-created values coming from their interaction. Therefore, the possibility to co-create value is considered a positive element for which, users are willing to pay the maximum price. According to Wosskow (2014), people are willing to pay when they have a positive experience with a sharing consumption or when there is a strong relationship between customers' perceived value and WTP (Li *et al.*, 2012) or because of a positive effect of functional and social values on WTP (Li *et al.*, 2013). Thus, when the perceived value is high, the price, tourists are willing to pay, will be high (Zhang *et al.*, 2018). Some studies show how spending money on experiences makes tourists happier than material purchase does. According to Li *et al.* (2013) and Mohammadyan *et al.* (2015) tourists' WTP a premium price can be positively influenced by functional values during the consumption. WTP can be used to measure "different kinds of values since it enables comparisons among emotional experiences" (Zhang *et al.*, 2018, p. 2). Phenomena as Airbnb, Car2go and EatWith, for instance, facilitate emotional experiences through the interaction between users and providers (Ikkala and Lampinen, 2015; Edelman and Luca, 2014). Furthermore, WTP was used to address value, in this regards Lau *et al.* (2013) used WTP to analyse customer experience, since it can quantify the "trade-offs between purchases implied in pricing and comparisons among emotional experiences" (Zhang *et al.*, 2018, p. 52).

3 Study Methods

Search strategy

A meta-regression analysis (MRA) was conducted by this study. This methodology represents a systematic review of empirical evidence on phenomena, effect, and hypotheses. It is a powerful method for providing information concerning the relationship of interest through a combination of results, coming from a plethora of studies (Stanley and Jarrell, 1989). MRA is designed to integrate economic estimates like regression coefficients (Stanley *et al.*, 2013), more precisely, it uses differences across studies as explanatory variables in a regression model to explain the effect of interest (Alston *et al.*, 2000). The meta-regression analysis achieves estimates from multiple kinds of research to improve parameters, valuations obtained from single research (Stanley, 2008). It permits to have a proxy for the true WTP effect. Hence, it needs a clear approach to search for relevant literature. For this reason, the meta-analysis of economics research reporting guidelines (Stanley *et al.*, 2013) was followed. Some difficulties occurred since there are not so many studies and research about willingness to pay for sharing consumption and value co-creation within environmental tourism scenario. According to Heckman (2011), scientific journals withhold information as well as noising and misinformation. The research

activity may produce disparities among estimates of economic parameters; therefore, it is necessary a systematic and unbiased analysis of the literature just to see how key parameters vary (Stanley *et al.*, 2013). Meta regression is like simple regression where an outcome variable is predicted to the values of one or more explanatory variables.

The WTP within the meta regression analysis

WTP was considered as well as contingent valuation and choice experiment. The WTP measure coming from contingent valuation analysis is a not ambiguous estimate; while choice experiment usually estimates marginal values (Ma *et al.*, 2015). To facilitate a comparison of the figures, they were converted in euros and corrected to the 2018 prices by the purchasing power equal (parity) exchange rates, available from the OECD website.¹ Not many studies concern the willingness to pay for sharing and collaborative consumption in the tourism industry. Besides, there is an increasing number of studies exploring willingness to pay for climate change adaptation planning as well, as for environmental conservation plans and nature-based tourism. In this research, tourists' willingness to pay a premium price to foster value co-creation through the sharing consumption is the "effect size". It means how much more tourists are willing to pay per unit of goods and services shared.

The keywords assessment

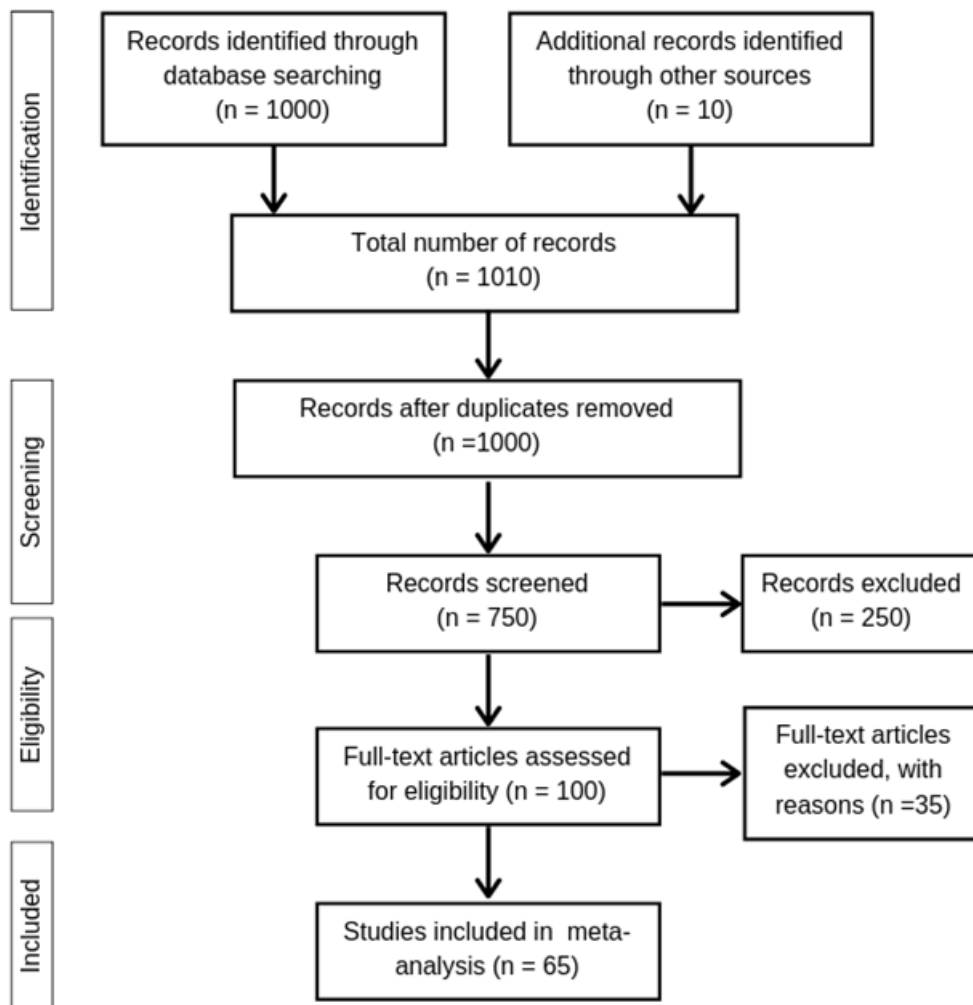
Information on tourists' WTP, sharing consumption, value co-creation and environmental concern were collected through a reporting protocol suggested by (Ma *et al.*, 2015) and Stanley *et al.* (2013). The combination of keywords used to collect information and to carry out the research related to "willingness to pay", "environmental concerns", "sharing and collaborative consumption", "value co-creation" and "tourism". Boolean strings were used as well as keywords combination with operators as "AND"/"OR" to achieve relevant results. The research takes into consideration titles, abstracts and article keywords. After they were paired with search terms to reflect sharing consumption as well as value co-creation within environmental tourism.

The meta-regression models

The paper uses a statistical analysis to test the effect of more continuous predictors on the dependent variable in term of average effect size. The meta-regression uses three models. All of them represent interaction among explanatory variables and the willingness to pay (WTP). WTP is the dependent variable for an increase of the sharing consumption. All the explanatory variables were selected since they emphasize state-level effects on the stated WTP. All the models explain the variables' effects on WTP. Models two and three differ from model one since model two takes into consideration an interaction between "contingent valuation" and "online survey" and the model three uses interactions with variables as "sharing care" and "personal".

Some explanatory variables are dummies, such as knowledge, age, education, income, CV, and CE. A dummy variable is a numeric variable that represents categorical data, such as gender and race, for instance. Technically, a dummy variable is a quantitative dichotomous variable, and its range of value is small and may assume two values: 1 or 0, where 1 represents the presence of a qualitative attribute and 0 the absence.

¹ See: <https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm>.

Figure 1: *Flow Diagram (adapted from PRISMA, 2009)*

Source: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 6(7): e1000097. doi:10.1371/journal.pmed1000097

Data collection

Primary studies were collected by on-line databases in Google Scholar, Researchgate, Taylor& Francis and Elsevier websites. The PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) flow diagram was used (Figure 1). It represents a tool usually used to report search findings (Moher *et al.*, 2010). To reduce the likelihood of errors in the data processing, each article listed in Table 1 was read by the author and two colleagues. The search collected 100 primary studies, but only those that estimated WTP for environmental concern, sharing consumption and value co-creation, as well as tourism were used for further analysis. Studies were included in the review only if they were published in a peer-reviewed scientific journal or book with a double-blind referee, in the English language. The update covered the search between 1st January 2006 and June 2019. Studies were discarded when figures on WTP were missing or not comparable and because the information was not useful for this work. At the end of the selection, only 65 studies were included for the analysis, of which 43 concern

the relationship among WTP, environmental concern and tourism: 22 regard WTP, value co-creation, sharing consumption, environmental issue, and tourism. The remaining thirty-six studies do not meet the criterion of a uniform interpretation for different reasons. These studies do not yield individual WTP measure for the attribute. Contingent valuation (CV) and choice experiment (CE) were the stated preferences for valuation techniques used in the studies collected. The most common method used in the studies was a CV, accounted for 28, while CE accounted for 15 observations. They are listed in Table 1, which shows a chronological view of the sixty-five papers included in the meta-regression analysis. It is possible to read authors' names, year of publication, source, journals or books, a subject considered, as WTP, value co-creation, sharing and collaborative consumption, tourism, environmental concern, and valuation technique used. The dependent variable (known as effect size) standardizes findings across the paper to directly compare them.

The overall mean WTP was found to be of 8,02 euros. However, the dataset used in this study contained observations aiming at exploring premiums for environmental concern, sharing consumption and value co-creation. The difficulty in retrieving further information is due to the scarcity of research in this context. Therefore, it should be noted that there is a need to increase the number of studies on willingness to pay for sharing consumption since there are not many.

4 Econometric analysis

Value co-creation represents an important component of the sharing consumption. Many services started to offer this kind of opportunity, from car to accommodation facilities. Tourism became a sector within sharing consumption utilities increased in the last five years. The literature on the subject presents many approaches for modelling regressions, for instance, using weighted least square (WLS) panel models. This kind of model is used commonly in ecosystem evaluation analysis since it might take into consideration individual effect (Greene, 2003). Cameron and Trivedi (2005), about this, assumed that studies count in the dataset and estimate models by using ordinary least square as well as Grilli *et al.* (2017) used weighted least square regression to study renewable energy and willingness to pay. This research uses a weighted least squares (WLS) regression model. Following Grilli *et al.* (2017), sampling weight was assigned to give greater weight to fewer observations. The dependent variable is WTP per month for an increase in the share of utilities (car, accommodation, restaurant). The explanatory variables are shown in Table 2. Variables were selected on the base of other previous studies, which observed variables on WTP (Ma *et al.*, 2015; Sundt and Rehdanz, 2015; Grilli *et al.*, 2017). The variable "CO₂ emissions" was tested so as "sharing consumption" and "value co-creation". "Knowledge", "age", "education" and "income" were included in the study to better understand their explanatory power. They are dummies variables to control the variables included in the primary study. The software used to make regression was Stata 12, since its application permits to produce robust standard errors using WLS.

Table 1: *Primary Studies included in the meta-regression analysis*

Author	Year	Source	Subject	Method
Adhikari	2019	Theoretical Economics Letters	WTP, VCC, SC, T	CV
Agag	2019	International Journal of Contemporary Hospitality Management	WTP, VCC, SC, T	CV
Alemu et al.	2019	Ecological Economics	WTP, EC, T	
Assiouras	2019	Annals of Tourism Research	WTP, VCC, SC, T	CV
Barros & Sousa	2019	International Journal of Marketing, Communication and New Media	WTP, EC, T	CV
Bigerna et al.	2019	Journal of Cleaner Production	WTP, EC, T	CV
Brouwer & Sergev	2019	Master Thesis University of Greenwich	WTP, EC, T	CV
Budenau	2007	International Journal of Consumer Studies	WTP, EC, T	CV
Bujosa	2018	Ecological Economics	WTP, EC, T	
Busser & Shulga	2019	International Journal of Contemporary Hospitality Management	WTP, VCC, SC, T	CV
Campbell & Smith	2006	Environmental Management	WTP, EC, T	CV
Carlson et al.	2019	Journal of Retailing and Consumer Services	WTP, VCC, SC, T	CV
Chen	2019	International Journal of Environmental Research and Public Health	WTP, EC, T	
Chen & Chen	2019	Sustainability	WTP, EC, T	
Clauss et al.	2019	Review Managerial Science	WTP, VCC, SC, T	CV
da Costa & Hernandez	2019	HAL WTP, EC, T		
Eustice et al.	2018	Tourism Management	WTP, EC, T	
Gregg & Wheeler	2018	Journal of Environmental Management	WTP, EC, T	CV
Grilli et al.	2018	Ecological Economics	WTP, EC, T	
Heo et al.	2015	International Journal of Hospitality Management	WTP, VCC, SC, T	CV
Jiang	2019	International Journal of Hospitality Management	WTP, VCC, SC, T	CV
Kang et al.	2012	International Journal of Hospitality Management	WTP, EC, T	CV
Kim	2018	Sustainability	WTP, EC, T	
Le et al.	2018	Tropical Information Science	WTP, SC, T	CV
Lee et al.	2019	Asia Pacific Journal of Tourism Research	WTP, EC, T	
Liu et al.	2019	Ocean & Coastal Management	WTP, EC, T	CV
Liu et al.	2019	Sustainability	WTP, EC, T	
Lu et al.	2018	Ecological Economics	WTP, EC, T	CV
Mäntymaa	2018	Journal of Environmental Planning and Management	WTP, EC, T	
Marusic et al.	2018	Turizam	WTP, EC, T	CV
Maynard et al.	2019	Water	WTP, EC, T	CV
McCreary et al.	2018	Journal of Park & Recreation Administration	WTP, EC, T	CV
Mohamad et al.	2018	International Journal of Economics and Management	WTP, EC, T	
Morosan & De-Franco	2019	International Journal of Contemporary Hospitality Management	WTP, VCC, SC, T	CV
Murphy et al.	2018	PlosONE WTP, EC, T	CV	
Nannan et al.	2018	Tourism Economics	WTP, EC, T	
Ngoc	2019	Ecosystem services	WTP, EC, T	CV
Nilashi et al.	2019	Journal of Cleaner Production	WTP, VCC, SC, T	CV
Notaro et al.	2019	Landscape Research	WTP, EC, T	

Table 1: (continues) *Primary Studies included in the meta-regression analysis*

Author	Year	Source	Subject	Method
Pakhtigian & Jeuland	2019	Ecological Economics	WTP, EC, T	CV
Pedroso & Kung'u Portales	2019	Journal of Sustainable Tourism	WTP, EC, T	CV
	2019	Social Innovation and Social Entrepreneurship (Book)	WTP, VCC, SC, T	CV
Ritchie et al.	2019	Journal of Sustainable Tourism	WTP, VCC, SC, T	CV
Ruiz-Alba	2019	International Journal of Hospitality Management	WTP, VCC, SC, T	CV
Saayman & Saayman	2019	South Africa Journal of Economic and Management Sciences	WTP, EC, T	CV
Saengsupavanich	2019	Ocean & Coastal Management	WTP, EC, T	CV
Salem	2012	Sustainability	WTP, EC, T	CV
Sardana	2018	Ecological Economics	WTP, EC, T	CV
Shen	2019	Sustainability	WTP, EC, T	CV
Shin et al.	2019	Journal of Quality Assurance in Hospitality & Tourism	WTP, EC, T	CV
Sonnenschein & Smedby	2019	Climate Policy	WTP, EC, T	CV
Sugathan & Ranjan	2019	Journal of Business Research	WTP, VCC, SC, T	CV
Taheri et al.	2019	The Service Industry Journal	WTP, VCC, SC, T	CV
Thapa & Parent	2018	Current Issues in Tourism	WTP, EC, T	CV
Tussyadiah	2015	Information & Communication Technologies in Tourism (Book)	WTP, VCC, SC, T	CV
Wang & Nicolau	2017	International Journal of Hospitality Management	WTP, VCC, SC, T	CV
Wang et al.	2019	Journal of Environmental Economics and Policy	WTP, EC, T	CV
Wang et al.	2019	Journal of Cleaner Production	WTP, VCC, SC, T	CV
Witt	2019	Sustainability	WTP, EC, T	CV
Wolters et al.	2019	The Social Science Journal	WTP, EC, T	CV
Xuan & Armstrong	2018	Environmental and Resource Economics	WTP, EC, T	CV
Yu	2018	Sustainability	WTP, EC, T	CV
Zhang et al.	2018	International Journal of Hospitality Management	WTP, VCC, SC, T	CV
Zhou et al.	2019	Sustainability	WTP, VCC, SC, T	CV
Zhu et al.	2019	Cairns, QLD: Central Queensland University	WTP, VCC, SC, T	CV

Fonte: Author elaboration from Google Scholar, Researchgate, Taylor&Francis and Elsevier web sites, 2019

Table 2: *Explanatory variables within meta-regressions*

Variable	Descriptions	Mean	Min	Max
CO ₂	Annual CO ₂ emissions	12.87	0.28	19.52
Sharing consumption	Sharing consumption	18.25	1.35	90.83
Share car	Car sharing in the country (Mod 3)	12.56	1.12	91.25
Value co-creation	Value co-creation	11.86	0.23	19.62
Knowledge	1 = knowledge of SC included in the model 0 = not included	0.27	0	1

4.1 The regression models

The regression model can be assumed through the following formula:

$$\ln(wtp) = \alpha + \beta_i X_i + \epsilon \quad (1)$$

where $\ln(wtp)$ is the natural log average monthly willingness to pay, α is a constant term, β_i is the coefficient to be estimated, X_i is a vector of independent variables and ϵ is the error term.

The Variance Inflation Factor (VIF) was calculated to check multicollinearity. It can produce large standard errors as well as wrong signs when there are highly correlated regressors, so to affect the model (Mahieu *et al.*, 2015).

Three regression models were used (Table 3): the first model was able to a simple basic specification, the second one introduced an interaction term and the third one considered two more explanatory variables to the first specification.

The model 2 introduces an interaction between “CV” and “online” dummy variable, while the model 3 includes “sharing car” and “personal” variable. The last one because the questionnaire was administered face to face. VIF did not highlight multicollinearity problems.

4.2 Results

All the models' used show coherence. Sharing consumption, car-sharing and value co-creation are significant across models. It means that all of them have positive significant effects on WTP. It is the same also for CO₂ emissions, which is significant in all the models. Meta-regression results, highlighted in Table 3, confirm that people wish to share consumption, particularly car-sharing, and they consider value co-creation as a component of sharing consumption, for which they are willing to pay a premium price. The coefficient for value co-creation is positive and statistically significant in all the models as well as for environmental concerns. It means that they are positively related to WTP. This result indicates that if value co-creation throughout sharing consumption is clearly stated in the survey, the probability to have a higher willingness to pay enhances. The result could be originated by the increased level of sharing and collaborative consumption as well as an environmental concern within the tourism industry, making people willing to pay more both for saving the environment and improving

tourist experience. The variables “knowledge”, “education” and “income” are dummies and significant because of their explanatory power is high. Knowledge and education influence WTP: more educated and acknowledged people are aware of sharing consumption since its powerful linkage with environmental problems. The variable “age” relates positively to WTP since older people may benefit from sharing consumption and value co-creation as well as young people. It demonstrates the importance of demographic profile, which must be always considered in this kind of study. Model 3 highlights the highest R^2 in a 0.57 value, while it shows the lowest values 361.6 in AIC (Akaike Information Criterion) and 419.7 in BIC (Bayesian Information Criterion). Thus, it is preferred to the other models. It means that sharing consumption as well as value co-creation and dummy should be able to explain the level of WTP. The CV is significant just in model 3. CV coefficients are not significant in both models 1 and 2, which means no statistical differences between CV and CE do exist. The result confirms the Mann Whitney test.

The interaction in the model 2 between “CV” and “online” variable means that CV conducted online presents explanatory significance for WTP. In the model 3 two interactions are considered, between “CV” and “personal” variables and between “sharing consumption” and “share car”. The first one shows that face to face interview has a lower WTP, since it, whatever assumes negative coefficient, it is statistically significant. The “sharing consumption” positively affects WTP, this effect becomes negative in the model 3 since it includes “share car” variable that is positive and significant. This probably because car sharing became popular in sharing consumption and it is high correlated with it, such to determine a big shift in its coefficient.

Three WLS meta-regression model specifications were presented. The adjusted R^2 value increases from model 1 to model 3, respectively going from 0.46 to 0.52. The WLS models provide the analysis showing how differences in valuation methodology, study design, and differences among respondents influence the value estimates. The estimated model might serve as a value function for benefit transfer. Value transfer is becoming important both in the academic and political scenario because it permits a monetary assessment if primary studies are not feasible due to time as well as financial constraints.

5 Discussion

The analysis faced in this study shows that sharing consumption, facilitating collaborative behaviour, favours the value co-creation. People are willing to pay a premium price to share utilities to develop sustainable and environmentally friendly strategies. Willingness to pay for the environmental concerns, sharing and collaborative consumption, value co-creation within the tourism industry is demonstrated since all the models show high scores for the variables considered. WTP for sharing utilities and collaborative consumption reveal public preferences for value co-creation and environmentally friendly goods and services. This could be meaning that stimulating the production of sharing commodities may accomplish social, economic, and environmental needs. All the meanings that co-create value are involved: improving tourism experience, generating less environmental pollution and degradation, enhancing sustainable practices for tourism, rewarding ethical behaviours and leading to cost savings. Meta-regression showed a positive relationship between tourists’ concerns for the environmental topics and willingness to pay a premium price. It is also true that it needs to improve the research about WTP for value co-creation in the tourism industry as well as for environmental issues. There is not enough research regarding this topic, while it could be of great interest to further

Table 3: WLS scores (dependent variable is $\ln(wtp)$)

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<i>CO</i> ₂ emissions	0.345	0.301	0.289
Sharing consumption	0.0160	0.0180	-0.0247
Share car	–	–	0.0491
Env concerns	0.419	0.341	0.399
Value co-creation	0.544	0.542	0.554
Knowledge	-1.281	-1.187	-1.229
Age	1.235	1.402	1.826
Education	-1.654	-1.367	-1.871
Income	-0.414	-0.404	-0.543
CV	-0.116	0.167	-0.393
Online	–	0.615	–
Personal	–	–	-0.582
CV online	–	-0.905	–
<i>R</i> ²	0.516	0.531	0.570
Adjusted <i>R</i> ²	0.469	0.478	0.523
AIC (Akaike Information Criterion)	375.4	374.6	361.6
BIC (Bayesian Information Criterion)	433.1	423.6	419.7

research on this issue. Not many studies analyse willingness to pay for sharing and collaborative consumption and when people are asked to state their WTP value co-creation is not mentioned. Moreover, there is not research that links value co-creation, collaborative consumption and environmental concern analysing willingness to pay. Therefore, this work introduces innovative elements within the research framework of tourism.

Study limitation

Some limitation may have affected this study, regarding the search criteria used. Some papers, for example, that not stated "value co-creation" in their title, abstract or keywords could have been missed. Sometimes respondents are asked to state their willingness to pay for environmental concern, without any further specification: this may cause biased results since there is no clear definition of environmental issues and people answer with a lack of information. Despite this limitation, the study is valuable since it gives information about the willingness to pay a premium price for sharing consumption and value co-creation in environmental tourism. Results may be useful for both local strategies and for improving future applications.

6 Conclusions

The study carried out a meta-regression analysis. Stated preferences estimating willingness to pay for the premium price were considered to regarding environmental concerns in sharing and collaborative consumption within the tourism industry. The analysis accounted for differences

in elicitation format, as contingent valuation as well as a choice experiment of primary studies. It was highlighted that there is a strong relationship between value co-creation and willingness to pay a premium price for shared consumption. The models demonstrated a positive WTP for sharing utilities, contributing to establish new policies from the governments. As it was confirmed in many studies (Kang *et al.*, 2012; Mutiaristi *et al.*, 2017; Yu *et al.*, 2018), people are willing to economically support environmental strategies as well as sharing and collaborative consumption's forms. The results obtained in this study may be helpful for future research. Moreover, they might be also useful for policymakers who want to improve sharing consumption services in tourism destinations. Tourism stakeholders may make decisions about prices and promotional activities about sharing and collaborative consumption. WTP for collaborative consumption and value cocreation reveal preferences for sharing good and services. Nudging the production of sharing utilities represents an opportunity for local governments since people are willing to pay a premium price.

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