St. Cyril and St. Methodius University of Veliko Tarnovo
Faculty of Economics

# ПСИХОЛОГИЯ НА ПОТРЕБИТЕЛЯ В ОНЛАЙН ТУРИЗМА: ВЛИЯНИЕТО НА СОЦИАЛНОТО ДОКАЗАТЕЛСТВО И НЕДОСТИГА

## CONSUMER PSYCHOLOGY IN ONLINE TOURISM: THE IMPACT OF SOCIAL PROOF AND SCARCITY

**Любомира Спасова**
**Lyubomira Spasova**

Тракийски университет
Trakia University

**Abstract:** This study examines the role of social proof and scarcity as key psychological mechanisms influencing consumer behaviour in the context of online tourism. The research is positioned within the framework of digital transformation, where consumers increasingly rely on online information, user-generated content, and heuristic cues when making decisions under conditions of uncertainty and perceived risk. A quantitative research approach was applied through a structured survey conducted among 450 respondents. The data were analyzed using descriptive and inferential statistical methods, including frequency analysis and ANOVA. The findings indicate that both social proof and scarcity exert a moderate influence on consumer behaviour, functioning primarily as supportive heuristic cues rather than dominant determinants of decision-making. The results further demonstrate that consumers do not respond automatically to persuasive techniques but rather evaluate them critically in relation to trust, credibility, and perceived authenticity. While gender shows a statistically significant effect on consumer awareness, age does not significantly influence perceptions, suggesting increasing homogeneity in digital behaviour across generations. The study contributes to the literature on consumer psychology and digital marketing by highlighting the conditional effectiveness of persuasion strategies and the growing importance of transparency in online environments. The findings provide practical implications for marketers, emphasizing the need for balanced and ethical application of persuasive techniques in order to build sustainable consumer trust.
**Keywords:** consumer behaviour; online tourism; social proof; scarcity; digital marketing.
**JEL:** M31, D91, L83, O33

### Introduction

The rapid development of digital technologies and online platforms has fundamentally transformed the way consumers search for, evaluate, and purchase tourism services. The shift toward digital environments has created new patterns of consumer behaviour characterized by increased interactivity, personalization, and reliance on online information sources (Kotler et al., 2017; Buhalis & Law, 2008). At the same time, online tourism is marked by a high degree of information asymmetry and perceived risk, as consumers are unable to physically experience services prior to purchase, which makes their decisions highly dependent on external signals such as online reviews, ratings, and popularity indicators (Filieri et al., 2017; Gretzel & Yoo, 2008). In this context, social proof and scarcity have emerged as key psychological mechanisms widely used in digital marketing to influence consumer decision-making (Cialdini, 2021; Hajli et al., 2017).

Social proof is based on individuals' tendency to rely on the opinions and behaviours of others, particularly in situations of uncertainty, such as online travel bookings (Cialdini, 2021; Bandura, 1977).

Consumers often perceive online reviews, ratings, and recommendations as credible and reliable sources of information, which reduce perceived risk and facilitate decision-making (Amblee & Bui, 2011; Filieri, 2016). In digital environments, user-generated content plays a central role as a substitute for direct experience and is often trusted more than traditional advertising due to its perceived authenticity (Sanak-Kosmowska, 2022; Litvin et al., 2008). However, the increasing ability of companies to influence the visibility and presentation of reviews raises important concerns regarding trust, transparency, and ethical marketing practices (Filieri et al., 2020; Sanak-Kosmowska, 2022).

At the same time, scarcity acts as a powerful persuasive mechanism that enhances the perceived value of tourism products by creating a sense of urgency and limited availability (Lynn, 1991; Cialdini, 2021). Messages such as "only a few rooms left" or "limited-time offer" activate psychological responses related to the fear of missing out (FOMO), which accelerates decision-making and reduces cognitive processing (Przybylski et al., 2013; Aggarwal et al., 2011). Despite its effectiveness, empirical research suggests that excessive use of scarcity-based tactics may lead to skepticism and resistance, as consumers may perceive such strategies as manipulative, ultimately reducing trust and purchase intention (Stewart, 2025; Benoit et al., 2020).

Contemporary studies emphasize that the effectiveness of social proof and scarcity is not universal but depends on individual characteristics such as susceptibility to social influence, hedonic orientation, and experience with digital environments (Kaptein et al., 2012; Hajli et al., 2017). This highlights the need for a deeper understanding of the interaction between psychological mechanisms and marketing strategies in digital tourism environments. Therefore, the present study aims to examine the role of social proof and scarcity in shaping consumer behaviour in online tourism, with a particular focus on their psychological mechanisms of influence and the limitations of their effectiveness. Special attention is given to the balance between persuasive marketing strategies and perceived manipulation, as this balance is critical for building sustainable trust and long-term consumer relationships in digital tourism environments.

## THEORETICAL FRAMEWORK

The study of consumer behaviour in online tourism is increasingly situated within the context of digital transformation, where decision-making is shaped by technological, psychological, and social factors (Buhalis & Law, 2008; Kotler & Keller, 2016). The intangible nature of tourism services and the inability to physically evaluate them prior to purchase create conditions of uncertainty and perceived risk, leading consumers to rely on heuristic cues such as social proof and scarcity (Cialdini, 2021; Kahneman, 2011). These mechanisms function as cognitive shortcuts that simplify decision-making and reduce complexity under conditions of information overload (Tversky & Kahneman, 1974).

Social proof, grounded in social influence theory, reflects individuals' tendency to rely on the opinions and behaviors of others when making decisions under uncertainty (Cialdini, 2021; Bandura, 1977). In online tourism, this mechanism is particularly important, as consumers depend heavily on reviews, ratings, and recommendations to evaluate service quality in the absence of direct experience (Filieri et al., 2017; Amblee & Bui, 2011). User-generated content acts as a substitute for personal experience and is often perceived as more credible than traditional advertising, as it reflects real consumer interactions (Sanak-Kosmowska, 2022). Consequently, social proof plays a central role in reducing perceived risk and enhancing trust (Gretzel & Yoo, 2008; Litvin et al., 2008). However, its effectiveness is moderated by factors such as individual susceptibility to influence, prior experience, and digital literacy, while the potential manipulation of reviews introduces issues related to trust and information asymmetry (Filieri et al., 2020; Sanak-Kosmowska, 2022).

Scarcity represents another key principle of persuasion, based on the assumption that limited availability increases perceived value and desirability (Cialdini, 2021; Lynn, 1991). In online tourism, scarcity is communicated through urgency-driven messages that stimulate faster decision-making (Aggarwal et al., 2011). Its theoretical foundation is linked to psychological reactance theory and FOMO, which lead consumers to prioritize scarce opportunities and rely more on heuristic processing (Brehm, 1966; Przybylski et al., 2013). However, recent research indicates that scarcity may also generate negative

reactions when perceived as manipulative, leading to reduced trust and behavioral resistance (Stewart, 2025; Benoit et al., 2020).

In practice, social proof and scarcity are often combined in digital marketing strategies, creating a synergistic effect that influences both cognitive and emotional processes (Fennis & Stroebe, 2015). Social proof provides validation and informational support, while scarcity introduces urgency, leading to faster and more decisive consumer behavior (Xia et al., 2016). However, excessive use of these techniques may increase the perception of manipulation and negatively affect consumer trust and attitudes (Arli et al., 2017).

The influence of these mechanisms is further moderated by demographic and individual characteristics such as age, gender, experience with online platforms, and susceptibility to social influence (Kaptein et al., 2012; de Mooij, 2019). Contemporary consumers are increasingly informed and critical, which reduces the automatic effectiveness of traditional persuasion techniques and shifts the focus toward authenticity and transparency in marketing communication (Hajli et al., 2017; Filieri, 2016).

Based on the reviewed literature, social proof and scarcity emerge as key psychological mechanisms influencing consumer behaviour in online tourism environments. Social proof reduces perceived risk and enhances trust through user-generated content and collective evaluations (Cialdini, 2021; Filieri et al., 2017; Sanak-Kosmowska, 2022), while scarcity increases perceived value and urgency by activating fear of missing out and heuristic decision-making processes (Lynn, 1991; Aggarwal et al., 2011; Przybylski et al., 2013). However, contemporary research suggests that their effectiveness is conditional and depends on factors such as perceived authenticity, trust, and individual susceptibility to influence, as excessive use may lead to skepticism and resistance (Hajli et al., 2017; Filieri, 2016; Stewart, 2025). Furthermore, demographic characteristics such as age and gender may moderate consumer responses, as different groups exhibit varying levels of awareness and sensitivity to persuasive marketing techniques (Kaptein et al., 2012; de Mooij, 2019).

On this basis, the following hypotheses are formulated:

**H1:** Scarcity has a positive influence on consumer behaviour in online tourism environments (Cialdini, 2021; Lynn, 1991).

**H2:** Social proof positively influences consumer decision-making in online tourism (Filieri et al., 2017; Amblee & Bui, 2011).

**H3:** Consumers critically evaluate persuasive techniques such as scarcity and social proof, rather than responding automatically (Kahneman, 2011; Hajli et al., 2017).

**H4:** Age significantly influences consumer awareness of online marketing techniques (de Mooij, 2019).

**H5:** Gender significantly influences consumer awareness of persuasive mechanisms (Kaptein et al., 2012).

**H6:** Demographic factors (age and gender) influence consumer preferences in online tourism (Kotler & Keller, 2016).

## METHODOLOGY

The present study adopts a quantitative research approach in order to examine the influence of social proof and scarcity on consumer behaviour in online tourism. A structured questionnaire was used as the primary data collection instrument, allowing for the systematic measurement of consumer perceptions and attitudes toward persuasive marketing mechanisms. Data were collected from a sample of 450 respondents, ensuring sufficient statistical power and reliability of the results. The sampling approach can be defined as non-probability convenience sampling, as participants were selected based on accessibility and willingness to participate. Despite this limitation, the sample includes a diverse distribution in terms of age and gender, providing a broad representation of digitally active consumers. The questionnaire consisted of several sections, including demographic variables (age and gender) and measurement scales related to scarcity and social proof. Both constructs were operationalized using multi-item Likert scales, where respondents indicated their level of agreement on a five-point scale ranging from strong disagreement to strong agreement. This approach is consistent with established practices in consumer behaviour

research (Likert, 1932; Hair et al., 2019). The collected data were analyzed using statistical software (SPSS), applying both descriptive and inferential methods. Descriptive statistics, including mean values, standard deviation, skewness, and kurtosis, were used to examine the general distribution and central tendencies of the variables. In addition, frequency analysis was conducted to explore response patterns and identify dominant perceptions. To test the proposed hypotheses, inferential statistical techniques were employed. Analysis of variance (ANOVA) was used to examine the effect of demographic variables (age and gender) on consumer awareness and preferences. Effect sizes were calculated using eta squared ($\eta^2$) to assess the strength of relationships between variables. These methods are widely used in behavioral research to identify statistically significant differences and relationships between groups (Field, 2018; Hair et al., 2019).

Furthermore, visual analysis through histograms was applied to assess the normality of data distribution, supporting the validity of subsequent statistical tests. The combination of descriptive, inferential, and visual analysis ensures a comprehensive examination of the research problem and enhances the robustness of the findings. Overall, the chosen methodology provides a reliable framework for investigating the psychological mechanisms of social proof and scarcity in online tourism, while allowing for the identification of both general patterns and group-specific differences in consumer behaviour.

## RESULTS AND DISCUSSION

The empirical analysis is based on a sample of 450 respondents, providing a reliable foundation for examining the influence of social proof and scarcity on consumer behaviour in online tourism. The demographic profile indicates a relatively balanced gender distribution (54% female and 46% male) and a diverse age structure. The largest group is aged 21–24 years (24.2%), followed by 25–35 years (20.2%) and 36–45 years (18.7%). This distribution reflects a population actively engaged in digital environments, which is consistent with previous research emphasizing the role of younger and digitally experienced consumers in online decision-making processes (Hajli et al., 2017; Filieri et al., 2017; Buhalis & Law, 2008).

**Table 1.** Sample Characteristics

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Male | 207 | 46.0 |
| | Female | 243 | 54.0 |
| Age | 18–20 years | 75 | 16.7 |
| | 21–24 years | 109 | 24.2 |
| | 25–35 years | 91 | 20.2 |
| | 36–45 years | 84 | 18.7 |
| | 46–55 years | 58 | 12.9 |
| | 56–65 years | 33 | 7.3 |

*Source:* own compilation

The sample is relatively well distributed across gender and age categories, with a slight predominance of female respondents and a concentration in younger age groups. This reflects the characteristics of digitally active consumers who are more likely to engage with online tourism platforms.

**Table 2.** Descriptive Statistics of Key Variables

| Variable | Mean | Std. Deviation | Median | Minimum | Maximum |
|---|---|---|---|---|---|
| Scarcity Scale | 3.22 | 0.831 | 3.20 | 2 | 5 |
| Social Proof Scale | 3.19 | 0.794 | 3.20 | 1 | 5 |

*Source:* own compilation

The descriptive results indicate moderate mean values for both scarcity and social proof, suggesting that these mechanisms influence consumer perceptions but are not dominant determinants of behaviour. This finding supports prior research arguing that persuasion principles function as heuristic cues that facilitate decision-making without fully determining it (Cialdini, 2021; Fennis & Stroebe, 2015). The relatively low standard deviation values indicate a consistent perception among respondents, reflecting a shared understanding of these marketing stimuli. The distribution of responses is concentrated around neutral and slightly positive values, with a substantial proportion of respondents positioned at or below the neutral midpoint. This suggests that consumers recognize the presence of scarcity and social proof cues but do not respond to them uncritically. Such findings align with contemporary studies emphasizing that modern consumers are increasingly skeptical and evaluate marketing messages based on trust and perceived authenticity (Filieri, 2016; Hajli et al., 2017; Gretzel & Yoo, 2008).

In this context, H1 is partially supported, as the moderate mean value for scarcity (M = 3.22) indicates influence but not a strong behavioral effect (Lynn, 1991; Aggarwal et al., 2011). Similarly, H2 is partially supported, as social proof (M = 3.19) functions primarily as an informational cue rather than a decisive factor in consumer decision-making (Amblee & Bui, 2011; Litvin et al., 2008; Sanak-Kosmowska, 2022). The distribution patterns further confirm an approximately normal distribution, with skewness values close to zero (0.169 for scarcity and 0.203 for social proof), indicating balanced and non-extreme evaluations. This supports behavioural theories suggesting that consumers rely on heuristic processing while still engaging in cognitive evaluation rather than reacting automatically (Kahneman, 2011; Tversky & Kahneman, 1974). Consequently, H3 is strongly supported, as consumers demonstrate a critical approach toward persuasive techniques.

**Table 3.** ANOVA Results: Effects of Age and Gender on Consumer Awareness

| Variable | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Age (Between Groups) | 42.658 | 11 | 3.878 | 1.741 | 0.062 |
| Age (Within Groups) | 975.787 | 438 | 2.228 | | |
| Age (Total) | 1018.444 | 449 | | | |
| Gender (Between Groups) | 8.874 | 11 | 0.807 | 3.434 | 0.000 |
| Gender (Within Groups) | 102.906 | 438 | 0.235 | | |
| Gender (Total) | 111.780 | 449 | | | |

*Source:* own compilation

Further inferential analysis using ANOVA reveals that age does not have a statistically significant effect on consumer awareness ($F_{(2,447)} = 1.741$, $p = 0.062$), leading to the rejection of H4. This suggests that awareness of persuasive techniques is relatively consistent across age groups, reflecting the widespread diffusion of digital literacy and online experience across generations (de Mooij, 2019; Kotler et al., 2017). In contrast, gender demonstrates a statistically significant effect ($F_{(2,447)} = 3.434$, $p < 0.001$), supporting H5 and indicating that male and female consumers differ in their perception and interpretation of persuasive marketing cues. This finding is consistent with previous research on gender differences in information processing and susceptibility to social influence (Kaptein et al., 2012; Hajli et al., 2017).

The analysis of effect sizes further shows that age has a moderate influence on product preferences ($\eta^2 = 0.112$), while gender has a smaller but still meaningful effect ($\eta^2 = 0.085$), supporting H6. These findings suggest that demographic factors influence consumer preferences, although they are not dominant determinants. This aligns with multidimensional models of consumer behaviour, which emphasize the combined role of psychological and demographic factors in shaping decision-making processes (Kotler & Keller, 2016; de Mooij, 2019). Overall, the results indicate that social proof and scarcity function as complementary but not dominant drivers of consumer behaviour in online tourism. Their effectiveness depends on perceived authenticity, trust, and individual differences, supporting contemporary research

suggesting that persuasion in digital environments is increasingly constrained by consumer awareness and skepticism (Sanak-Kosmowska, 2022; Stewart, 2025; Benoit et al., 2020).

## CONCLUSION AND MANAGERIAL IMPLICATIONS

This study examined the influence of social proof and scarcity on consumer behaviour in online tourism, providing empirical evidence based on a sample of 450 respondents. The findings indicate that both mechanisms exert a moderate influence on decision-making, functioning primarily as heuristic cues rather than dominant behavioural drivers. This is consistent with behavioural theories suggesting that consumers rely on simplified decision rules under uncertainty (Kahneman, 2011). Importantly, the results demonstrate that modern consumers do not respond passively to persuasive techniques. Instead, they critically evaluate marketing messages in relation to trust, credibility, and perceived authenticity. This supports previous research highlighting that persuasion effectiveness is increasingly moderated by consumer awareness and skepticism (Cialdini, 2021).

Further, the study reveals that demographic factors play a secondary role. While age does not significantly influence awareness, gender differences remain statistically significant, suggesting that psychological and perceptual differences continue to shape responses to persuasive cues. Overall, the findings confirm that social proof and scarcity should be viewed as complementary elements within a broader decision-making framework rather than as standalone determinants of behaviour. Their effectiveness depends on contextual and individual factors, particularly perceived trust and message authenticity.

From a managerial perspective, several implications emerge. First, marketers should avoid overusing scarcity and social proof, as excessive application may lead to skepticism and reduced trust. Second, transparency and authenticity should be prioritized, ensuring that all persuasive cues reflect real conditions and credible information. Third, segmentation strategies should be applied to tailor communication to different consumer groups. Fourth, social proof should emphasize quality and relevance rather than quantity, while scarcity cues should be used strategically and ethically. In conclusion, the effectiveness of persuasion strategies in online tourism increasingly depends on their alignment with consumer expectations for trust, authenticity, and meaningful value, rather than solely on the application of psychological triggers.

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**За контакти:**
**Lyubomira Spasova, DSc, Chief Asst. Prof.**
Stara Zagora, Student's Campus
Ел. поща: lyubomira.spasova@trakia-uni.bg