




DETERMINANTS OF CONSUMER BEHAVIOR IN ONLINE SHOPPING: EVIDENCE FROM NORTH MACEDONIA

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ABSTRACT

This study examines the dynamics and determinants of online consumer behavior in the Republic of North Macedonia, focusing on the country's readiness for e-commerce development and the factors shaping digital purchasing patterns. Employing a mixed-methods approach, the research integrates qualitative content analysis of academic, institutional, and policy documents with quantitative data gathered from a purposive sample of 180 respondents. Secondary analysis includes international benchmarks such as the Network Readiness Index and the Logistics Performance Index, providing a comparative perspective on digital infrastructure, connectivity, and logistical performance. The investigation explores consumer preferences, frequently purchased product categories, and favored online platforms while identifying psychological, technological, and infrastructural factors that influence purchase decisions. Findings reveal that online shopping is expanding, especially among younger, urban, and digitally literate consumers. However, persistent barriers such as limited trust in online transactions, underdeveloped logistics systems, and payment security concerns continue to hinder broader market growth. Despite these obstacles, national digitalization strategies, growing internet penetration, and increasing consumer engagement with digital platforms indicate a favorable trajectory for the development of e-commerce in the coming years. The results underscore the importance of strengthening consumer confidence, improving delivery efficiency, and enhancing cross-border trade mechanisms to ensure sustainable market expansion. By contextualizing global e-commerce frameworks within an emerging market, this research contributes to a deeper understanding of the evolving digital economy in North Macedonia. It offers practical insights and strategic recommendations for policymakers, businesses, and stakeholders committed to advancing digital transformation and fostering consumer participation in the online marketplace.

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1 INTRODUCTION

The global digital transformation has reshaped consumer markets and altered the very structure of purchasing behavior. Across the world, customers increasingly rely on online channels to explore, compare, and purchase products. Understanding this behavior is critical for both marketing theory and national economic strategy, especially in emerging economies where digital infrastructure and consumer trust remain under development. North Macedonia provides an insightful case study in this context. Despite being a small market, the country has shown rapid growth in online shopping adoption, particularly during and after the COVID-19 pandemic. Yet, this growth is uneven: while urban and younger consumers are leading digital adoption, rural and older populations remain less engaged. The national e-commerce ecosystem still lags EU averages in logistics efficiency, payment security, and cross-border integration. The consumer decision-making process in online environments follows the classical five-stage model: recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation (Ristevska-Jovanovska, 2013; Han, 2021). However, digital shopping introduces new behavioral stimuli such as website usability, algorithmic personalization, peer reviews, and digital advertising, all of which shape consumer perceptions and decisions.

Contemporary models such as the Technology Acceptance Model (Venkatesh et al., 2022) and the Engel–Blackwell–Miniard framework (Engel et al., 2001) emphasize factors like perceived usefulness, trust, and enjoyment as major predictors of online purchase intention. In emerging economies, these factors are often intertwined with macro-level constraints on digital access, logistics, and regulation, making e-commerce development both a behavioral and structural challenge. This study aims to bridge the research gap by exploring how individual, technological, and infrastructural determinants interact in shaping online consumer behavior in North Macedonia. The objectives are:

1. To identify the primary behavioral drivers of online shopping in the Macedonian market.

2. To evaluate the country's e-commerce readiness and compare it with EU benchmarks.
3. To provide strategic implications for national digital transformation and Small and Medium Enterprises competitiveness.

Consumer behavior in online shopping environments results from the interplay of multiple determinants: technological, psychological, sociocultural, and economic. Building on Engel et al. (2001), and Venkatesh et al. (2022), this paper conceptualizes the online purchase process through four interdependent dimensions:

1. Technological Readiness: Includes ICT infrastructure, internet access, and ease of website navigation
2. Psychological Drivers: Encompass trust, perceived risk, and enjoyment associated with online shopping.
3. Sociocultural Factors: Cover demographic traits, peer influence, and digital habits, and
4. Economic Incentives: Reflect price sensitivity, convenience, and delivery reliability.

These factors jointly determine the strength of the consumer's purchase intention and post-purchase satisfaction. This model reflects how technological readiness facilitates perceived ease of use and trust, which in turn influence purchase intention and *satisfaction*. It assumes that consumer confidence, security perception, and convenience moderate the final purchasing decision. The model provides a structural foundation for interpreting both secondary and survey-based findings.

2 RESEARCH METHODOLOGY

This study employs a mixed-methods approach, combining secondary research and primary quantitative analysis to capture both structural and behavioral perspectives. This method allows triangulation between global indicators, national data, and consumer perceptions.

Secondary data were obtained from international benchmarks and national reports, including:

1. Network Readiness Index (Portulans Institute, 2023).
2. Logistics Performance Index (World Bank, 202)
3. Eurostat and Statista datasets (2024), and

4. Reports from the Macedonian E-Commerce Association (2022, 2024) and National Bank of the Republic of North Macedonia (2025)

These data contextualize Macedonia's digital and logistical environment within the global and regional e-commerce landscape.

Table 1. Sample Structure

Gender	Number of Respondents	% of Respondents
Male	109	70%
Female	473	30%
Age		
18–28	23	15%
29–39	93	60%
39–49	31	20%
Over 50	8	5%
Education		
Primary	3	2%
Secondary	28	18%
Higher	93	60%
Master's	31	20%
Employment Status		
Employed	133	86%
Unemployed	5	3%
Pupil / Student	12	8%
Other	5	3%
Total Number	155	100%

Source: Author's research

The sample profile reveals a digitally literate, predominantly urban population representative of North Macedonia's most active e-commerce consumers.

Overview of E-commerce in North Macedonia - E-commerce in North Macedonia has experienced steady expansion over the past five years, driven by increasing internet penetration, smartphone use, and social media marketing. According to the Macedonian E-Commerce Association (2024), the share of internet users purchasing online rose from 31.7% in 2018 to 53.5% in 2023, an increase of nearly 69%. However, the country still falls short of the EU average, where 75.3% of users shop online.

Digital Infrastructure and Readiness - The Network Readiness Index (NRI) evaluates how well economies utilize information and communication technologies across four pillars: technology, people, governance, and impact. In 2023, North Macedonia ranked 71st out of 134 economies with an NRI score of 46/100, signaling moderate progress. (see Figure 1)

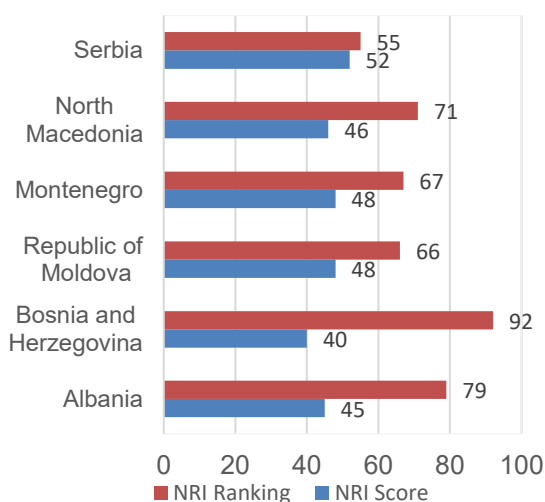


Figure 1. NRI Score and NRI rank for 2023

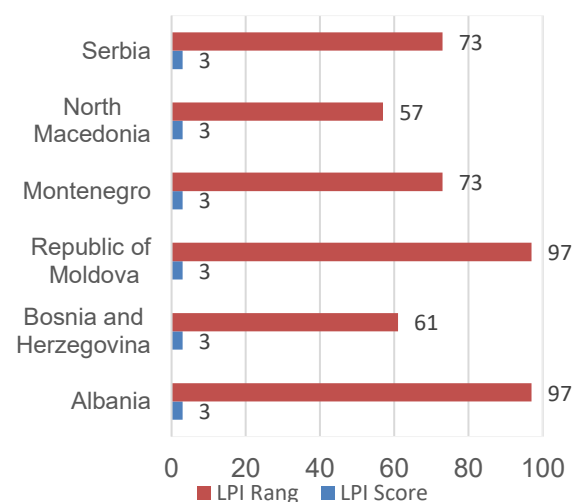


Figure 2. LPI Score and LPI rank for 2023

Source: (Ecommerce4all, 2022)

The Logistics Performance Index (LPI) ranks countries based on the efficiency of customs, infrastructure, international shipments, logistics competence, and tracking. In 2023, North

Macedonia placed 57th out of 139 countries, outperforming other CEFTA economies. Although this ranking suggests logistical potential, gaps

remain in real-time tracking systems, fulfillment centers, and delivery infrastructure. (Figure 2)

Payment Behavior and Digital Trust - The National Bank of the Republic of North Macedonia (NBRSM, 2025) reported that payment card transactions at e-commerce sites increased by 22.3% in 2024, reaching 189.8 million transactions, with a 12.9% year-on-year growth. Nevertheless, cash-on-delivery remains a dominant payment method, reflecting limited consumer confidence in online security. This is consistent with studies identifying trust as a central barrier to digital adoption in developing markets (Javadi et al., 2012; Ayalew & Zewdie, 2022).

Comparative EU Perspective - While online sales represent around 6% of total retail turnover in North Macedonia, in EU markets this share exceeds 20%. Projections by Statista (2024) estimate Macedonian e-commerce revenue to reach €570 million by 2025 and €740 million by 2029, with a compound annual growth rate (CAGR) of 6.75%. The National ICT Strategy (2023-2027) aims to increase SME participation in e-commerce, targeting 25% of SMEs to be engaged in online sales by 2027.

Table 2. Purchased Product Categories

Categories	Number of Respondents	% of Respondents
Clothing & Fashion Accessories	112	72%
Sports Equipment	81	52%
Food & Beverages	64	41%
Books	60	39%
Cosmetics & Personal Care	56	36%
Travel & Accommodation	51	33%
Online Courses	47	30%
Furniture & Home Décor	37	24%
Household Appliances	26	17%
Other	22	14%
Total Number		100%

Source: Author's research

Macedonian E-Shopper Profile - Understanding the behavioral characteristics of Macedonian consumers provides insight into how cultural and socioeconomic factors influence online shopping habits. Data from the survey were analyzed alongside Eurostat (2024) and E-Commerce Association (2024) findings to identify consumption patterns, spending levels, and purchasing frequency.

Product Preferences - The survey results indicate that clothing, footwear, and accessories dominate online purchases, representing 72% of total consumer choices. This is consistent with regional patterns in the Balkans and with EU averages (Eurostat, 2024). As shown in Table 2, other frequently purchased categories include sports equipment (52%), food and beverages (41%), books (39%), and cosmetics (36%).

The predominance of fashion and lifestyle products highlights a younger, experience-oriented consumer base that values aesthetics, personalization, and convenience. Regarding spending, 48% of respondents spent less than €50 per quarter online, 17% spent between €100 and €499, and only 0.3% spent above €500. This spending distribution reflects moderate purchasing power and cautious online spending behavior. 69% of respondents primarily shop through official retailer websites, while 17% use social media, 8% use discount platforms, and 6% use food delivery sites. The preference for retailer websites demonstrates a moderate level of digital trust, but the growing importance of social media suggests the potential of influence-driven marketing. (Table 3)

Table 3. Respondents most often shop online

Most often Shop online	Number of Respondents	% of Respondents
Through official retailers' websites	107	69%
Through social media	26	17%
Through discount websites	12	8%
Through food delivery/order websites	8	5%
Other	2	1%
Total Number	155	100%

Source: Author's research

Consumer Trust and Behavior - Interviews and survey feedback revealed that trust, security, and delivery reliability remain major concerns. Consumers value the option to return products, responsive customer support, and transparent reviews. These findings align with global literature identifying *trust* and *perceived risk* as central predictors of e-commerce engagement (Sarkar & Das, 2017; Ayalew & Zewdie, 2022). Overall, Macedonian e-shoppers are digitally active, socially influenced, and pragmatically motivated by convenience and price sensitivity, yet cautious due to perceived transaction risks.

3 RESULTS AND DISCUSSION

Out of 180 respondents, 86% had prior online shopping experience. Gender distribution shows a male dominance (70%), though female consumers demonstrate higher engagement in fashion and cosmetics categories. Age and education were positively correlated with digital trust and frequency of purchase: higher education levels tend to reduce perceived risk, confirming the relationship between digital literacy and consumer confidence. The analysis reveals three key behavioral determinants:

1. **Convenience and Price Comparison:** Consumers appreciate the time-saving benefits and ease of price transparency online.
2. **Perceived Risk:** Despite infrastructure improvements, concerns about payment safety and delivery accuracy persist.
3. **Technological Familiarity:** Internet usage and smartphone access strongly influence purchase frequency.

These determinants echo patterns found in similar markets such as Serbia, Croatia, and Romania, suggesting shared regional dynamics.

When compared with EU markets, Macedonian consumers display:

- Lower purchase frequency and spending levels,
- Higher reliance on cash-on-delivery,

- Stronger dependence on social validation (reviews, influencers),
- Faster adoption of mobile commerce (due to high smartphone penetration).

This indicates a transitional stage in e-commerce development: consumers are increasingly digitally engaged but still building trust in systems. As Ayalew and Zewdie (2022) argue, this “trust formation phase” is typical of late adopters in developing digital economies.

The results highlight the need for targeted interventions in three areas:

1. **Digital Infrastructure and Logistics:**
 - Develop national fulfillment centers, next-day delivery options, and real-time tracking.
 - Encourage private–public partnerships to improve regional logistics hubs.
2. **Consumer Protection and Payment Security:**
 - Introduce stronger data protection, dispute resolution, and e-commerce certification systems.
 - Promote awareness of secure payment methods and digital literacy.
3. **SME Support and Cross-Border Expansion:**
 - Subsidize digital transformation for small businesses.
 - Foster international integration through EU-aligned export platforms.

By addressing these factors, North Macedonia can unlock the potential of digital commerce as a driver of inclusive economic growth.

The results confirm the applicability of the Technology Acceptance Model (TAM) and Engel–Blackwell–Miniard model in the North Macedonian context, while emphasizing *trust* and *logistics efficiency* as culturally embedded variables. Technological readiness enhances perceived ease of use, while trust moderates the link between intention and behavior, mirroring Venkatesh et al. (2022). This validates the conceptual model proposed earlier and demonstrates how micro-level psychological factors are shaped by macro-level infrastructure.

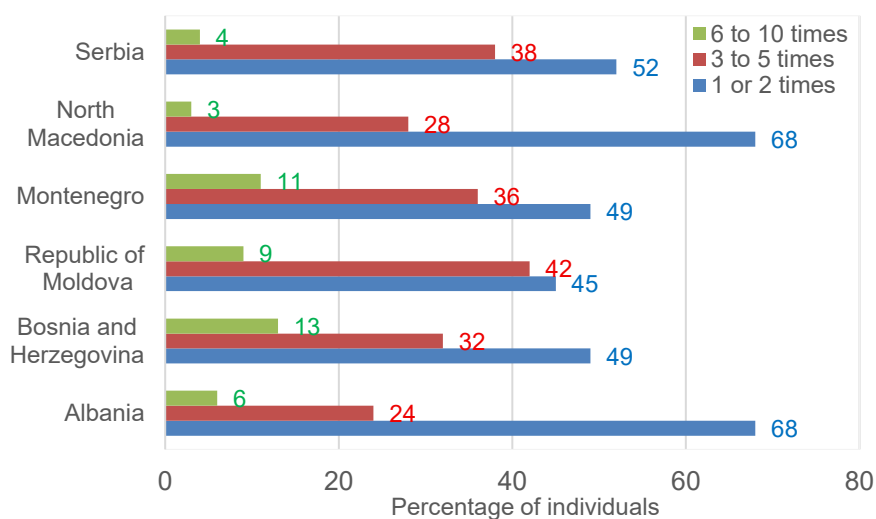


Figure 3. How often do consumers shop online

Source:(Eurostat, 2023)

4 CONCLUSIONS

This study explored the determinants of consumer behavior in online shopping in the Republic of North Macedonia using a mixed-methods design. Findings confirm that while digital adoption is accelerating, trust and logistics constraints remain major barriers to e-commerce maturity. Younger, educated, and urban consumers are leading adoption, showing strong interest in fashion and lifestyle products, but their engagement is still periodic rather than habitual. The analysis demonstrates that successful e-commerce growth depends on an integrated approach combining:

1. Infrastructure modernization.
2. Enhanced consumer trust and security frameworks, and
3. SME digitalization strategies aligned with EU policies.

By prioritizing these measures, North Macedonia can strengthen competitiveness, stimulate

innovation, and position itself as a regional digital hub. Future research should apply inferential statistical methods (e.g., regression or structural equation modeling) to test relationships among trust, perceived risk, and purchase intention. Cross-country comparative studies within the Western Balkans would further clarify regional dynamics. Moreover, qualitative research exploring consumer narratives could provide deeper insights into cultural aspects of trust formation and digital literacy.

About shopping frequency and spending levels (see Figure 3), most respondents (67.4%) reported making 1–2 online purchases within a three-month period, while 27.6% made 3–5 purchases, and only 3.2% exceeded six purchases. This pattern shows that online shopping in North Macedonia is still occasional rather than habitual, contrasting with EU markets where 16.1% of consumers shop 6–10 times quarterly.

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