ECONOMIC ANALYSIS OF CONSUMER BEHAVIOUR IN E-COMMERCE

Oleksandra Hladysheva, 1ˢᵗ year Master's Student
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"
Kyiv, Ukraine
ORCID ID 0000-0002-9744-5326
e-mail: grndvld@gmail.com

Research Supervisor: Olha Vovk, D.Sc. in Economics, Professor,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"
Kyiv, Ukraine
ORCID ID 0000-0002-1680-1959

The digital transformation of commerce has significantly impacted consumer behavior and the broader economy. E-commerce's rise has not only altered purchasing patterns but also reshaped economic activities within countries. Understanding and analyzing consumer behavior in e-commerce through analytics and forecasting is crucial for businesses aiming to optimize strategies and for policymakers seeking to harness e-commerce for economic growth.

The impact of e-commerce on the global economy is truly invaluable. Consumer spending is a primary driver of economic growth, accounting for a significant portion of a country's GDP. The shift towards e-commerce changes the dynamics of consumer spending, influencing various economic indicators. For example, increased e-commerce activity contributes to GDP by boosting retail sales. According to Statista, e-commerce sales represent over 20% of total retail sales worldwide, indicating a substantial economic contribution[1].
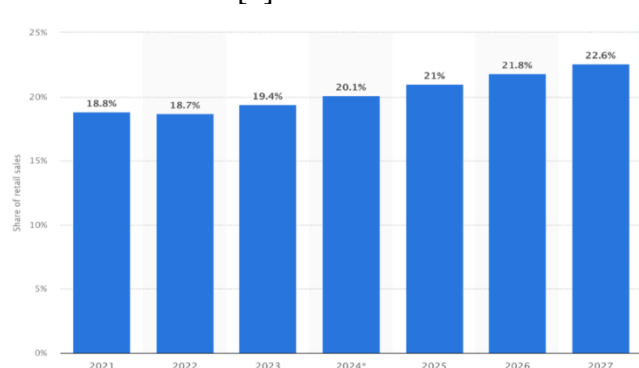

Figure 1 – E-commerce as percentage of total retail sales worldwide from 2021 to 2027
Source: [1]

Online transactions can also impact tax revenues in a positive way. The shift to online transactions in e-commerce reduces cash transactions with unknown persons who may evade taxes, which provides significant benefits to countries fighting the shadow economy. By increasing transparency and traceability, e-commerce contributes to better tax compliance, which leads to increased government revenues and support for public services. A Although a recent study conducted by CEPR on the case of Uruguay emphasizes that while digital transactions can help improve tax compliance, they are not a silver bullet. Effective tax compliance requires a comprehensive approach that includes strong enforcement mechanisms, incentives for businesses to formalize, public trust in institutions, and policies addressing the root causes of tax evasion[3].

Analyzing and predicting user behavior in e-commerce involves the use of advanced data analytics and predictive modeling techniques to gain insight into consumer actions and preferences. Companies collect large amounts of data about user interactions on their platforms, such as browsing history, click-through rates, time spent on pages, and transaction records. By applying machine learning algorithms and statistical models to this data, companies can identify patterns and trends that reveal consumer preferences and predict future behavior. Analytics and forecasting play a key role in dynamic pricing strategies. By analyzing consumer price sensitivity and competitive pricing, firms adjust prices in real time to maximize revenue. Predictive models estimate how consumers might react to price changes, allowing for the development of personalized pricing strategies. Econometric models, which include factors such as time of day, consumer demographics, and online

behavior, allow companies to estimate the optimal price for different market segments. This analytical approach increases profitability while maintaining competitiveness in a crowded online marketplace.

Amazon and Alibaba's experience in predictive analytics and machine learning algorithms demonstrates a new level of aggregation of consumer behavior data. Amazon uses advanced machine learning algorithms for its recommendation engine, which accounts for a significant portion of its sales. By continuously analyzing user behavior data, Amazon provides personalized offers that increase user engagement and drive revenue growth[2]. Alibaba Group leverages deep learning and big data analytics to forecast demand accurately and optimize supply chain management. By analyzing consumer data, Alibaba can predict purchasing trends and adjust its inventory and marketing strategies accordingly, resulting in reduced costs and improved customer satisfaction[4]. Alibaba's intelligent recommendation system is not limited to data collection and analysis, it also continuously analyzes user behavior and optimizes strategies. This means that the system constantly monitors user behavior patterns, detects changes and new trends, and quickly adjusts its recommendation strategies accordingly. For example, if a user's habits change - for example, they start browsing health-related products - the system adapts its recommendation strategy to suggest healthier food or fitness equipment. This timely optimization ensures that users consistently receive recommendations that match their current interests, thereby increasing their satisfaction[4].

Governments can also analyze aggregated e-commerce data to monitor economic activity, identify growth sectors, and detect changes in consumer spending patterns. This analysis can help formulate policies that support the development of digital infrastructure and regulate e-commerce. Forecasting models will help predict the economic impact of e-commerce trends, directing investments to areas that contribute to economic resilience and growth. Examples of government initiatives include China's data-driven policies, where the government analyzes data from major e-commerce platforms to inform economic strategies, supporting projects like the Digital Silk Road and investing in logistics infrastructure to boost trade. Similarly, the European Union's Digital Single Market utilizes aggregated e-commerce data to harmonize regulations across member states, promoting cross-border online trade and enhancing competitiveness.

In conclusion, the interplay between consumer behavior in e-commerce, advanced analytics, and economic policies has a profound impact on national and global economies. Businesses and governments alike must continue to leverage data analytics and forecasting to navigate the evolving digital landscape effectively. By adopting comprehensive strategies that include technological innovation, regulatory frameworks, and efforts to increase public trust, stakeholders can maximize the benefits of e-commerce while addressing challenges such as tax compliance and the digital divide. The ongoing collaboration between the private sector and policymakers will be essential in shaping a sustainable and inclusive digital economy that drives economic growth and improves societal well-being.

Analytics and forecasting are integral to understanding and influencing consumer behavior in e-commerce. By using data, market players can optimize pricing, personalize marketing, and improve demand forecasting, leading to improved economic performance. However, the responsible use of these tools is essential to address ethical concerns and maintain consumer trust. The further development of analytical methods will contribute to a greater understanding of economic agents in the digital marketplace, which will help create more efficient and flexible e-commerce ecosystems.

References:

1. *Global e-commerce share of retail sales 2027 | Statista.* (б. д.). Statista. https://www.statista.com/statistics/534123/e-commerce-share-of-retail-sales-worldwide/
2. *The power of data: How amazon utilizes big data to drive sales - CEO networking | BEST CEOS GROUP & entrepreneur examples – CEO hangout.* (б. д.). CEO Networking | BEST CEOS GROUP & Entrepreneur Examples – CEO Hangout. https://ceohangout.com/the-power-of-data-how-amazon-utilizes-big-data-to-drive-sales/
3. *Why digital transactions aren't a silver bullet for tax compliance: Evidence from Uruguay.* (б. д.). CEPR. https://cepr.org/voxeu/columns/why-digital-transactions-arent-silver-bullet-tax-compliance-evidence-uruguay
4. Zhang, S. (2024). Analysis of business intelligence technology in the big data era A case study of alibaba group. *Advances in Economics, Management and Political Sciences*, 74(1), 92–97.