

The Impact of the Digital Economy on the Upgrading of Resident Consumption

Yijie Weng^{1,a,*}

¹Department of Computer and Mathematical Sciences, University of Toronto Scarborough,
Toronto, Ontario, M1C 1A4, Canada

a. wengyijie.weng@mail.utoronto.ca

*corresponding author

Abstract: With the continuous advancement of technology, the digital economy is gradually integrating into people's lives. For the public, innovations in economic models mean that the quality of daily life is subtly changing, with the most direct external manifestation being consumption. This paper uses a literature review approach, based on the research conclusions of multiple studies, to explore in depth the impact of the digital economy on residential consumption upgrading from two perspectives: residents' consumption levels and consumption environments. The study shows that the popularity of the digital economy has led to the development of new consumption concepts and created a more advanced way of consumption. The study also found most industrial structures' digital transformation aligns with the needs of the middle and low-income groups in society, which can greatly promote consumption among these groups and improve their quality of life. Additionally, the concepts and technologies of the digital economy have created a more comfortable and reliable ecological environment for consumers, significantly promoting the iterative upgrading of residential consumption.

Keywords: Digital economy, big data, intelligent manufacturing, e-commerce, household consumption.

1. Introduction

Since the 21st century, China's economy has experienced another rapid development following the industrial economy. The digital economy (DE), centered around e-commerce, digital services, and intelligent manufacturing, has become a key engine for economic growth.

Research indicates that the emergence of the DE has eliminated the limitations of traditional economies, such as time, geographical constraints, and information asymmetry [1-2]. On a macro level, the DE leverages information technology to integrate with traditional economies, promoting the improvement of economic structures and optimizing resource allocation efficiency in traditional industries [3]. On a micro level, financial technology and e-commerce platforms complement each other, achieving diversification and transparency in transactions while improving transaction efficiency [4]. In terms of business operations, research by Yang demonstrates that e-commerce marketing strategies, based on consumer psychology, can effectively capture customer needs and increase consumer satisfaction and pleasure by utilizing consumer self-expression and scarcity marketing strategies [5]. Furthermore, DE products such as big data provide technical support for

these strategies, with marketing models based on social media platforms accelerating information dissemination and fostering deep interaction between consumers and products [6]. During the COVID-19 pandemic in 2021, China's online shopping users increased by 3.8% year-on-year. Additionally, the widespread adoption of online formats for work, study, entertainment, and medical consultations vividly reflects the development of the DE [7]. These phenomena align closely with several categories of consumer expenditure with high-income elasticity, particularly in transportation and communication, education, culture, entertainment, and healthcare.

This study aims to analyze and summarize existing literature on how the DE enhances household consumption levels and improves consumption environments, thereby achieving consumption upgrades. It also explores the future development direction of the DE and its impact on consumption structure and trends. The goal is to provide a comprehensive overview of consumption upgrades in the context of the DE and offer a foundation for future research in this field.

2. The Role of the DE in Enhancing Consumption Levels

2.1. Measurement of Consumption Levels

Urban residents' consumption levels are typically measured using eight variables: food, clothing, housing, household equipment and supplies, transportation and communication, education, culture and entertainment, healthcare, and personal care and services. Hou suggested that these eight indicators could be condensed into three common influencing factors, with overall consumption levels assessed using a composite score method. Factor F1, which has the highest variance contribution rate, has the largest loadings for healthcare, education, culture, entertainment, and personal care and services [8]. The results show that these types of consumption have a particularly significant impact on overall consumption levels. Another study by Peng used the ELES model to address the limitations of existing consumption upgrade measurement methods, introducing a structural level coefficient, which represents the proportion of each consumption category in total consumption [9]. This method demonstrated a significant positive correlation between the proportion of consumption categories with high-income elasticity and the index of residents' consumption structure upgrades. Based on the results of these two studies, this paper will consider the increase in the proportion and quantity of consumption in transportation and communication, education, culture and entertainment, and healthcare as an indication of an improvement in consumption levels.

2.2. The Sharing Economy

Ren believes that the DE has disrupted traditional perceptions of consumption [10]. Residents are no longer solely focused on the products themselves but are more concerned with the experience and cost-effectiveness of goods and services rather than ownership. Additionally, the current emphasis on green and sustainable practices and the demand for resource reuse due to overcapacity have led to the rise of the sharing economy. The DE has provided new business platforms and advanced operational systems to meet the needs of consumers and society, thereby fostering the sharing economy and shared consumption models [10]. This has given rise to products like shared bicycles, shared cars, shared accommodation, and shared power banks. These shared services, with their lower prices and more flexible access methods, have become popular among the general public. University students, who frequently move between various settings and often exhibit low-income but high consumption tendencies, are particularly drawn to experiential consumption. Hou's research also pointed out that students, who place more emphasis on experiential and participatory consumption, are more likely to become the target audience for the sharing economy [11]. The growing number of students in recent years suggests that the popularity and scale of the sharing economy will continue to expand.

The sharing economy not only promotes consumption but also provides more part-time jobs and income sources. People can rent out their homes for short-term stays through websites like Airbnb, offer ride-sharing services via Didi in their spare time, or sell and rent idle items on second-hand platforms. These services effectively break down traditional barriers, creating a fully symmetrical information exchange between supply and demand, allowing owners to gain more disposable income, thus raising overall consumption levels.

2.3. The Development of E-commerce Platforms

Over the past decade, the increasing internet penetration has introduced more people to online shopping, attracted by its lower prices and convenient access, leading to the rapid development of e-commerce platforms. Compared to traditional commerce, e-commerce skips the wholesale and retail stages, thereby reducing transaction costs. Consumers, with the same level of income, can purchase more goods and services, indicating an increase in consumption levels. Today, e-commerce platforms have entered a new stage, with new forms of e-commerce emerging, centered on social e-commerce and interest-based e-commerce. These new methods offer more comprehensive promotion strategies compared to traditional e-commerce, expanding into avenues such as live-streamed sales, social sharing, and short video marketing. By presenting products in a contextualized manner, they facilitate deeper interaction between consumers and products, increasing consumers' desire to purchase. To better cater to consumers, emerging technologies like big data and artificial intelligence delve deeply into the value of different products and accurately match them to their target audiences. This strengthens marketing efforts on social media platforms, providing consumers with more customized decision-making solutions to meet the diverse needs of different consumers [12].

2.4. Digital Payments and Consumer Credit

Since 2019, China has accelerated the promotion of digital currency. Between June and October 2021, digital payment transaction volumes increased by 79.71%, and the number of transactions rose by 112.01%. The total number of personal digital wallets grew from 20.87 million to 140 million [13]. This data reflects that digital payments have become a trend, breaking the time and space limitations of traditional transactions, and allowing residents to convert their consumption desires into consumption actions at any time and place. Under the backdrop of digital payments, the consumerism-driven behavior of advanced consumption has become particularly prevalent among adolescents. Xu's research on the impact of Ant Financial's "Huabei" on consumer behavior showed that its primary users are younger, lower-income individuals who are more willing to spend future income to satisfy current consumption desires [14]. Traditional credit methods like credit cards involve complex procedures and high entry thresholds, such as age, making them unsuitable for younger consumers. In response, numerous external online lending platforms have emerged, enabling more young people to borrow across multiple platforms, driving short-term consumption levels, and expanding the scale of consumer credit, further stimulating consumption potential.

3. The Role of the DE in Improving the Consumption Environment

3.1. Digital Platforms

Cheng pointed out that a good consumption environment can boost consumer confidence and promote the release of consumption potential [15]. The integration of smartphones and the internet has led to the emergence of digital platforms, which act as a bridge between consumers and merchants. The platform's business model primarily adopts the O2O (online-to-offline) approach, using big data to help merchants attract potential customers online and then drive offline purchases through discounts

and promotions. This operational model emphasizes both online convenience and offline experience, achieving a complementary advantage.

In terms of after-sales service, many platforms are equipped with intelligent customer service functions for consumer inquiries. In the event of disputes between merchants and consumers, the platform can intervene by issuing coupons or other forms of compensation to mediate the issue, addressing the difficulties of consumer protection in traditional business models. To safeguard consumer rights, users can provide feedback through the platform's rating and review system, which helps merchants improve service quality and enables consumers to evaluate product quality and monitor merchant credibility, making products and services more transparent.

3.2. Digital Logistics

In the Internet environment, the logistics industry has become a crucial channel for connecting digital consumption with social production. Traditional logistics models relied heavily on manual inspection and record-keeping, with paper-based tracking and traceability. However, digital technologies can optimize circulation systems, improve operational efficiency, and reduce unnecessary resource waste [16]. In terms of security, digital logistics employ blockchain technology to replace traditional databases, preventing counterfeit and substandard products from entering the market and safeguarding consumer rights. Blockchain technology eliminates centralized authority, connecting data blocks through distributed nodes, making data open and transparent. It can enhance the quality of accounting information by sharing real-time accounting data, improving operational efficiency, and protecting information security [17]. Consequently, when product quality issues arise, the system can quickly identify the source of the problem and take immediate action to prevent further issues. The transparent system enhances the traceability of counterfeit products, boosting consumer trust in the safety of items like food, medicine, and luxury goods. In Jie's research, empirical testing of the theoretical framework linking digital logistics and consumption structure upgrades confirmed that digital logistics effectively contributes to the release of digital dividends, thereby promoting consumption upgrades [16].

3.3. Product Diversity

A diverse range of goods and services offers consumers more choices, increasing individual residents' satisfaction with consumption. The current e-commerce environment effectively supports product diversity. Li believes that the current stage of China's e-commerce industry features relatively lenient market entry regulations, with the government simplifying the procedures required for market entry as much as possible, allowing the market to play an effective role in resource allocation [18]. This means that small and medium-sized enterprises (SMEs) and individual merchants can more easily enter the market, reducing the likelihood of industry monopolies, and a vast market facilitates the creation of a full range of product types. Additionally, foreign goods available through cross-border e-commerce platforms like Tmall Global, Amazon, and NetEase Kaola can join the market competition. Therefore, it is evident that e-commerce platforms are driving the process of product diversification.

4. Future Directions of the DE

4.1. Trends and Structure Analysis of Consumer Demand

Research shows that under the influence of the DE, China's consumption structure is developing in a diversified and advanced manner [16]. Diversification is primarily reflected in the expansion of emerging consumption fields, such as online medical consultations and live streaming, spanning

industries such as education, healthcare, culture, entertainment, and finance. At the onset of the COVID-19 pandemic, by March 2020, the user base of most internet platforms had grown despite the challenges faced by travel booking, ride-hailing, and food delivery platforms. The most significant increases were seen in online education and live streaming, with growth rates of 110.2% and 41.1%, respectively, compared to the end of 2018 [19]. From January to September 2020, online retail consumption showed significant counter-cyclical growth, increasing by 9.7% year-on-year, with the most significant growth observed in physical goods sold online, accounting for 24% of total retail sales [20]. This shows a clear shift towards integrating offline and online consumption channels. Moreover, the recent rise of internet consumption trends such as green consumption, smart appliances, and health and wellness reflects a shift in consumer focus from basic needs to quality consumption, from material goods to experiences and services. The evolution of consumption patterns and priorities among residents signals a trend toward more advanced consumption.

4.2. Optimization Suggestions and Challenges

To further optimize consumer consumption, this paper proposes a few suggestions. First, encourage SMEs to implement innovative DE pilot projects. SMEs typically do not have complex decision-making processes and can flexibly adjust strategic directions, responding to customer needs more quickly. Successful implementation of such projects could help boost economic growth and stimulate market vitality. Second, in the regulation of lending platforms, credit platforms should focus on cultivating residents' scientific and rational consumption concepts and awareness of risk, and strengthen regulation to avoid over-consumption leading to financial difficulties [14]. Third, with the widespread adoption of digital financial tools, the Internet has given rise to many online financial platforms, such as smart investment apps, online investment platforms, and digital currency trading platforms. It is essential to encourage the public to engage with these financial technologies, which can enhance financial literacy, help better plan investments, and manage debt, thus guiding residents to make more efficient and rational consumption decisions.

Despite its growth, the sharing economy still faces challenges, such as the high maintenance costs associated with shared products, which hinder its sustainability. SMEs face the risk of bankruptcy, and even leading companies may struggle once subsidies are removed. However, the sharing economy is based on the principles of green and sustainable development, aiming to reduce the burden on natural resources and build smart cities [21]. The future DE should seek ways to reduce maintenance and operational costs for shared products and enterprises, thereby increasing industry competitiveness. The development of digital logistics primarily needs to overcome bottlenecks in blockchain technology. As transaction volumes grow and frequencies increase, limited data storage capacity could lead to network congestion and performance degradation. Due to the lack of centralized management, more severe issues could arise, such as data leakage. Therefore, future breakthroughs in new concepts or technologies could address these challenges, potentially unlocking further consumer potential.

5. Conclusion

This paper reviews and analyzes relevant literature, summarizing how the current DE enhances consumption levels through the sharing economy, e-commerce platforms, digital payments, and credit, and improves the consumption environment through digital platforms, logistics, and product diversity. It also offers insights into future trends in the DE from the perspective of consumer demand and provides optimization suggestions. The paper concludes that the DE has rationalized the allocation of consumable resources, laying the foundation for consumers to gradually transition to higher levels of goods and services, while also promoting the development of the market economy. Theoretically,

this study enriches the existing body of information economics and consumer economics. Practically, it also provides a theoretical basis and reference for future government and enterprise decision-making to promote the development and innovation of the DE.

This study has certain limitations, including the lack of channels to analyze future policy restrictions on the DE industry, making it challenging to accurately predict business operations and development directions. Additionally, there is a lack of quantitative analysis of consumption over time, making it difficult to rigorously identify the core factors influencing consumption upgrades. Future research could explore the sustainable development of the DE industry under specific policies and economic conditions, planning the direction of business model development, and evaluating the feasibility of proposed solutions through consumer market research. Overall, this paper provides an initial overview of the pull effect of the DE on residents' consumption upgrades, laying the groundwork for future research. It is hoped that this study will offer some assistance and inspiration for development in related fields.

References

- [1] Wang, M. (2023). *Comparative analysis of digital platform economy and traditional economic models*. *Science and Technology Economic Market*, (10), 60-62.
- [2] Gu, N. (2020). *Analysis of opportunities and challenges faced by traditional economy under the new generation information technology environment*. *Industry and Technology Forum*, 19(02), 10-11.
- [3] Lu, M. (2023). *Exploration of the integration of digital economy and traditional economy*. *Chinese and Foreign Corporate Culture*, (06), 99-101.
- [4] Yang, X. (2024). *Discussion on e-commerce marketing strategies based on consumer psychology*. *Modern Business*, (10), 43-46.
- [5] Ma, Z., & Zhou, X. (2022). *Empowering industries: A path exploration of integrating digital economy into traditional economy*. *Journal of Harbin University*, 43(10), 70-73.
- [6] Yang, X. (2022). *Interpretation of mobile social media marketing psychological techniques from the perspective of consumer psychology*. *Wealth Era*, (12), 128-130.
- [7] Wei, L. (2022). *Study on the change of consumer behavior and short video user behavior during the COVID-19 pandemic: A case study of Douyin e-commerce*. *Modern Business*, (33), 3-6.
- [8] Hou, S. (2019). *Evaluation of consumer levels in various provinces based on factor analysis*. *China Business Theory*, (06), 67-68.
- [9] Peng, G., Liu, M., & Zhang, J. (2021). *Study on the statistical measurement and influencing factors of the upgrading of Chinese residents' consumption structure*. *Statistics Theory and Practice*, (09), 30-39.
- [10] Ren, X. (2023). *Study on the impact of digital economy development on residents' consumption levels*. *Business Observation*, 9(33), 45-48.
- [11] Hou, Y., & Wang, F. (2021). *Analysis of the impact of sharing economy concept on college students' consumption behavior*. *Mall Modernization*, (13), 17-19.
- [12] Tan, W. (2024). *Analysis of the optimization of China's residents' consumption structure under the digital economy*. *Investment and Cooperation*, (03), 187-189.
- [13] Miao, W., & Tian, Y. (2023). *Analysis of digital payment and the change of China's currency structure*. *Western Finance*, (1), 72-74.
- [14] Xu, H. (2023). *Study on the impact of Ant Financial's Huabei on consumer behavior*. *Industry Innovation Research*, (17), 72-74.
- [15] Cheng, X., Liu, G., & Fu, H. (2024). *Study on the impact of improving consumption environment on the release of residents' consumption potential: An empirical test based on 12 prefecture-level cities in Inner Mongolia*. *Business Economic Research*, (12), 52-57.
- [16] Xie, Y., & Xue, J. (2024). *Study on the impact of digital logistics and e-commerce development on the optimization of consumption structure*. *Business Economic Research*, (04), 111-115.
- [17] Wen, Z. (2024). *The impact of blockchain technology application on the quality of corporate accounting information: A case study of SF Express Group*. *Times Business and Trade*, 21(06), 88-90.
- [18] Li, J. (2021). *Discussion on the market entry and exit mechanisms of e-commerce*. *China Market*, (26), 174-175.
- [19] iResearch Series Research Reports. (2020). *New e-commerce ecosystem helps economic recovery: Post-pandemic retail consumption insights report 2020*. In *iResearch Series Research Reports (2020 Issue 7)*. [Unknown Publisher].

- [20] Zhou, Q., & Wu, Q. (2020). *Online consumption becomes a highlight of China's consumption*. *Zhongguancun*, (11), 36-37.
- [21] Ganapati, S., & Reddick, C. G. (2018). *Prospects and challenges of sharing economy for the public sector*. *Government Information Quarterly*, 35(1), 77-87.