

## The Impact of Digitalization on Household Consumption based on the pathways of Income, Payment, and Liquidity Constraints: Evidence from China

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**Abstract**— This study examines the impact of consumption digitalization on household consumption in China using micro-level data from the 2021 and 2023 China Household Finance Survey (CHFS). A two-way fixed effects model is employed to empirically analyze the relationship between consumption digitalization and household consumption behavior. The results indicate that consumption digitalization significantly promotes household consumption, suggesting that digital transformation plays an important role in stimulating consumption growth. Further analysis shows that consumption digitalization positively affects all seven categories of consumption expenditure, although the magnitude of these effects varies across different categories. These findings provide new empirical evidence and methodological insights into the role of digitalization in promoting household consumption and optimizing consumption structure.

**Keywords:** Consumption digitalization; Household consumption; Consumption expenditure; Two-way fixed effects.

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### I. INTRODUCTION

The Central Committee of the Communist Party of China has made accelerating the construction of a new development pattern, with the domestic cycle as the mainstay and the domestic and international cycles reinforcing each other, a key strategic decision for realizing the second centenary goal and for the integration of development and security. This decision requires China's economic development to be based on domestic demand and to rely on the endogenous power of its own economic system to achieve the mutual promotion of domestic and international economic cycles. Since the reform and opening up, China's economy has achieved rapid development and gradually built a huge domestic demand market. In 2025, China's total retail sales of consumer goods reached 50.1202 trillion yuan, an increase of 3.7% year-on-year, setting a new record for consumption scale and laying a solid foundation for building the new development pattern. In 2024, the proportion of survival-oriented consumption was as high as 60.9%, while entertainment consumption accounted for less than 5%. This indicates that optimizing the structure of residents' consumption is an urgent problem to be solved. Empowering the traditional economy with emerging technologies such as the Internet, digital information technology, and artificial intelligence is driving rapid changes in business models. Therefore, can the development of the digital economy drive the upgrading of residents' consumption structure? How can it drive it? Exploring the above questions has significant theoretical and practical implications for realizing residents' consumption upgrading.

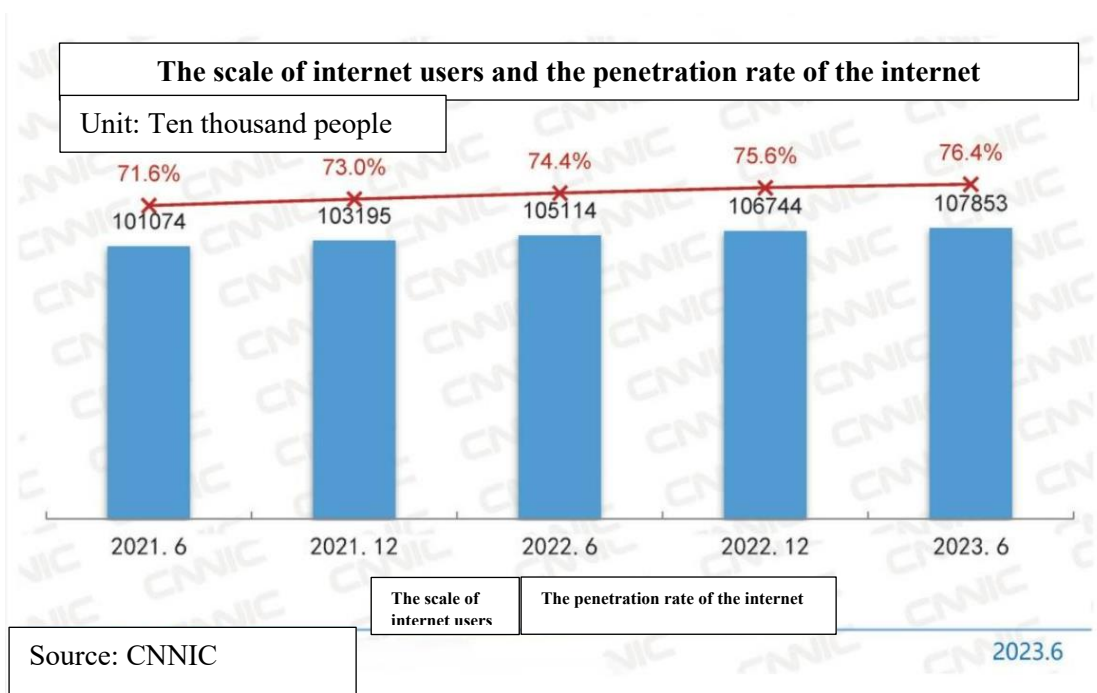
In recent years, with the popularization of mobile internet, the development of new-generation digital information technologies, and the widespread application of smart devices, traditional consumption scenarios have broken through the limitations of spatial trade barriers, offering more abundant consumption choices. The model of consumption digitalization has emerged, profoundly changing residents' consumption preferences and habits. From the initial online bank transfers to today's mobile payments, the

revolution of consumption digitalization has continuously driven the transformation of consumption behavior. As the basic unit of social consumption, households are directly influenced by payment methods. Therefore, exploring the changes in household consumption behavior under the context of consumption digitalization is of great significance for understanding the dynamics of the consumption market, formulating relevant policies, and guiding household consumption. However, current research on the specific impact of digitalization on total household consumption, as well as its impact mechanisms and specific pathways, still needs further improvement and empirical verification.

Therefore, this thesis takes the digitalization of consumption as the research entry point. By sorting out the core concepts closely related to the research theme, such as the digitalization of consumption and resident consumption, this thesis systematically reviews the literature and theoretical foundations, including lifecycle theory, and analyzes the mechanism through which the digitalization of consumption affects resident consumption from a theoretical perspective. Then, it utilizes data from statistical yearbooks and the China Internet Network Information Center (CNNIC) to analyze the current status of consumption digitalization and resident consumption in China. Subsequently, it employs micro-data from the China Household Finance Survey (CHFS) in 2021 and 2023 to construct models and empirically study the specific effects of consumption digitalization on resident consumption, as well as the impact mechanisms through factors such as resident income, payment convenience, and household liquidity constraints. This is done with the aim of providing new ideas and methods for enhancing research on how consumption digitalization promotes resident consumption, optimizing the structure of resident consumption, unleashing consumption potential, and facilitating the formation of a domestic large-scale circulation pattern.

The China Internet Network Information Center (CNNIC) released the 56th “Statistical Report on the Development of China’s Internet” (hereinafter referred to as the “Report”) in Beijing, showing that as of June 2025, China’s number of internet users reached 1.123 billion, with an internet penetration rate of 79.7%.

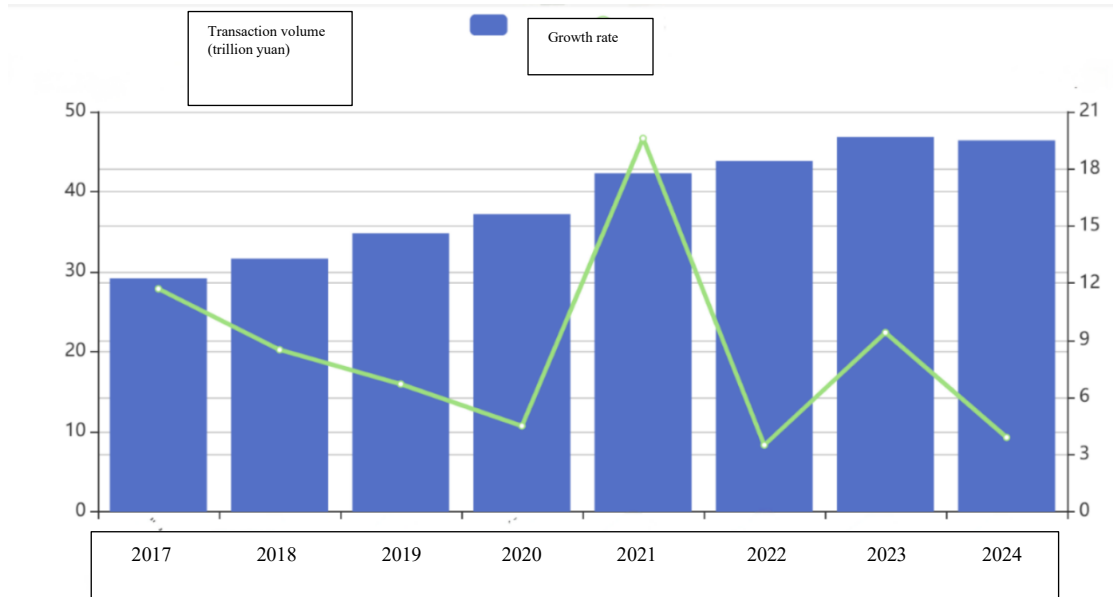
It can be seen from Fig 1 that the number of internet users in our country has been continuously increasing over the past six years, and the growth rate has been rising year by year.



**Figure 1.** The scale of internet users and the penetration rate of the internet

In recent years, with fiscal incentives and financial support from the state for the e-commerce market, the domestic e-commerce market has flourished continuously. The improvement of mobile devices has driven the growth of transaction volume in the e-

commerce market. Over the past eight years, China’s e-commerce transaction volume has expanded year by year, and the growth rate has shown an upward trend (see Fig 2 and Table 1).



**Figure 2.** China’s e-commerce transaction volume and growth rate. Source: CNNIC

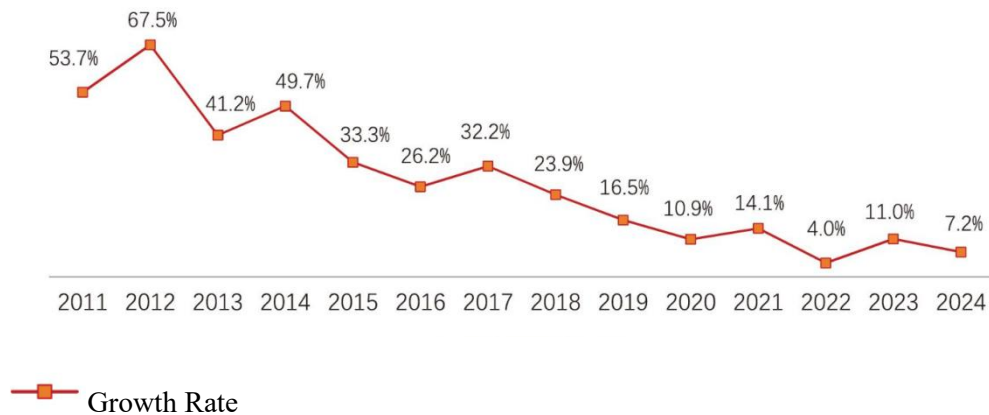
**Table 1:** China’s e-commerce transaction volume and growth rate

Time	E-commerce transaction volume(trillion yuan)	Growth rate(%)
2024	46.41	3.9
2023	46.83	9.4
2022	43.83	3.5
2021	42.30	19.6
2020	37.2	4.5
2019	34.81	6.7
2018	31.63	8.5
2017	29.16	11.7

Source: CNNIC

With the thriving development of the e-commerce market and the diversified offerings of e-commerce products, residents' online purchasing desire has increased, leading to a growing transaction volume of online retail. Over the past six years, China's online

retail transaction volume has continued to increase. In 2024, China's online retail volume reached 15.5 trillion yuan, a 7.2% increase compared to 2023. This is equivalent to each person in the country buying about 10,000 yuan worth of goods online, indicating a very mature market(See Fig 3).



**Figure 3.** The growth rate of online retailing sales in China from 2011 to 2024. Source: CNNIC

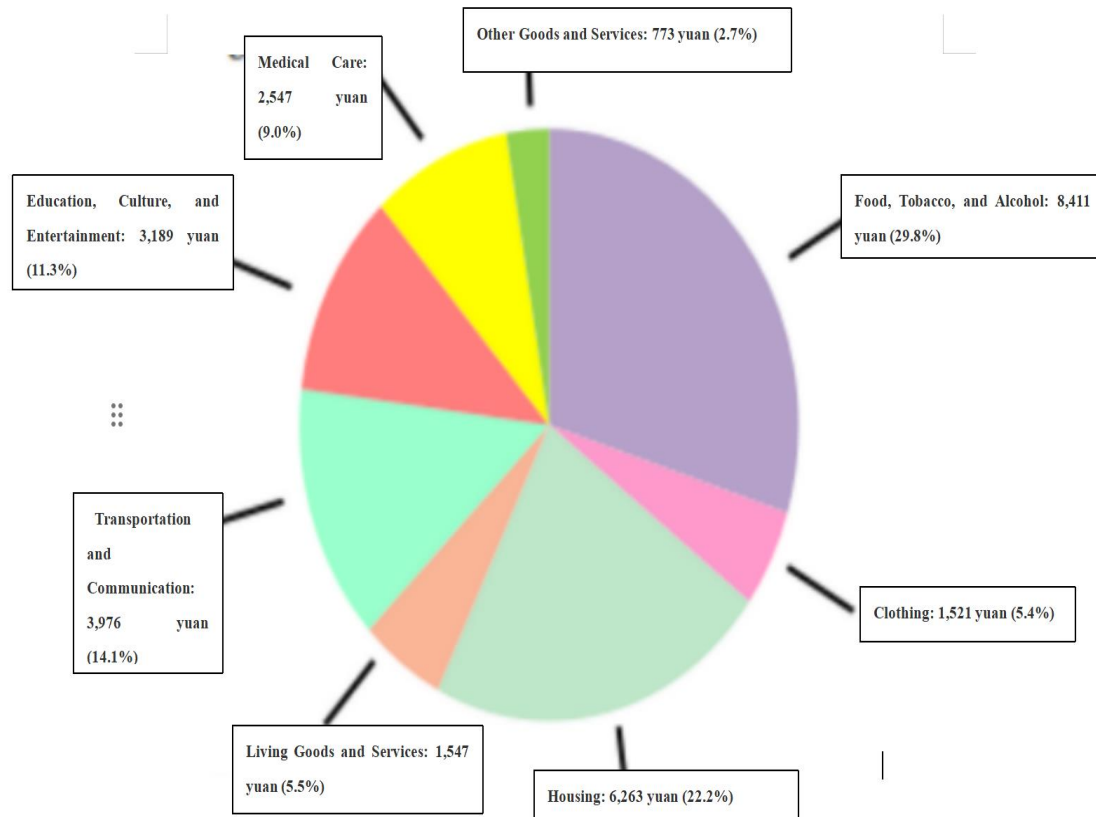
Since 2018, the proportion of China's online retail sales to the total retail sales of consumer goods has gradually increased. In 2024, the total online retail volume of physical goods reached 12.7878 trillion yuan, a year-on-year growth of 6.5%, accounting for 26.5% of the total retail sales of social consumer goods.

Per capita consumption expenditure of residents refers to the total consumption expenditure incurred by residents for daily life. Understanding the current status of per capita consumption expenditure in China is a prerequisite and foundation for leveraging consumption to drive economic growth.

According to data from the National Bureau of Statistics, the national per capita consumption expenditure in 2024 amounted to 28,227 yuan, representing a 5.3% increase compared to the previous year. After deducting price factors, the actual growth rate was 5.1%. Among this, the per capita service consumption expenditure was 13,016 yuan, growing by 7.4% year-over-year, accounting for 46.1% of the per capita consumption expenditure. By place of usual residence, the per capita consumption expenditure of urban residents was 34,557 yuan, increasing by 4.7% and growing by 4.5% in real terms after deducting price factors; the per capita consumption expenditure of rural residents was 19,280 yuan, increasing by 6.1% and growing by 5.8% in real terms.

The national Engel's coefficient stood at 29.8%, with 28.8% in urban areas and 32.3% in rural areas.

The structure of resident consumption refers to the proportion of different types of consumption within total consumption. It is an important indicator reflecting residents' consumption level, consumption culture, and economic development. According to data from the National Bureau of Statistics, in 2024, the main type of consumption among Chinese residents was service consumption. The per capita service consumption expenditure was 13,016 yuan, representing a 7.4% year-over-year increase, and accounted for 46.1% of the per capita consumption expenditure (See Fig 4).



**Figure 4.** Per Capita Consumption Expenditure of National Residents in 2024 and Its Composition

First, this research enriches the relevant research in the field of consumption digital economy. Current literature mostly focuses on the impact of consumption digitalization or the Internet on the overall consumption level of residents, while further research on consumption digitalization's impact on residents' consumption structure and the mechanisms influencing consumption is relatively scarce. This thesis takes consumption digitalization as the research entry point. After sorting out literature on consumption digitalization, resident consumption, and their relationship, it employs lifecycle theory for theoretical-level research on the mechanism through which consumption digitalization affects resident consumption. Then, it utilizes data from statistical yearbooks and the China Internet Network Information Center to analyze the current status of consumption digitalization and consumption in China. Subsequently, it employs micro-data from the China Household Finance Survey (CHFS) in 2021 and 2023 to construct models and study the specific effects of consumption digitalization on resident consumption and the path mechanisms, with the aim of providing new ideas and methods for enhancing research on consumption digitalization, promoting resident consumption, optimizing the structure of resident consumption, and advancing the formation of a domestic large-scale circulation pattern in China.

Second, it provides new insights for promoting resident consumption upgrading. Most current empirical studies treat consumption digitalization as the research object and only explore its impact effect on resident consumption upgrading from an overall level. This thesis not only investigates the overall impact of consumption digitalization on resident consumption but also examines its impact at various consumption structure levels, which helps to dissect the internal mechanisms and current dilemmas of consumption digitalization empowering consumption upgrading. It provides feasible references and strategies for subsequent research on consumption upgrading issues.

Third, this research contributes to deepening the understanding of theories in fields such as consumer economics and fintech. By exploring the mechanism through which digitalization of consumption affects household consumption behavior, it can enrich

the theories of consumer economics and provide new theoretical support for the relationship between fintech and consumption behavior.

First, this study adds new pathway options for driving consumption upgrading among Chinese residents and is conducive to the smooth progress and development of the domestic cycle. China's 14th Five-Year Plan emphasizes building a digital China, developing information consumption and digital consumption, improving the "Internet+" consumption ecosystem, and creating a new engine for consumption upgrading. This thesis takes resident consumption as the strategic starting point to explore the internal mechanism and role mechanism through which consumption digitalization empowers Chinese residents' consumption, and conducts empirical tests. Combined with heterogeneity analysis and structural analysis of consumption, it also proposes effective suggestions for promoting consumption upgrading among residents, encouraging new types of consumption to enter a virtuous development model, thereby promoting consumption upgrading and long-term development, and assisting in the construction of China's new development pattern of dual circulation. It has very important practical significance and reference value.

Second, the trend of digitalization in consumption is becoming increasingly evident. Studying its impact on household consumption behavior enables enterprises and governments to better understand consumer behavior, providing scientific basis for formulating market strategies and consumption policies. At the same time, it also has guiding significance for promoting rational household consumption and optimizing household financial management.

The effect model is used to verify the positive effect of consumption digitalization on household consumption level, and its mechanism and transmission path are shown from an empirical perspective.

This study does not directly include a "digital consumption" variable; instead, it focuses on three potential household-level changes triggered by digital consumption—namely, increased income, enhanced payment convenience, and alleviated liquidity constraints—to identify the direct effects of these mechanism factors on consumption behavior. By constructing regression models between the mechanism variables and household consumption expenditure, the study empirically evaluates the relative importance of each pathway and further identifies their heterogeneous effects across urban–rural and regional contexts.

There are few systematic empirical studies on the mechanism of consumption digitalization on household consumption in the existing literature, but there are many theoretical discussions in the domestic literature, and the empirical study is mainly based on macro data. The econometric model of the latest two periods of panel data in 2021 and 2023 is constructed to explore the impact of online shopping on residents' total consumption, online and offline consumption, and further explore the heterogeneity and mechanism of online shopping on residents' consumption, providing new micro evidence for the research on the impact of consumption digitalization on residents' consumption.

## II. LITERATURE REVIEW

### II.1. INFLUENCING FACTORS OF DIGITALIZATION OF CONSUMPTION

Scholars at home and abroad have discussed the influencing factors of consumption digital transformation from macro and micro perspectives respectively. On the macro level, Vaska et al. (2021) found that the influencing factors of consumption digitization include the application of digital technology, the improvement of service quality and the pressure of market competition.

At the micro level, Kim et al. (2012) found that customers' satisfaction and trust in merchants are the most important factors affecting consumption digitization, and potential consumers are more sensitive to trust than fixed consumers, who are mainly affected by price. Worthy et al. (2004) found that consumption digitization was highly related to gender, age and income, and women, college students and high-income groups preferred digital consumption methods. Forsythe et al. (2003) and Anastasi (2004) also showed that risk is also an important factor, and risk can be divided into four categories: financial, product, psychological and time loss risk. Childers et al. (2001) believed that shopping convenience would affect consumption digitization, and pointed out that express logistics distribution, family housing and network were important factors affecting



consumption digitization. Huang Wenyan et al. (2012) pointed out that online word-of-mouth had an important impact on consumption digitization, and the better the word-of-mouth was, the more inclined people were to digital consumption. Zhu Yi and Chang Jiancong (2020) found that the combination effect of logistics efficiency and payment methods promoted the digital transformation of residents' consumption.

Research on the impact of consumption digitization on residents' consumption levels primarily focuses on three aspects: its effects on household income, the convenience of consumption payments, and constraints on household liquidity.

In the research of the impact of consumption digitization on residents' consumption levels, numerous research findings indicate that consumption digitization enhances residents' income from multiple dimensions, thereby boosting their consumption levels. First, consumption digitization drives economic growth, which increases residents' income. Yang Weiming et al. (2020) confirmed this conclusion by using economic growth rate as an intermediate variable. Second, consumption digitization improves the credit environment, fostering corporate innovation and individual entrepreneurship, thereby increasing residents' income. He Jing and Li Qinghai (2019) proposed that the widespread adoption of consumption digitization helps improve the social credit environment and elevate social credit levels, which in turn enhances residents' entrepreneurial willingness. Entrepreneurial behavior is a key factor influencing residents' income. Zhang Xun et al. (2019) found that consumption digitization can promote farmers' entrepreneurship, thereby increasing household income, but has no significant effect on urban residents' income. Third, due to its interconnected nature, consumption digitization removes time and space constraints, freeing individuals from the limitations of traditional platforms. Through online training and digital learning, it enhances individuals' comprehensive professional skills and human capital levels (Jiang Qi et al., 2018), indirectly boosting residents' income and strengthening their consumption capacity.

In the research of impact of digital consumption on the convenience of residents' payment methods, digital consumption primarily enhances payment convenience for residents through mobile payment. Mobile payment enables consumption to transcend time and space, providing consumers with a "secure, convenient, and fast" payment method, alleviating constraints on resident consumption, and effectively improving their consumption experience (Yixingjian et al., 2018). Digital payment methods reduce intermediaries and lower operating costs for financial institutions, highlighting the convenience of digital payments while also offering residents the optimal choice. Additionally, mobile payment is utilized in various daily life scenarios, delivering diverse consumption psychological experiences for consumers, thereby increasing their decision-making speed and encouraging more active consumption (Huang Kainan, 2021). Meanwhile, the rapid development of internet technology has also brought new changes to consumption, with the digital transformation of consumption driving the online transition of traditional offline commerce. The integration of online and offline shopping provides remote mountainous area farmers with more options, allowing them to shop via mobile payment and enjoy a shopping experience similar to that of urban residents (Zhang Tongjin, 2021). The widespread adoption of mobile payment platforms like Alipay and WeChat has enhanced payment convenience, thereby stimulating resident consumption.

In the research of the impact of consumption digitalization on household mobility constraints, consumption digitalization has enabled financial institutions to gradually turn to online customer contact, and any resident can use the Internet platform to access financial services at any time and anywhere. Online transactions have increased residents' access to consumer credit, thus stimulating residents' consumption potential. As digital finance has lower transaction costs, it broadens the range of customer service groups, making many "long tail" people also enjoy digital financial services (Nan Yongqing, 2020). The credit services such as borrowing and spending launched by JD Baitiao and Alipay have solved the problem of poor household capital turnover, met the needs of family capital turnover at all stages, and thus promoted the total consumption of residents. The empirical results of Li Guangzi and Wang Jian (2017) indicate that increasing consumer credit can promote the consumption of certain goods, thereby having a positive impact on overall consumption. The research results of Nan Yongqing and Sun Yu (2020) indicate that in rural and educationally underdeveloped areas of China, consumer credit has a significant impact on residents' consumption. Xie Jiazhi and Wu Jingru (2020) used the 2013 data from the China Household Finance Survey and employed instrumental

variable method to find that digitalization of consumption promotes household consumption by alleviating credit constraints on farmers. Meanwhile, the use of credit cards by residents can also reduce liquidity constraints, thereby promoting consumer spending. Li Jiangyi and Li Han (2017) conducted an empirical analysis of the mechanism of residents' use of credit cards on consumption using data from two Chinese financial surveys in 2011 and 2013. The study found that credit card use promotes residents' consumption and improves their consumption level by easing liquidity constraints.

## II.II. INFLUENCING FACTORS OF RESIDENTS' CONSUMPTION LEVEL

Income level is the most important and direct factor affecting the level of household consumption. Shim et al. (2016) divided income into wage income and property income, and further concluded that wage income was the most critical factor affecting consumption level. The research results of Xu Wei (2022) show that the development of rural industries can increase the per capita income of rural residents and narrow the income gap, thus improving the level of farmers' consumption. Li Guangyong et al. (2015) used provincial dynamic panel data and concluded that the income gap would affect the consumption rate of residents, and the impact was different due to different urban and rural areas, industries and regions.

In recent years, the impact of digital economy on household consumption has also attracted the attention of scholars. Zhong Ruoyu et al. (2022) showed that the development of urban digital economy not only improves the consumption level of local residents, but also drives the consumption of surrounding areas. Zhang Feng et al. (2020) proposed that the application of digital technology will promote the digitalization of consumption and change the form, content, mode and concept of consumption. Yang Jirui et al. (2015) found that in the general environment of digital economy, people's consumption behavior shows the characteristics of interaction, sharing and autonomy.

In addition to income and digital economy factors, housing, housing prices, social security and many other factors also affect the level of household consumption. Bostic et al. (2009) showed that if the housing wealth of American households decreases by 10%, the household consumption expenditure will decrease by 1.2%, so the housing wealth also has an impact on household consumption. Banrellet al. (2015) found that the impact of real estate wealth on the consumption of British residents was greater than that of Italy. Xue Xiaoling and Zang Xuheng(2020) believed that real estate was an important part of Chinese residents' asset allocation, and the rise in housing prices promoted the consumption of households with houses. Li Jianying et al. (2018) believed that there was a positive correlation between pension expenditure and urban residents' consumption, and increasing pension expenditure could promote urban residents' consumption.

## II.III. INFLUENCING FACTORS OF RESIDENTS' CONSUMPTION STRUCTURE

Consumption structure refers to the proportion of different types of consumption expenditure in the total consumption expenditure, which is an important indicator to reflect the consumption culture, economic level and social customs of residents in a region. In foreign countries, the AIDS model is mostly used to study a certain type of consumption expenditure. The AIDS model (nearly Perfect Demand System Model) was proposed by Deaton and Muellbauer (1980), which is the most commonly used model to study consumption structure. Blancifortiet al. (1983) used the AIDS model to study and found that the change of German household consumption structure was affected by age.

In recent years, the study of the impact of digital economy on consumption structure has become a hot topic. Based on China's provincial panel data from 2011 to 2020, Du Jiating et al. (2022) found that digital inclusive finance promoted the upgrading of rural residents' consumption structure and showed nonlinear characteristics of increasing margin. Wang Qiaoqiao et al. (2018) found that credit card payment can reduce the proportion of survival consumption and increase the proportion of development and enjoyment consumption. Huang Manyu et al. (2022) showed that the urban-rural digital divide has an inhibitory effect on the development and enjoyment consumption expenditure of rural residents, which will hinder the upgrading of rural residents' consumption structure.

In addition to digital economy factors, urbanization, night economy, demographic structure and many other factors also affect the level of residents' consumption. The empirical results of Wang Fang and Hu Lijun (2022) showed that urbanization can effectively optimize the consumption structure of rural residents, and there are obvious regional differences in the impact. Hu Xinyun et al. (2022) showed that the night economy had a significantly positive effect on residents' total consumption, development and hedonic consumption, and promoted the upgrading of residents' consumption structure. Xu Guixiong and Zhao Xindong et al. (2021) found that the changes in demographic characteristics such as aging, gender difference, education level and the urban-rural income gap all have a significant impact on the consumption structure of urban and rural residents.

## II.IV. THE IMPACT EFFECT OF DIGITALIZED CONSUMPTION ON RESIDENTS' CONSUMPTION

As for the relationship between the Internet and household consumption, Huang Yuting et al. (2021) showed that the Internet can significantly positively affect household consumption. Yin Zhigao (2022), using the data from the 2019 China Household Finance Survey (CHFS), found that the Internet has raised the consumption level of rural residents and promoted the upgrading of their consumption structure.

As for the relationship between e-commerce and household consumption, Fang Fuqian et al. (2015) used the general equilibrium model to study the development scale of e-commerce and household consumption in various provinces in China. Zhang Hongwei (2016) proposed that the development of e-commerce in China can effectively improve the overall consumption level of residents, which not only promotes the aggregation of consumption in different regions, but also reduces the consumption gap between urban and rural areas.

As for the relationship between digital finance and household consumption, the research results of Zhang Chi et al. (2022) showed that credit will inhibit household consumption, but digital finance can promote the consumption level of Chinese residents. Cai Guiyun et al. (2022) found that digital inclusive finance in Jiangxi Province significantly improved the consumption level of rural residents and was conducive to optimizing the consumption structure of rural residents.

Regarding the relationship between online shopping and household consumption, scholars mainly focused on the relationship between online shopping and offline shopping as well as the relationship between online shopping and total household consumption. Scholars have different views on the relationship between online shopping and offline shopping. Many scholars have proposed that online shopping will weaken the original offline consumption, and online shopping and offline shopping are a kind of substitution relationship. The results of Van et al. (2007) show that due to the rise of online shopping, more than half of the customers in the study no longer frequent physical stores, and this substitution effect is more significant in urban areas, but not very significant in rural areas; Sim and Koi (2002) used questionnaires to collect individual ideas. Some respondents thought that online shopping had replaced offline shopping, while others did not think that their original consumption behaviors had been affected by online shopping. Qin Fang et al. (2017) used data from the Chinese Household Finance Survey to separate offline and online consumption of households, and found that online shopping had a crowding-out effect on offline consumption, and that online shopping had a relatively small impact on high-income groups, while a relatively large impact on low-income groups.

As for the impact of online shopping on total consumption, the research results of Qin Fang et al. (2017) showed that online shopping has a crowding out effect on offline consumption, but in terms of overall consumption expenditure, online shopping has promoted total household consumption. Tang Caikun (2017) selected the relevant data of China's Internet and rural consumption economic structure to empirically study the impact of "Internet plus" on China's rural total consumption and all consumption. Zhang Hongwei et al. (2016) found that the scale of online shopping can significantly promote the growth of residents' total consumption nationwide and in regions with a high level of internetization, while the effect of online shopping on the growth of residents' consumption in regions with a low level of internetization is not significant.

## II.V. CONCEPT AND THEORY OF LIFE-CYCLE HYPOTHESIS

The Life-Cycle Hypothesis was first proposed by Modigliani and Brumberg (1954), which posits that individuals make optimal consumption and saving decisions over their lifetime based on expectations about future income and expenditures. Rather than relying solely on current income, household consumption decisions are more strongly influenced by their judgment of lifetime expected income and financial adjustment capacity.

In traditional economic settings, consumption is constrained by current income levels and credit conditions. However, in the context of digitalization, households have undergone structural changes in terms of income sources, payment methods, and credit access, which fundamentally reshape the decision-making process under the life-cycle framework.

The lifecycle theory, proposed by Modigliani, divides the human lifecycle into three stages: The first stage is the human capital accumulation phase. In this stage, people primarily accumulate wealth through work; The second stage is the transition phase from human capital to financial capital, during which people begin to convert their accumulated human capital into financial capital, such as savings and investments; The final stage is the financial capital realization phase, i.e., retirement, during which people mainly rely on the financial capital accumulated previously to sustain their lives. In an ideal scenario, at the final stage of life, people exactly exhaust their wealth. Based on this, from an overall perspective, the wealth accumulation process of an individual throughout life shows a trend of first rising and then falling. At retirement, wealth reaches its peak, and then gradually decreases with the progression of retirement life until it reaches zero at the end of life.

He argues that, as rational consumers, when making consumption decisions, individuals should comprehensively consider their current and future income situations to achieve consumption smoothing over their lifetime, thereby maximizing utility over the entire lifecycle under normal circumstances without major changes. He further elaborates that consumers' consumption decisions are not static but a continuously dynamic adjustment process. This means consumers need to constantly examine their actual situations, including factors such as income, wealth, and life needs, and flexibly adjust their consumption propensity based on changes in these factors. The purpose of this dynamic adjustment is to ensure a reasonable balance between consumption and saving throughout the lifecycle, thereby maximizing consumption utility.

The permanent income-life cycle theory, built upon the lifecycle theory, is also an important theoretical framework for analyzing issues related to income, consumption, and saving. Friedman's permanent income hypothesis provides a new perspective for understanding consumption behavior. He believes that consumers' consumption expenditure is primarily determined not by their current income, but by their permanent income. Permanent income refers to the long-term stable income that consumers can expect, which can roughly be calculated as a weighted average of observed income values over several years, with weights being larger for periods closer to the present. In his view, people's consumption is not based on short-term actual income, but rather links consumption to permanent, long-term income. This is because short-term disposable income is affected by many random factors and often fluctuates, while people's consumption does not vary with such income fluctuations. To achieve utility maximization, consumers actually consume based on the income level they can maintain in the long run. Therefore, occasional short-term income changes only affect the consumption level when they influence the expectation of the permanent income level. Additionally, Friedman points out that permanent income includes not only labor income but also property income. Therefore, consumption depends not only on income but also on property, which is consistent with the lifecycle hypothesis. Due to the consistency of many inferences from both theories, scholars have long combined these two theories to explore their impact on consumption and saving, forming a new theoretical framework.

## II.VI. CONCEPT AND THEORY OF SEARCH COST THEORY

The search cost theory model was first proposed and constructed by Stigler in 1961. He regarded search as a matter of customers obtaining the maximum benefit or spending the least under certain constraints. Search cost referred to the transaction cost of finding information such as product prices and attributes as well as counterparty information for both parties to complete a transaction under the condition of information asymmetry (Williamson, 1975).

Search costs include two types: one is the monetary cost of search, and the other is the opportunity cost (Smith et al., 1999). The monetary cost of search refers to the fact that consumers use the Internet to search for company information instead of having to investigate each company on-site, thereby reducing expenses such as transportation costs and travel expenses caused by investigations. The reduction of opportunity cost in search costs means that the information users search for online is much less than that found in various companies. Stigler (1961) pointed out that the opportunity cost, namely the time cost, is the greatest search cost.

In the digital age, for consumers, the greatest impact of digital consumption on them is the reduction of search costs. Network digital technology accelerates information transmission and enhances search efficiency. Consumers can find their desired products in less time, thus significantly reducing time costs. In addition, the digitalization of consumption has expanded consumers' search space, breaking through the limitations of time and space. Consumers can search for products from all over the world at any time and any place. Under the condition that the total time remains unchanged, expand the search scope, increase the number of searches, and reduce the unit search cost.

Therefore, this thesis takes the search cost theory as the theoretical basis to explore how digitalization of consumption can promote consumers' consumption on the basis of reducing consumers' search costs.

## II.VII. TRADE COST THEORY

Donaldson and Hornbeck (2016) first proposed the concept of market accessibility in transportation infrastructure, which means that with the development and improvement of transportation infrastructure, trade costs between regions decrease and market accessibility improves. Different from transportation infrastructure at large spatial scales such as high-speed railways and expressways, this paper focuses on "online shopping", a commodity circulation mode that connects logistics in the digitalization of consumption.

Logistics infrastructure is crucial for unblocking the domestic cycle and promoting resident consumption. First, consumption digitalization effectively reduces the time and transportation costs for goods to flow from producers to consumers, allowing industrial products and daily necessities to reach consumers faster (Combes et al., 2011). Second, consumption digitalization breaks down the spatial and temporal boundaries of consumption, reducing disparities among regions in terms of product prices, varieties, and quality (Jo et al., 2019). In market transactions, new business models dominated by consumption digitalization connect major domestic malls through online platforms, significantly reducing the fixed costs associated with opening physical stores (Wang et al., 2022). Digital transaction models enable suppliers to deal directly with consumers, thereby enhancing information transparency and bypassing multiple layers of wholesale distribution platforms. With no intermediaries between the commodity suppliers and consumers, this interconnectivity effectively lowers sales costs. Finally, due to the borderless nature of the internet, sales and procurement activities that were originally confined to specific regions are extended to the entire country and even larger areas, preventing market segmentation, accelerating the integration of commodity markets across all Chinese cities, and promoting market competition (Sun Puyang, 2017). Research shows that consumption digitalization makes it more convenient for farmers to purchase production materials and daily necessities online, while simultaneously reducing their transaction costs for online consumption, thus releasing the consumption potential of residents in China's central, western, and rural areas (Qin et al., 2017). Consumption digitalization not only has a direct impact on the growth of online consumption among rural residents but can also indirectly improve rural circulation systems, innovate agricultural product sales methods, increase farmers' income, and ultimately promote the expansion of rural residents' consumption (Wang et al., 2022).

## II.VIII. LIQUIDITY CONSTRAINT THEORY

Under the theory of liquidity constraints, residents will encounter some difficulties when applying for credit from financial institutions, especially for the middle and low income groups, which will reduce consumption expenditure and increase savings in the short term, thus affecting household consumption. Thus, liquidity constraints are the main reason for the inability of consumers to smooth consumption over the life cycle.

Numerous literature studies show that resident consumption is subject to liquidity constraints (Campbell and Mankiw, 1991), primarily caused by information asymmetry in financial markets and insufficient supply of consumer credit (Qi and Li, 2000; Li and Li, 2017). Yin Zhichao et al. (2021) derived from the CHFS database that nearly half of Chinese farmers face liquidity constraints. However, consumption digitalization, through reasonable and effective resource allocation, makes it easier for consumers facing liquidity constraints to leverage financial markets to achieve intertemporal consumption smoothing, thereby releasing suppressed consumption demand (Levchenko, 2005).

Meanwhile, consumption digitalization can also compensate for the shortcomings of traditional finance, broaden financial coverage, reduce the cost for residents to access funds, increase fund availability, and effectively alleviate liquidity constraints caused by difficulties in residents' capital turnover (Yi and Zhou, 2018). Wang Hongju and Zhang Huilian (2002) believe that the limited supply of China's credit market leads to Chinese residents always facing liquidity constraints in daily life, thus often increasing current deposits to smooth consumption over a lifetime. Wan Guanghua et al. (2001), using Chinese data from 1961-1998 and the Robert Hall consumption function model, concluded that an important reason for China's sluggish consumption is the increased proportion of consumers affected by liquidity constraints.

### III. METHODOLOGY

#### III. I. CONCEPTUAL FRAMEWORK

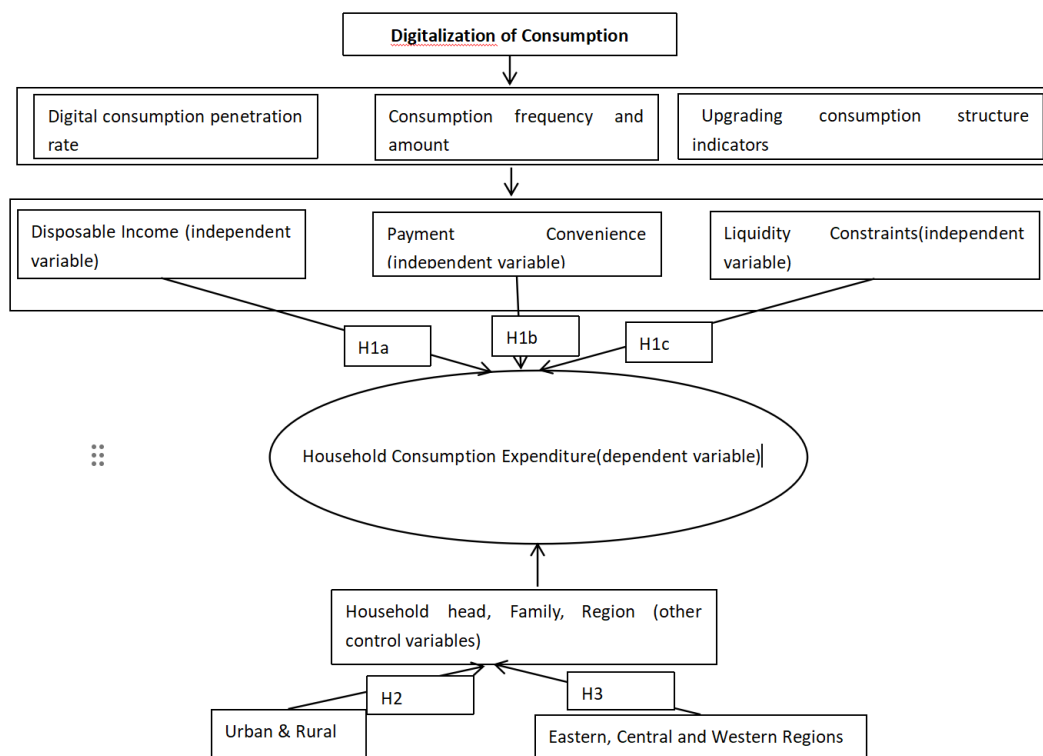


Figure 5. The Conceptual Framework of The Thesis Research

#### III.II. VARIABLE INTERPRETATION

Hypothesis 1: The digitalization of consumption promotes residents' consumption.

Hypothesis 1a: Consumption digitization promotes household consumption by facilitating household income growth.

Hypothesis 1b: Consumption digitization promotes household consumption by realizing payment convenience.

Hypothesis 1c: Consumption digitization promotes household consumption by alleviating household liquidity constraints.

Specifically:

Through the H1a mechanism, digital platforms (such as flexible employment and gig work) increase households' expected lifetime income, thereby raising current consumption based on life-cycle theory's key assumption of "anticipated income determines current consumption."

In the H1b mechanism, more convenient digital payment tools (such as WeChat Pay and Alipay) significantly reduce information asymmetry and transaction friction, making it easier for consumers to implement planned future consumption and alleviating psychological stress caused by payment uncertainty. This mechanism aligns with the LCH but is also supported by transaction cost theory, which argues that improved transaction efficiency stimulates household consumption willingness.

For H1c, digital financial products (such as digital credit, microloans, and online lending) enhance households' ability to obtain funds within the cycle, effectively easing traditional liquidity constraints. This reflects the life-cycle perspective of "smoothing consumption over time" and also echoes discussions in household finance theory on liquidity-constrained consumption behavior.

Based on this, the study further constructs H2a and H3a to explore heterogeneity across cities and regions in terms of digital infrastructure, income diversity, and access to financial tools, which may affect the mechanisms' effectiveness across different populations.

Hypothesis 2: The effects of digital consumption via disposable income, payment convenience, and liquidity alleviation differ significantly between urban and rural households.

Urban-rural heterogeneity (H2a): Urban households tend to have more convenient payment environments, better access to digital finance, and more mature usage habits. Therefore, life-cycle consumption responses in urban areas may differ from those in rural areas. This difference is also supported by transaction cost theory and credit accessibility theory.

Hypothesis 3: The effects of digital consumption via the three mechanisms differ significantly across eastern, central, and western regions of China.

Regional heterogeneity (H3a): Due to unbalanced regional development and differences in digital infrastructure (especially between eastern, central, and western regions), the efficiency of the mechanisms may vary, potentially triggering a "digital divide" effect. This reflects the idea in information asymmetry theory and digital inclusion theory, where the effectiveness of life-cycle consumption responses is affected by the degree to which households can access and process information.

### III.III. EXPLAINED VARIABLES

The explained variables: the household consumption expenditure include total household consumption expenditure, offline consumption expenditure, online consumption expenditure and various categories of consumption expenditure. The total household consumption expenditure is selected from the eight categories of consumption expenditure included in the China Statistical Yearbook. The online consumption expenditure is defined as household online shopping expenditure, and the offline consumption expenditure is defined as the value of total household consumption expenditure minus online expenditure (Qin Fang et al., 2017). For food consumption, take the natural logarithm directly to obtain  $\ln(\text{Food Consumption Expenditure})$ . To avoid the influence of zero or extremely small values, for the other seven categories of consumption, add 1 first and then take the natural logarithm to obtain  $\ln(\text{Consumption Expenditure} + 1)$ . If the values of total consumption expenditure and offline consumption expenditure are relatively large, refer to the approach of Bai Ren'en (2012) and also take the natural logarithm to obtain  $\ln(\text{Total/Offline Consumption Expenditure})$ . Similarly, to avoid bias from zero or extremely small values, the online consumption expenditure is also processed using the method of  $\ln(\text{Online Consumption Expenditure} + 1)$ . After such processing, the distribution of the data will be closer to a normal distribution, and the variance will be more stable, making it suitable for subsequent econometric analysis.

### III.IV. CORE EXPLANATORY VARIABLE

In this study, digital consumption is taken as the core explanatory variable. Following the approach of Yue Zhonggang et al. (2022), it is measured by whether the household has engaged in online shopping behavior. If the household has such behavior, the variable takes the value of “1”; if not, it takes the value of “0”.

### III.V. CONTROL VARIABLES

Referring to the research of Yang Guang (2018), this study takes the three factors of household head, family and region as control variables.

The variables of household head include indicators such as age(The difference between the survey year and the household head’s birth year.), gender(Male is denoted as “0”, and female is denoted as “1”), household registration(Rural household registration is denoted as “1”, and non-rural household registration is denoted as “0”) and marital status(The household head is married, denoted as “1”; the household head is unmarried, denoted as “0”). Household characteristic variables include indicators such as total assets(Asset amount greater than 10. To eliminate the influence of zero and extremely small values, take  $\ln X = \ln(X+1)$ ), the proportion of the elderly population and the proportion of the young population(This study defines the population aged 65 years and above as the elderly population, and the population aged 16 years and below as the youth population (Li Jiangyi, 2017), thereby calculating the proportion of elderly population and the proportion of youth population in each household), and family size(This study measures household size by the number of family members). Regional characteristic variables include indicators such as per capita GDP(take the natural logarithm), urban and rural areas(The address of the sampled household is marked as “1” if it is in a rural area, and “0” if it is in an urban area), and regions(The study sets up three regional control variables: “Whether East,” “Whether Central,” and “Whether West.”).

### III.VI. MEDIATING VARIABLES

This thesis selects the household total income (variable name: hfincome) and its components from the CHFS data architecture to represent residents’ income situation, including wage income (hlabinc), business income (hbusinc), property income (hpropinc), and transfer income (htransinc). It selects the electronic payment usage frequency (variable name: epayfreq) and mobile payment usage status (mpayuse) from the CHFS data framework to measure payment convenience. Specific questions include: “In the past year, how often did you or your family members use mobile payment methods such as WeChat Pay or Alipay?” (Options: Never, Occasionally, Often, Very Frequently); “What is your primary method for daily consumption payments?” (Options: Cash, Bank Card, Third-Party Payment Platform). These indicators reflect the household’s degree of dependence on and convenience of using digital payment tools. It selects credit accessibility (variable name: credit\_access) and emergency fund capacity (emergency\_fund) from the CHFS data framework as core operationalization indicators to measure household liquidity constraint. The questionnaire directly asks: “If your household suddenly needed a sum of money equivalent to three times your monthly income, could you raise it within a week?” (Options: Completely Unable, Very Difficult, Somewhat Difficult, Relatively Easy, Very Easy); “Do you have savings or deposits available for emergency situations?” (Yes/No).

The specific variable definitions are shown in Table 2 below.

**Table 2:** The variable definitions

Types of variables	Variables Name	Variables symbol
Explained variables	Total Household Consumption	Tlc
	Offline Consumption	Oec
	Online Consumption	Onc
	Food Consumption	Fdc

Types of variables	Variables Name	Variables symbol
	Clothing Consumption	Cgc
	Housing Consumption	Hgc
	Education and Entertainment Consumption	Eec
	Medical and Health Care Consumption	Mhcc
	Transportation and Communication Consumption	Tcc
	Household Equipment Consumption	Hec
	Other Consumption	Orc
Explanatory Variable	Digital Consumption	Online
Mediating Variables	Household total income	Hti
	Payment convenience	Ptc
	Household liquidity constraint	Hlc
	Head of household's age	Age
	Head of household's gender	Gender
	Head of household's hukou status	Hukou
	Head of household's marital status	Marriage
	Total household assets	Assets
	Control Variables	Proportion of elderly in household
Proportion of youth in household		Youth
Household size		Size
Regional per capita GDP		GDP
Urban-rural area		Area
	Eastern, central, western region	Region

### III.VII. DATA COLLECTION

The data of this study are from the China Household Financial Survey (CHFS) conducted by Southwestern University of Finance and Economics, and the survey data of 2017 and 2019 containing detailed household consumption expenditure are selected as data samples.

The per capita GDP and other data are sourced from the China Statistical Yearbook. To prevent excessive heteroscedasticity caused by large per capita GDP values in specific regions, this article takes the natural logarithm of per capita GDP.

Considering the incompleteness of CHFS database data before 2020, the lack of digital consumption indicators, the incompleteness of the eight-category consumption expenditure data, and the update status of the latest data, this paper selects the 2021 and 2023 survey data, which contain detailed resident consumption expenditure information as the data sample. Additionally, incomplete samples and outliers with consumption significantly exceeding income were removed. Ultimately, a total of 16478 observations from the two periods entered the main regression sample, and further research on consumption digitization and household consumption was conducted based on this database.

### III.VIII. PANEL DATA ANALYSIS

For panel data analysis, the objective is to examine the impact of digital influence on household consumption. Panel data allows us to control for individual heterogeneity and analyze the impact of variables over time.

Panel data involves both cross-sectional and time-series components. This allows you to capture both the variation between countries and the variation over time.

### III.IX. TYPES OF PANEL DATA MODELS

Model 1:

$$Y_{it} = \alpha_0 + \alpha_1 \cdot Online_{it} + \alpha_2 \cdot X_{it} + U_j + V_t + Z_{it} \quad (1)$$

In the above formula,  $i$  and  $t$  represent the  $i$ th household and year  $t$ , and the explained variable  $y$  in the model represents the total consumption expenditure, offline consumption, online consumption and eight types of consumption expenditure of the  $i$ th household in year  $t$ , respectively. The core explanatory variables Digitalization of Consumption is showed with Online, setting to "1" with online shopping experience, otherwise setting to "0"..  $X_{it}$  represents the control variable.  $j$  represents province,  $U_j$  is region fixed effect,  $V_t$  is time fixed effect, and  $Z_{it}$  is the random error term.

Model 2:

To identify whether the impact mechanisms of digital consumption differ between urban and rural areas, this study further conducts subgroup regressions based on household registration types.

$$Y_{it}Urban = \beta_0 + \beta_1 \cdot Online_{it} + \beta_2 X_{it} + U_j + V_t + Z_{it} \quad (2)$$

$$Y_{it}Rural = \gamma_0 + \gamma_1 \cdot Online_{it} + \gamma_2 \cdot X_{it} + U_j + V_t + Z_{it} \quad (3)$$

By comparing the magnitude and statistical significance of  $\beta_k$  and  $\gamma_k$ , the heterogeneous mechanism pathways of digital consumption between urban and rural households can be identified.

Model 3:

To further examine the regional heterogeneity in the impact of digital consumption on household consumption expenditure, this study conducts subgroup regressions by dividing the sample into eastern, central, and western regions.

$$Y_{it}East/Center/West = \theta_0 + \theta_1 Online_{it} + \theta_2 X_{it} + U_j + V_t + Z_{it} \quad (4)$$

By comparing the magnitude and statistical significance of the estimated coefficients  $\theta_k$  across different regions, the heterogeneous mechanism of digital consumption can be identified.

Model 4:

To verify the mediating effects H1a, H1b, and H1c, and to explore whether consumption digitalization can affect household consumption through residents' income, payment convenience, and household liquidity constraints, we construct the following models:

$$Y_{it} = \alpha_0 + \alpha_1 \cdot Online_{it} + \alpha_2 \cdot X_{it} + U_j + V_t + Z_{it} Ht_{it} = \alpha_0 + \alpha_2 \cdot Online_{it} + \alpha_3 \cdot X_{it} + U_j + V_t + Z_{it} \quad (5)$$

$$Y_{it} = \alpha_0 + \alpha_3 \cdot Online_{it} + r_1 Ht_{it} + \alpha_3 \cdot X_{it} + U_j + V_t + Z_{it} \quad (6)$$

The three equations above examine the impact of consumption digitalization on household consumption, the impact of consumption digitalization on residents' income, and the combined impact of consumption digitalization and residents' income on household consumption, respectively, thereby testing the validity of the mediating effect pathway: consumption digitalization  $\rightarrow$  residents' income  $\rightarrow$  household consumption.

$$Y_{it} = \alpha_0 + \alpha_1 \cdot Online_{it} + \alpha_2 \cdot X_{it} + U_j + V_t + Z_{it} Ptc_{it} = \alpha_0 + \alpha_2 \cdot Online_{it} + \alpha_3 \cdot X_{it} + U_j + V_t + Z_{it} \quad (7)$$

$$Y_{it} = \alpha_0 + \alpha_3 \cdot Online_{it} + r_1 pc_{it} + \alpha_3 X_{it} + U_j + V_t + Z_{it} \quad (8)$$

The three equations above examine the impact of consumption digitalization on household consumption, the impact of consumption digitalization on payment convenience, and the combined impact of consumption digitalization and payment convenience on household consumption, respectively, thereby testing the validity of the mediating effect pathway: consumption digitalization  $\rightarrow$  payment convenience  $\rightarrow$  household consumption.

$$Y_{it} = \alpha_0 + \alpha_1 \cdot Online_{it} + \alpha_2 \cdot X_{it} + U_j + V_t + Z_{it} Hl_{ct} = \alpha_0 + \alpha_2 \cdot Online_{it} + \alpha_3 \cdot X_{it} + U_j + V_t + Z_{it} \quad (9)$$

$$Y_{it} = \alpha_0 + \alpha_3 \cdot Online_{it} + r_1 Hl_{it} + \alpha_3 X_{it} + U_j + V_t + Z_{it} \quad (10)$$

The three equations above examine the impact of consumption digitalization on household consumption, the impact of consumption digitalization on household liquidity constraint, and the combined impact of consumption digitalization and household liquidity constraint on household consumption, respectively, thereby testing the validity of the mediating effect pathway: consumption digitalization  $\rightarrow$  household liquidity constraint  $\rightarrow$  household consumption.

In summary, this study takes the Life-Cycle Hypothesis as its central theoretical framework and constructs a conceptual model of "digital consumption  $\rightarrow$  three mechanism pathways  $\rightarrow$  household consumption." Supplementary theories are incorporated to strengthen the logical foundation of each mechanism level, thereby providing a solid theoretical basis for the subsequent empirical analysis.

## IV. Empirical Results

### IV.1. DESCRIPTIVE STATISTICS

Before conducting the empirical analysis, this section performs descriptive statistics on the collected sample data. The results are presented in Table 3 below.

**Table 3:** Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Gender	16478	.397	.489	0	1
Age	16478	50.826	16.059	22	88
Tlc	16478	12.473	.692	7.566	16.405
Size	16478	2.515	1.37	1	14
GDP	16478	13.12	.67	9.996	12.931
Assets	16478	14.59	1.749	0	19.47
Hukou	16478	.409	.476	0	1
Area	10642	.303	.573	0	1
Online	16478	.819	.789	0	1
Elderly	16478	.212	.195	0	1
Youth	16478	.112	.194	0	.911
Region	16478	2.306	1.753	1	3
hti	16434	12.634	1.444	0	17.988
Ptc	16478	.768	.591	0	1
Hlc	16478	.289	.591	0	1
Oec	16434	12.333	.776	3.890	16.001
Onc	16478	6.776	3.776	0	15.942
Fdc	16478	11.870	.766	5.985	15.441
Cgc	16434	7.334	3.001	0	13.321
Hgc	16478	8.776	1.334	0	13.002

Variable	Obs	Mean	Std. Dev.	Min	Max
Ecc	16478	6.556	3.334	0	15.331
Mhcc	16434	7.668	2.318	0	15.021
Tcc	16478	7.998	1.001	0	14.908
Hec	16478	7.870	1.234	0	14.881
Orc	16434	3.991	4.003	0	16.776

Based on the analysis results of the sample data in Table 4-2, it can be observed that the maximum value of residents' consumption (Tlc) is 16.405, and the minimum value is 7.566. The large difference between these two values, along with a mean of 12.473 and a standard deviation of 0.692, reflects significant heterogeneity in residents' consumption capacity. Regarding the explanatory variables, consumption digitalization (Online) is distributed between 0 and 1, with a mean of 0.819 and a standard deviation of 0.789, indicating that the level of consumption digitalization among residents is relatively high, and households with online shopping experience constitute the vast majority. This is consistent with reality and suggests that the sample data is reasonably representative.

Meanwhile, the means of the mediating variables, residents' income (Hti), payment convenience (Ptc), and household liquidity constraints (Hlc), are 12.634, 0.768, and 0.289, respectively, with minimum values of 0 and maximum values of 1 and 17.988, indicating that the overall income level of Chinese residents is relatively high, the degree of payment convenience is high, and household liquidity constraints are small. The differences between the minimum and maximum values of the control variables are substantial, indicating that the sample covers a wide range of residents with significant variation.

## IV.II. CORRELATION ANALYSIS

After conducting descriptive statistics on the sample and major variables, this section analyzes the correlations among the variables through correlation tests. The correlation coefficients among the variables are presented in Table 4 and Table 5 below.

**Table 4:** correlation tests of major variables



Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)GDP	1.000												
(2) Size	0.046* **	1.000											
	(0.000)												
(3) Tlc	0.024* **	0.374* **	1.000										
	(0.002)	(0.000)											
(4) Age	- 0.022* **	0.150* **	0.012	1.000									
	(0.005)	(0.000)	(0.118)										
(5) Gender	- 0.036* **	0.262* **	0.053* **	0.083* **	1.000								
	(0.000)	(0.000)	(0.000)	(0.000)									
(6) Assets	- 0.280* **	0.374* **	0.125* **	0.120* **	0.210* **	1.000							
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)								
(7)Hukou	0.005	0.030* **	-0.002	0.005	-0.008	0.019* *	1.000						
	(0.521)	(0.000)	(0.771)	(0.508)	(0.320)	(0.013)							
(8)Area	0.017* **	0.076* **	0.124* **	-0.016* **	-0.009	0.006	-0.008	1.000					



	(0.078)	(0.000)	(0.000)	(0.107)	(0.339)	(0.506)	(0.413)						
(9)Online	0.104* **	0.471* **	0.613* **	0.270* **	- 0.022* **	0.061* **	0.021* **	0.047* **	1.000				
	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.007)	(0.000)					
(10) Elderly	0.032* **	0.223* **	0.041* **	0.041* **	0.205* **	0.093* **	0.023* **	0.022* *	0.142* **	1.000			
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.025)	(0.000)				
(11) Hti	0.001	0.012	- 0.021* **	-0.013* **	0.026* **	0.048* **	0.004	- 0.037* **	- 0.019* *	-0.010	1.000		
	(0.935)	(0.123)	(0.008)	(0.091)	(0.001)	(0.000)	(0.628)	(0.000)	(0.018)	(0.200)			
(12) Ptc	- 0.037* **	0.022* **	-0.009	-0.009	0.015* **	0.025* **	-0.008	-0.001	- 0.056* **	0.039* **	0.012	1.000	
	(0.000)	(0.005)	(0.236)	(0.234)	(0.059)	(0.001)	(0.301)	(0.903)	(0.000)	(0.000)	(0.128)		
(13) Hlc	- 0.018* *	0.112* **	- 0.017* *	0.040* **	0.126* **	0.115* **	0.005	- 0.022* *	0.016* *	0.035* **	0.364* **	0.143* **	1.00 0
	(0.024)	(0.000)	(0.026)	(0.000)	(0.000)	(0.000)	(0.484)	(0.022)	(0.039)	(0.000)	(0.000)	(0.000)	

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5:** correlation tests of major variables

Variable s	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
(14)You th	1.000												





After conducting a statistical analysis of the correlation coefficients among all sample variables, this section performs a multicollinearity test to examine whether there are strong correlations among the variables. The test results are shown in Table 6 below.

**Table 6 :** multicollinearity test

	VIF	1/VIF
Size	1.852	.54
Online	1.46	.685
Assets	1.229	.814
Hlc	1.212	.825
Tlc	1.19	.841
Hti	1.164	.859
Gender	1.158	.864
Age	1.118	.894
Elderly	1.087	.92
Youth	1.022	.900
Ptc	1.026	.974
Area	1.02	.981
Hukou	1.003	.997
Mean VIF	1.21	.

The multicollinearity test results in Table 4-5 show that all VIF values in the table are less than 3, indicating that the main variables do not suffer from multicollinearity issues.

#### IV.IV. Analysis of the Impact of Digital Consumption on Resident Consumption

This section conducts a regression analysis on the impact of digital consumption on resident consumption. The regression processes are shown in Tables 7, 8, and 9 below.

**Table 7:** F-test

Tlc	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Online	-3.498	7.556	-0.46	.643	-18.309	11.312	
Area	1.277	2.669	0.48	.632	-3.955	6.509	
Hti	-18.173	40.078	-0.45	.65	-96.734	60.388	
Size	49.453	6.58	7.52	0	36.555	62.351	***
GDP	-.043	.224	-0.19	.846	-.482	.395	
Assets	-.171	.194	-0.88	.379	-.552	.21	
Hukou	0	.001	-0.27	.784	-.003	.002	
Age	3.068	1.227	2.50	.012	.663	5.473	**
Elderly	-.231	25.069	-0.01	.993	-49.372	48.909	
Gender	0(omitted)	.	.	.	.	.	
Hlc	0(omitted)	.	.	.	.	.	
Year	0(omitted)	.	.	.	.	.	
Constant	-983.98	143.589	-6.85	0	-1265.446	-702.514	***

The F-test yields an F-statistic of  $F(1316, 9296) = 28.84$ , with a significance probability (Prob) value of 0.0000, which is less than 0.05. Therefore, the result is statistically significant.

**Table 8:** Hausman test

Coefficients				
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	Std. err.
Online	-3.498197	3.200879	-6.699076	1.929852

Area	1.27663	3.751923	-2.475293	.6036623
Hti	-18.17304	-21.82016	3.647122	12.13902
Size	49.45307	81.57081	-32.11774	2.832858
GDP	-.0433764	.0086036	-.05198	.
Assets	-.1711252	-.1224113	-.0487139	.0325861
Hukou	-.00039	-.0006375	.0002475	.
Age	3.067773	-5.526504	8.594277	.
Elderly	-.2313366	-15.88858	15.65724	6.104908

b = Consistent under H0 and Ha; obtained from xtreg.

B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic

$$\chi^2(8) = (b-B)'[(V_b - V_B)^{-1}](b-B) = 140.33$$

Prob > chi2 = 0.0000 (V<sub>b</sub>-V<sub>B</sub> is not positive definite)

The Hausman test yields a coefficient value of 140.33, with a significance probability (Prob) value of 0.0000, which is less than 0.05. Therefore, the result is statistically significant.

The regression of digital consumption on resident consumption using a fixed effects model is presented in Table 9 below.

**Table 9:** Regression of digital consumption on resident consumption

	(1)	(2)
	Tlc	Tlc
Size	.367*** (2.963)	.089*** (2.256)
GDP	0.213 (0.525)	0.234 (0.624)
Assets	0.176***	0.168**

	(1)	(2)
	(2.611)	(2.568)
Hukou	-0.150	-0.144
	(-0.281)	(-0.294)
Age	-0.005***	-0.002***
	(-0.963)	(-0.461)
Marriage	0.0729***	0.0625***
	(0.476)	(0.645)
Gender	0.0102	0.0122
	(.)	(.)
Elderly	-0.0355**	-0.0405**
	(0.020.)	(0.019)
Youth	0.0505*	0.0497
	(0.023)	(0.029)
Hukou	-0.166***	-0.156***
	(0.009)	(0.009)
Hlc	0.000	0.000
	(.)	(.)
Year	0.000	0.000
	(.)	(.)
Online	0.344***	0.782***
	(0.604)	(1.624)

	(1)	(2)
_cons	-1333.867*** (-10.968)	-1398.777*** (-10.928)
N	16478	16478
R2	0.024	0.024
F	61.717	53.283

\*\*\*p<0.01, \*\*p<0.05, \*p<0.10

Based on the regression results of digital consumption on resident consumption in Table 9, the interrelationships among the variables can be clearly discerned. The first column of the table presents the regression results between control variables and the dependent variable, resident consumption. From these results, it can be observed that the regression coefficient for household size (size) is 0.367, which is positively correlated with resident consumption at the 1% significance level. This indicates that household size has a significantly positive effect on resident consumption. The regression coefficient for the head of household's age (age) is -0.005, which is significantly negatively correlated with resident consumption at the 1% significance level. This implies that the head of household's age has a significantly negative effect on consumption.

The regression coefficient for household assets (assets) is 0.176, which is significantly positively correlated with resident consumption at the 1% significance level, indicating that the higher the household assets, the higher the consumption level. Simultaneously, the household head's household registration status (hukou) and marital status significantly affect resident consumption. Households headed by individuals with agricultural hukou have lower total consumption, while households headed by married individuals have higher total consumption, as married households incur more consumption expenditures, leading to an increase in consumption levels. Furthermore, the regional-level control variables are significantly related to consumption. There is a positive relationship between regional economic level and regional consumption level, indicating that resident consumption increases with the level of regional economic development. It can also be observed from the urban-rural residence of the household that consumption expenditure of rural households is lower than that of urban households, which is consistent with real-world patterns. Overall, urban households consume more than rural households.

The first column of the table also presents the regression results between the independent variable, digital consumption, and the dependent variable, resident consumption. From these results, it can be observed that the regression coefficient for digital consumption (online) is 0.782, which is significantly positively correlated with resident consumption at the 1% significance level. This indicates that digital consumption has a significantly positive effect on resident consumption, i.e., the higher the level of digital consumption, the higher the consumption level. This finding supports the research hypothesis H1 stated earlier, that is, there exists a positive correlation between the degree of digital consumption and resident consumption.

#### IV.V. Mediation Effect Analysis

After verifying the positive correlation between consumption digitization and resident consumption, this section validates and analyzes the mediating effects of household income, payment convenience, and liquidity constraints (See Table 10, 11 and 12).

**Table 10:** Results of the mechanism test on the role of household income

	(1)	(2)	(3)	(4)
	household income	household income	household income	household income
Online	0.973*** (0.026)	0.291*** (0.020)	0.361*** (0.028)	0.322*** (0.020)
Control variables	-	controlled	controlled	controlled
Year	-	-	controlled	controlled
Region	-	-	-	controlled
_cons	10.780*** (0.013)	4.008*** (0.223)	4.000*** (0.223)	4.121*** (0.271)
N	16478	16478	16478	16478
R2	0.071	0.224	0.224	0.224

\*\*\*p<0.01, \*\*p<0.05, \*p<0.10

**Table 11:** Results of the mechanism test on the role of payment convenience

	(1)	(2)	(3)	(4)
	payment convenience	payment convenience	payment convenience	payment convenience
Online	0.337** (0.002)	0.101*** (0.006)	0.371*** (0.006)	0.333*** (0.006)
Control variables	-	controlled	controlled	controlled
Year	-	-	controlled	controlled
Region	-	-	-	controlled
_cons	0.390*** (0.008)	-0.219*** (0.069)	-0.047 (0.063)	0.0941 (0.091)
N	16478	16478	16478	16478
R2	0.156	0.204	0.294	0.334

\*\*\*p<0.01, \*\*p<0.05, \*p<0.10

**Table 12:** Results of the mechanism test on the role of household liquidity constraint

	(1)	(2)	(3)	(4)
	household constraint	liquidity household constraint	liquidity household constraint	liquidity household constraint
Online	0.0967***	0.0801***	0.0731***	0.0772***
	(0.020)	(0.026)	(0.026)	(0.026)
Control variables	-	controlled	controlled	controlled
Year	-	-	controlled	controlled
Region	-	-	-	controlled
_cons	0.390***	-0.219***	-0.047	0.0941
	(0.008)	(0.069)	(0.063)	(0.091)
N	16478	16478	16478	16478
R2	0.156	0.204	0.294	0.334
***p<0.01, **p<0.05, *p<0.10				

It can be seen from Table 10 “Results of the mechanism test on the role of household income” that the first column does not include control variables, year, or region, while the second, third, and fourth columns include control variables, year, and region. The test results show that the regression coefficient of consumption digitization on resident income is 0.322, and it is significant at the 1% level, indicating that consumption digitization has a positive promoting effect on resident income.

It can be seen from Table 11 “Results of the mechanism test on the role of payment convenience” that the regression coefficient of consumption digitization on payment convenience is 0.333, and it is significant at the 1% level, indicating that consumption digitization has a positive promoting effect on payment convenience.

It can be seen from Table 12 “Results of the mechanism test on the role of household liquidity constraint” that the regression coefficient of consumption digitization on household liquidity constraint is 0.0772, and it is significant at the 1% level, indicating that consumption digitization has a positive alleviating effect on household liquidity constraint.

#### IV.VI. ENDOGENEITY TEST

This thesis employs the Instrumental Variables (IV) method to test for endogeneity issues in the data, aiming to validate the accuracy of our research findings. For this endogeneity test, we select “Smartphone Ownership” as the instrumental variable, where “1” indicates smartphone ownership and “0” indicates no ownership. Subsequently, we apply a Two-Way Fixed Effects model for the test. The test results are presented in Table 13 below.

**Table 13:** The impact of consumption digitalization on household consumption under fixed effects

	(1)	(2)	(3)
	Tlc	Oec	Onc
Online	0.201*** (0.045)	0.170*** (0.036)	5.509*** (0.119)
Assets	0.0899*** (0.012)	0.0921*** (0.016)	0.167*** (0.062)
Gender	-0.0366 (0.032)	-0.0378 (0.034)	0.00718 (0.084)
Hukou	-0.266** (0.052)	-0.176** (0.051)	0.000 (0.106)
Age	-0.00321 (0.003)	-0.00316 (0.030)	-0.00811** (0.006)
Marriage	0.0643 (0.053)	0.0887 (0.068)	-0.188 (0.116)
Size	0.123*** (0.013)	0.122*** (0.015)	0.188*** (0.045)
Elderly	-0.213** (0.093)	-0.179* (0.112)	-0.322 (0.312)
Youth	0.223* (0.130)	0.333** (0.133)	-0.779** (0.431)
GDP	-0.293	-0.393	-0.466

	(1)	(2)	(3)
	(0.413)	(0.481)	(1.149)
Area	-0.267*	-0.297*	-0.667
	(0.159)	(0.169)	(0.759)
Year	controlled	controlled	controlled
Household	controlled	controlled	controlled
_cons	13.967**	13.235**	7.377
	(5.190)	(4.657)	(14.683)
N	14980	14980	14980
R2	0.518	0.012	0.012

\*\*\*p<0.01, \*\*p<0.05, \*p<0.10

Based on the results in Table 12 The impact of consumption digitalization on household consumption under fixed effects, the regression coefficients of consumption digitalization (online) on total household consumption, offline consumption, and online consumption are 0.201, 0.170, and 5.509, respectively, all significant at the 1% level. This indicates that consumption digitalization (online) is significantly positively correlated with total household consumption, offline consumption, and online consumption, and has a positive impact on them. The data results of this endogeneity test are consistent with the previous regression test results, indicating that the research findings of this study are not seriously affected by endogeneity and are accurate and credible.

#### IV.VII. ROBUSTNESS CHECK

This section incorporates data from CHFS 2015 for empirical testing to examine the robustness of the results obtained from the research model. The regression results are presented in the following Table 14.

**Table 14:** The robustness check

	(1)	(2)	(3)
	Tlc	Oec	Onc
Online	0.301***	0.307***	7.122***

	(1)	(2)	(3)
	(0.089)	(0.016)	(0.018)
Assets	0.189***	0.159***	0.177***
	(0.004)	(0.004)	(0.008)
Gender	0.0371***	0.0278***	-0.0207
	(0.079)	(0.008)	(0.018)
Hukou	-0.206**	-0.196***	-0.230
	(0.005)	(0.005)	(0.016)
Age	-0.00821***	-0.00716***	-0.0191***
	(0.001)	(0.001)	(0.002)
Marriage	0.104***	0.118***	-0.108***
	(0.0093)	(0.008)	(0.016)
Size	0.113***	0.112***	-0.0288***
	(0.003)	(0.001)	(0.005)
Elderly	-0.0413***	-0.059***	0.171***
	(0.013)	(0.012)	(0.012)
Youth	0.0423**	0.333*	0.229***
	(0.023)	(0.033)	(0.031)
GDP	0.233***	0.223***	0.366***
	(0.088)	(0.011)	(0.022)
Area	-0.197***	-0.197***	-0.0466***
	(0.009)	(0.009)	(0.015)

	(1)	(2)	(3)
Year	controlled	controlled	controlled
Household	controlled	controlled	controlled
_cons	6.067*** (0.090)	6.335*** (0.111)	-6.307*** (0.233)
N	14980	14980	14980
R2	0.428	0.402	0.888

\*\*\*p<0.01, \*\*p<0.05, \*p<0.10

Based on the robustness test regression results in Table 14, consumption digitalization has a significantly positive promoting effect on total household consumption, as well as on offline and online consumption.

To sum up, this chapter utilizes data from the China Household Finance Survey (CHFS) in 2021 and 2023. Based on empirical analysis, it examines the impact effect and pathways of consumption digitalization on household consumption. The research findings indicate that: First, consumption digitalization promotes total household consumption, online and offline consumption, as well as consumption expenditure across seven categories. The promoting effect is particularly pronounced for clothing and household equipment expenditures, thereby driving an upgrade in household consumption structure. Second, under different household classifications, the impact effect of consumption digitalization on household consumption varies. Income heterogeneity analysis reveals that consumption digitalization has a promoting effect on the total and online consumption of both high-income and low-income households, but the effect is stronger for low-income households. It also promotes the offline consumption of both income groups, yet the magnitude of the effect is greater for high-income households. From the perspective of household head age, consumption digitalization has a more significant positive effect on the total and offline consumption of households headed by middle-aged or elderly individuals, while its effect on the online consumption of households headed by young heads is more pronounced. Regarding urban-rural disparities, the promoting effect of consumption digitalization on total, offline, and online consumption for urban households is higher than that for rural households.

The pathways through which digitalization affects household consumption are as follows: Consumption digitalization boosts household consumption by increasing residents' income; it promotes consumption by facilitating payment convenience; and it enhances household consumption levels by alleviating liquidity constraints.

## V. CONCLUSION

### V.I. RESEARCH CONCLUSIONS

With the continuous advancement of China's new economic development pattern, characterized by a large domestic cycle as the mainstay and mutual promotion between domestic and international dual cycles, the requirements for the domestic consumption market have been further elevated. This is particularly true in the post-pandemic era, where expanding domestic demand, stimulating consumption, unleashing consumption potential, and optimizing the consumption structure have become top

priorities. Promoting the expansion and quality improvement of traditional consumption, accelerating the growth of new consumption, and fostering the integrated development of online and offline channels have become essential components of consumption promotion. Based on a literature review, this paper first analyzes the impact of consumption digitalization on household consumption and its underlying mechanisms from a theoretical perspective. It then selects two waves of micro-data from the China Household Finance Survey (CHFS) in 2021 and 2023, constructs a two-way fixed effects model, and empirically investigates the impact effect of consumption digitalization on household consumption. Furthermore, it examines the underlying mechanisms of consumption digitalization on household consumption from three aspects: household income, payment convenience, and household liquidity constraints. The study concludes with the impact of consumption digitalization on total household consumption, offline and online consumption, as well as consumption expenditure across eight categories. The specific research findings are as follows:

First, the scale of China's internet users, the transaction volume of the e-commerce market, the size of online retail sales, the proportion of online retail sales in total social retail sales, and per capita consumption expenditure are all on an upward trend. However, the structure of residents' consumption still requires optimization. In recent years, under the impact of the pandemic, the consumption structure of Chinese residents has undergone subtle changes, with the proportion of survival-type consumption continuously increasing, while the proportion of development-type and enjoyment-type consumption has decreased.

Second, consumption digitalization has a positive promoting effect on household consumption, significantly increasing total household consumption and expenditure on both online and offline consumption, as well as other seven categories of consumption. The results of the two-way fixed effects model indicate that consumption digitalization has a significant promoting effect on household consumption. Overall, consumption digitalization promotes household consumption. This is mainly because consumption digitalization breaks the traditional time and space constraints of shopping, allowing residents to conveniently purchase goods from other regions and countries at lower prices, satisfying their consumption desires and increasing their consumption enthusiasm; simultaneously, the reduction in search costs leads to the resumption of education expenditure that was previously canceled due to excessively high search costs, and together with the well-developed logistics and distribution system, these factors jointly promote total household consumption; third, in recent years, consumption digitalization has developed rapidly, and the demand increase brought about by consumption digitalization far outweighs the substitution effect on offline goods. As a new form of consumption, consumption digitalization organically combines online and offline consumption, and in reality, it is deeply integrated with offline shopping, playing a significant role in promoting residents' offline consumption and jointly promoting household consumption in China with offline shopping.

Third, consumption digitalization has a positive and significant impact on seven categories of consumption expenditure, with a higher degree of influence on clothing expenditure and furniture and equipment consumption, significantly optimizing the structure of residents' consumption. The results of the two-way fixed effects model indicate that consumption digitalization promotes the upgrading of residents' consumption structure. With the advent of the digital consumption era, enterprises are facing increasing survival pressure and will continuously undergo industrial transformation and upgrading, leading to lower commodity prices, a greater variety of goods, higher quality, and more convenient shopping for residents, which is conducive to the adjustment and optimization of residents' consumption structure; on the other hand, electronic payment modes alleviate household financial constraints, with a more pronounced positive impact on household non-durable goods and service consumption, making large household consumption expenditures easier to achieve, thereby driving the upgrading of residents' consumption structure.

Fourth, the impact effect of consumption digitalization on household consumption differs across different types of households. Consumption digitalization has a promoting effect on the total and online consumption of both high-income and low-income households, with a stronger effect for low-income households. It also promotes the offline consumption of both income groups, but the magnitude of the effect is greater for high-income households. Consumption digitalization has a more significant positive effect on the total and offline consumption of households headed by middle-aged or elderly individuals, while its effect on the



online consumption of households headed by young heads is more pronounced. Consumption digitalization has a greater promoting effect on the total, offline, and online consumption for urban households than for rural households.

Fifth, consumption digitalization promotes household consumption by increasing residents' income, achieving payment convenience, and alleviating household liquidity constraints. Factors such as the marital status of the household head, household size, household assets, and the level of regional economic development also have important effects on household consumption.

This thesis clarifies the specific impact of consumption digitalization on household income and its underlying mechanisms through theoretical and empirical research, and proposes practical strategies to promote household consumption. It provides new ideas and methods for enhancing research on how consumption digitalization promotes household consumption, optimizing the structure of household consumption, unleashing consumption potential, and driving the formation of a large domestic circulation pattern.

## V.II. RESEARCH SUGGESTIONS

This study employs a two-way fixed effects model to experimentally demonstrate that consumption digitalization significantly promotes total household consumption, online and offline consumption, and seven categories of consumption, including clothing, by increasing residents' income, enhancing payment convenience, and alleviating household liquidity constraints. It plays a positive role in promoting the upgrading of household consumption structure. To further promote household consumption, this study puts forward the following suggestions:

First, accelerate the digitalization process of household consumption. Given the fact that digitalization has become a new driving force for promoting household consumption, expanding the scope of household internet access and increasing internet speed, improving the level of 5G construction and big data application, and utilizing digital tools to provide appropriate upgrade schemes based on existing consumption levels and capabilities can truly meet the scale and demand of upgrades. This allows consumption structure upgrades to reach deeper levels and be implemented effectively, thereby unleashing the tremendous potential and vitality of the lower-tier markets and further strengthening the positive impact of household digitalization on the domestic consumption market. However, it is also necessary to consider the development tendency of digitalization's impact on the optimization of household consumption structure, which exhibits a pattern of first promoting and then inhibiting. Attention should be paid to the moderate use of digital technology, as excessive consumption of digital dividends can inhibit the improvement of consumption levels. Strengthening the supervision and management of platforms and ensuring that the media provides positive and active guidance on consumption are also crucial. The government needs to grasp the overall situation and coordinate planning, actively promoting the coordinated development of digital infrastructure construction within rural areas. Specifically, this includes popularizing internet knowledge and methods of internet use among rural residents, building broadband networks, enhancing rural residents' understanding of consumption digitalization, and reducing the cost of internet access for them. The government can leverage internet platforms and utilize the technologies of the three major mobile companies to expand the rural online consumption market. At the same time, it is necessary to strengthen the construction of supporting facilities such as logistics, encouraging more logistics enterprises to actively participate. The "E-commerce into Villages" initiative should be implemented at the county, township, and village levels, unblocking the rural circulation network and optimizing the rural internet usage environment to create favorable conditions for fully leveraging the digital dividends of the consumption digitalization era, thereby driving household consumption.

Second, achieve complementary advantages between the online digital economy and the offline real economy. The digitization of consumption promotes offline spending. Online and offline consumption can complement each other, expanding overall consumption, unleashing residents' consumption potential, and thereby increasing total household consumption. Therefore, it is necessary to accelerate the integrated development of online and offline shopping, fully tap into new growth points for consumption, and release even more consumer demand. This can be approached from the following aspects:



First, break down data and service barriers to achieve technological integration: Establish a unified membership system to make points, coupons, and tiered benefits universally applicable online and offline, enhancing user stickiness; utilize technologies such as AR/VR fitting rooms, intelligent product recommendations, and self-checkout kiosks to optimize the offline shopping experience and link it with online shopping carts and browsing histories; promote shared inventory between online and offline channels to achieve efficient fulfillment through models like “order online, pick up in-store” or “experience offline, repurchase online.”

Second, create a seamless consumption experience by achieving scenario integration: Encourage brands to attract customers to physical stores for experience and trials through online live streaming and social media marketing, completing high-value transactions—this realizes online customer attraction and offline experience conversion; digitize physical stores, events, and services—for example, through scan-to-purchase, mini-program orders, or live-streaming offline events—to form a consumption closed loop, achieving offline empowerment and online repurchase and viral spread; develop “instant retail” and “community commerce,” promoting cooperation between online platforms and local physical stores to provide services such as “order online, delivered in 30 minutes,” meeting immediate needs and activating community consumption potential.

Third, the state should create an integrated environment by providing policy and ecosystem support: The government needs to formulate policies adapting to the online-offline integration in areas such as taxation, statistics, and consumer rights protection, optimizing regulation and standards to provide space for the development of new models; encourage infrastructure investment by supporting the extension of 5G, IoT, and smart payment infrastructure to offline commercial scenarios, lowering the technological threshold for integration; the government can collaborate with leading enterprises to build landmark projects such as “digital business districts” and “smart streets,” forming replicable experiences.

Simultaneously, enterprises need to reshape operations and marketing, achieving strategic transformation: Enterprises must restructure their organizational frameworks, breaking down barriers between online and offline departments, and establishing a “cross-channel business department” to unify planning and performance evaluation; integrate consumption data from online and offline channels to conduct user profiling, precise marketing, dynamic pricing, and inventory optimization, achieving data-driven, refined operations; innovate business models by exploring integrated models such as “membership system + subscription service” or “experience payment + product sales” to increase revenue sources.

Consumers themselves need to cultivate scientific and reasonable digital consumption habits: Consumers, especially the elderly, need to improve their digital literacy by popularizing online consumption and smart device usage to bridge the “digital divide”; strengthen financial knowledge education to guide consumers toward rational consumption concepts, avoiding excessive and impulsive consumption, ensuring that the release of consumption potential is healthy and sustainable.

In summary, the integrated development of online and offline shopping hinges on placing the consumer at the center, using data as the bond, and technology as the engine. Only through multidimensional collaboration across technology, scenarios, policies, corporate strategies, and consumer education can we truly build a virtuous ecosystem of “online leading offline, offline feeding back online” and fully unleash consumption potential.

Third, leverage the intrinsic mechanisms that drive consumption to promote residents’ consumption: digital consumption promotes residents’ consumption by increasing household income, facilitating payment, and alleviating liquidity constraints. Therefore, it is necessary to leverage digital technologies to multi-channel income dividends for residents, enhance their consumption capacity, and particularly raise the income of middle- and low-income groups to promote an overall improvement in the level of consumption; simultaneously, the radiation and driving effects of consumption digitization should be fully utilized to increase household income. Secondly, payment convenience must be continuously improved, and the development and construction of digital payment systems should be promoted to facilitate residents' consumption. Digital payment platforms should strengthen product promotion, expand their user base, increase the proportion of middle-aged and elderly consumers, and thus broaden consumption channels; at the same time, they must strengthen the protection of user information and establish an



information security regulatory system. Additionally, customer feedback mechanisms should be improved to provide high-quality, efficient services. Thirdly, liquidity constraints faced by residents should be alleviated to provide support for releasing domestic demand. Financial regulation should be strengthened, consumption channels should be unblocked, transaction costs reduced, and credit risk prevention and control mechanisms improved, thereby optimizing the social credit environment, alleviating the short-term liquidity constraints faced by residents, and meeting their current consumption needs.

Fourth, Adapt measures to local conditions and address the root causes: The promotional effect of consumption digitization on the consumption of rural households, low-income families, or families with lower digital literacy needs to be strengthened. To prevent the further widening of the digital divide, differentiated regional balanced development strategies should be implemented, and the digital literacy of families with lower education levels should be improved. Meanwhile, consumption digitization stimulates resident consumption by alleviating household liquidity constraints and increasing income and payment convenience, proving that the “triple engine” of reducing household liquidity constraints, incentivizing household entrepreneurship and income growth, and enhancing payment convenience plays a huge role in achieving domestic resident consumption upgrading. Family entrepreneurial behavior should be fully incentivized, and entrepreneurial vitality should be stimulated through policy subsidies and other forms. At the same time, household liquidity constraints should be moderately reduced to accelerate and warm up the post-pandemic recovery and resumption of work and production. Meanwhile, the total consumption and offline consumption of households with elderly household heads are significantly enhanced by consumption digitization, but the promotion effect on online consumption is lower than that of households with middle-aged and young household heads, indicating that in the digital economy era, the consumption needs of the elderly population should be given special attention, and the consumption potential of the elderly should be stimulated. The social security system should be improved to reduce residents' precautionary savings, the medical system should be perfected to facilitate timely medical treatment for the elderly and reimbursement of high medical expenses, so that the elderly do not have to worry about future and medical consumption. The publicity departments of the government and enterprises can promote the advantages of online shopping to the elderly more extensively, allowing them to understand the convenience and security of online shopping and enhance their awareness of online shopping. For the problem of low internet operation levels among the elderly, relevant departments can arrange professionals to teach operational methods through online video lectures and offline on-site instruction. At the same time, enterprises should also launch simple-to-operate digital application products to facilitate daily use by the elderly. Meanwhile, as the main subjects of online shopping behavior, the elderly should be popularized with knowledge of digital life by the government, and children should also provide more support and assistance to their elderly parents in digital applications, allowing the elderly to gradually transform their consumption concepts and actively embrace this new phenomenon of consumption digitization.

Fifth, leverage the radiation and driving effects to promote balanced regional development: the impact of digitalization on consumption still varies significantly across eastern, central, and western regions. The radiation and driving effects of consumption digitization are key to building a virtuous cycle and coordinating the development of a domestic economic consumption market. The spatial spillover effect of consumption digitization indicates that we should actively break through spatial limitations and constraints, relying on current digital applications such as Internet Plus, 5G technology, and blockchain to strengthen digital connections and coordination among households and even counties. This fully leverages its spatial contribution to promoting residents' consumption levels. The development of consumption digitization has brought opportunities and challenges to traditional service industries such as education, finance, and healthcare. We should vigorously construct new "Internet Plus" service models, connect with large e-commerce platforms and live streaming platforms, and continuously advance the digitalization process of families in areas such as daily life services, industrial innovation, and elderly care, thereby enhancing the vitality and importance of household digitalization in the consumption market. On the other hand, we should pay attention to cross-regional, cross-industry, and cross-factor collaborative cooperation, break down information barriers, and share the digital dividends among different household groups and regions, better transforming the digital dividends into economic dividends.

## V.III. RESEARCH PROSPECTS

Based on the life-cycle theory, search cost theory, liquidity constraint theory, and trade cost theory, and drawing on data published by the National Bureau of Statistics of China and the China Internet Network Information Center, this thesis systematically analyzes the current status of consumption digitization and resident consumption expenditure in China. From a macro perspective, the thesis organizes and analyzes the content of consumption digitization and resident consumption in China. Subsequently, using two waves of data (2021 and 2023) from the China Household Finance Survey (CHFS) micro-database, the paper investigates the impact effect and pathways through which consumption digitization influences resident consumption. However, this study still has certain limitations that require further optimization:

First, the survey questions in the CHFS database are not uniform. This thesis only employs the latest two waves of survey data from 2021 and 2023, with a relatively short time interval between them. Therefore, future research can utilize data with a longer time span to clarify the long-term dynamic development trend of the impact effect of consumption digitization on resident consumption in China.

Second, when studying the impact effect of consumption digitization on resident consumption in China, the selection of dimensions and measurement of indicators for the control variable (head of household) exhibit subjectivity and limitations. Future research can incorporate information about other family members to conduct more in-depth empirical research and comprehensively examine the impact effect of consumption digitization on resident consumption.

Third, this thesis does not make a detailed distinction and analysis of the internet access methods used by residents when engaging in online shopping. Future research can thoroughly explore the impacts brought about by computer-based internet access versus mobile internet access.

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