

The Impact of Industrial Digital Transformation on Residents' Consumption Upgrading: A Dual-Mediation Path Analysis of Income and Supply

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Abstract: *From a dual-mediation perspective of income and supply levels, this study examines the mechanism through which industrial digital transformation affects residents' consumption upgrading. Empirical results indicate that industrial digital transformation exerts a significant positive effect on consumption upgrading, with both income level and supply level playing partial mediating roles, revealing the intrinsic logic by which digital transformation drives consumption structure optimization through enhanced income and improved supply quality.*

Keywords: Industrial digital transformation, Consumption upgrading, Income level, Supply level, Mediation effect.

1. RESEARCH REVIEW

1.1 Industrial Digital Transformation

Industrial digitalization refers to the reform and innovation of traditional industries in their production, sales, and service processes based on new digital technologies (Jin Fei, 2023). Through industrial digitalization, enterprises can achieve improved production efficiency, enhanced product quality, increased innovation capabilities, efficient utilization of resources, and sustainable development. At the same time, industrial digitalization also brings new growth points and employment opportunities to economic development. Industrial digitalization can introduce automated equipment, intelligent systems, and optimization algorithms to achieve the automation and intelligence of the production process (Zhu Heliang et al., 2021). By improving the efficiency of production lines, reducing human errors, and optimizing resource utilization, enterprises can produce products faster and have higher production capacity and flexibility. In addition, the development of industrial digitalization can drive the rise of a large number of emerging industries, creating new business models and service demands. In this process, the demand for relevant professional talents in the industry has increased significantly, thereby driving employment in digital-related fields (Gao Peng et al., 2022).

Based on different research fields, the academic community has different interpretations of the measurement indicators for the level of industrial digitalization. For example, Zhu Heliang et al. (2021) believe that industrial digitalization should reflect the degree of integration between traditional industries and digital technologies. From the perspective of the degree of integration, the evaluation of industrial digitalization mainly focuses on the degree of combination between traditional industries and digital technologies. From the perspective of the level of investment and the scale of application, the evaluation of industrial digitalization will focus on the degree of investment and coverage of digital technologies. This includes the investment amount of enterprises in digital technologies, the allocation of digital human resources, the adoption and application degree of digital technologies, etc. At the same time, the evaluation system can consider the popularity of digital technologies, such as the penetration rate and application breadth of digital technologies in the industry (Liu Bo et al., 2022).

1.2 Upgrading of Residents' Consumption

The evolution of the upgrading of residents' consumption has experienced a development path from quantity upgrading to quality upgrading and then to structural upgrading (Chen Jian et al., 2022). Quantity upgrading usually occurs in the initial stage of economic development. At this time, consumers mainly focus on meeting basic needs and obtaining more products and services. The upgrading of residents' consumption at this stage emphasizes the increase in quantity and the expansion of scale, pursuing more material wealth and consumer goods. With the development of the economy and the improvement of consumers' income levels, consumers begin to pay

attention to the quality of products and services. They pay more attention to the performance, functions, brands and service quality of products, pursuing a higher-quality consumption experience, thus promoting the upgrading of consumption quality (Zeng Jiehua et al., 2021). With the continuous development of the economy and society, consumers' demands become more diversified and personalized. The consumption structure gradually shifts from mainly basic daily necessities to higher-level consumption fields including education, medical care, tourism, leisure and entertainment, etc. Consumers begin to pay attention to consumption in aspects such as personal development, health preservation, and cultural entertainment, promoting the upgrading of the consumption structure.

There are many factors influencing the upgrading of residents' consumption, among which residents' income occupies the primary position. When residents' income increases, usually there is more disposable income for purchasing higher-quality products and services, thus promoting the upgrading of residents' consumption. In addition to the level of residents' income, there are also some other factors that will affect the upgrading of residents' consumption, including the level of education, consumers' consumption concepts, the level of technological development, the level of social culture, policies and regulations, etc. (Ye Jingjing, 2021). From the perspective of the level of education, residents with a good education usually attach more importance to quality and value, and are more likely to choose high-quality products and services, promoting the upgrading of residents' consumption. At the same time, the change of consumption concepts and values will also affect the upgrading of residents' consumption (Liu Min, 2021). For example, the enhancement of environmental protection awareness is conducive to residents purchasing environmental protection products and services, promoting the upgrading of residents' consumption of related products; the enhancement of health awareness is conducive to residents purchasing health care products, and will also promote the upgrading of residents' consumption; from the perspective of technological development, the continuous emergence and popularization of new technologies will also promote the upgrading of residents' consumption. For example, the popularization of smart phones has prompted residents to purchase more smart devices and digital products; social and cultural factors also have an important impact on the upgrading of residents' consumption. Social development and cultural changes can change people's demands and preferences for consumption, thus promoting the upgrading of residents' consumption (Zhang Cheng et al., 2022); relevant government policies and regulations will also have an impact on the upgrading of residents' consumption. For example, the tax reduction policy can increase residents' disposable income and promote the upgrading of residents' consumption.

1.3 Industrial Digital Transformation and the Upgrading of Residents' Consumption

Among the numerous factors influencing the upgrading of residents' consumption, the impact of industrial digital transformation on the upgrading of residents' consumption is particularly prominent. First, from the production level, industrial digital transformation prompts enterprises to launch more intelligent products and services. For example, smart home devices, smart health monitoring devices, smart transportation systems, etc. These intelligent products and services offer higher convenience, comfort, and personalized customization, driving the upgrading of residents' consumption (Gao Jie et al., 2022). Digital transformation makes the integration between different industries closer, creating new products and services. At the same time, industrial digital transformation enables enterprises to collect a large amount of consumer data and conduct personalized recommendations through data analysis and artificial intelligence technologies. Consumers can receive more accurate and personalized product recommendations based on their personal preferences and needs, improving shopping satisfaction and experience (Peng Yihui et al., 2023). Second, from the consumption perspective, digital transformation promotes the online-offline integrated consumption model, eliminating the barriers between traditional channels. Consumers can understand product information and compare prices through online platforms, and then choose to purchase at offline physical stores or pick up at offline stores after placing an order online. This seamless online-offline consumption experience provides greater convenience and selectivity. Industrial digital transformation promotes the widespread application of emerging technologies, such as artificial intelligence, the Internet of Things, big data analysis, etc. These technologies bring more intelligent, efficient, and personalized product and service experiences to consumers (Feng Qian, 2023). In summary, industrial digital transformation has had a wide-ranging and profound impact on the upgrading of residents' consumption. It has promoted the development of intelligent products and services, facilitated cross-border integration and innovation, provided personalized consumption experiences, changed consumers' shopping methods, enhanced consumers' experiences through the application of emerging technologies, and also promoted the development of sustainable consumption. These factors jointly drive the process of residents' consumption upgrading, meeting consumers' demands for higher-quality, personalized, and sustainable consumption.

2. THEORETICAL ANALYSIS AND RESEARCH HYPOTHESES

This paper aims to explore the impact mechanism of industrial digital transformation on residents' consumption upgrading from the perspectives of income and supply. It will start from two aspects: the direct effect of industrial digital transformation on residents' consumption upgrading and the mediating effect of income and supply levels.

Residents' consumption upgrading refers to the improvement and enhancement of residents' consumption levels and consumption structures in various regions. In the past few decades, great changes have taken place in various regions of our country, the living standards of residents have been significantly improved, and profound changes have also occurred in residents' consumption upgrading. In recent years, residents' consumption demands have gradually shifted from meeting basic living needs to meeting higher-level material and spiritual needs. Residents have begun to purchase more high-end consumer goods such as durable goods, home appliances, and cars, and increased their demands for services such as education, medical care, and tourism. Especially in the aspects of education and medical services, residents pay more attention to the educational investment of their children and are willing to pay more for their children to receive better educational conditions. At the same time, their demand for medical services is also increasing, and they are more concerned about health issues. Industrial digital transformation is one of the important driving forces for residents' consumption upgrading. Through digital transformation, various regions can be connected to urban and global markets, greatly expanding the communication channels between residents and the outside world. On the one hand, local products have a broader sales channel. Through e-commerce platforms and logistics networks, products can be directly sold to distant consumers, increasing the market coverage rate and sales volume of products; on the other hand, digital transformation can improve the service experience and enhance the convenience for residents to enjoy services (Zhu Heng et al., 2023). For example, through digital payment and mobile Internet technologies, services such as residents' online payment, online shopping, and online reservation can be realized, conveniently and quickly meeting their consumption demands. In addition, digital transformation provides new opportunities for innovation and entrepreneurship. Through digital technologies and Internet platforms, residents can carry out various entrepreneurial activities, which not only promotes economic development but also provides residents with ways to increase income, further driving the improvement of residents' consumption levels. Based on the above analysis, this paper proposes the following research hypotheses:

Hypothesis 1: Industrial digital transformation has a positive promoting effect on residents' consumption upgrading.

From the perspective of income, the low per capita income level and relatively single income source of Chinese residents have led to a lack of sufficient economic foundation for the upgrading of residents' consumption. As a result, the willingness and ability of residents to upgrade their consumption have been inhibited. On the one hand, the digital transformation of industries can promote the transformation and upgrading of the economic structure, driving the transformation of traditional offline commerce into emerging industries such as digital commerce, e-commerce, and tourism. The development of these emerging industries provides more employment opportunities for residents and increases their income sources. On the other hand, through the application of digital technologies, the production, circulation, and sales processes of products can be made more efficient, precise, and intelligent. This transformation is conducive to improving product quality and added value, thereby increasing the income level of residents. Moreover, it enables residents to be liberated from heavy labor and invest more energy in aspects such as product quality improvement, sales channel expansion, and product services. In addition, digital transformation provides opportunities for residents to offer value-added services. Through digital technologies and Internet platforms, residents can provide various value-added services, such as product processing, tourist guides, and technical consultations. These value-added services can help residents increase their income levels and enrich the content of residents' consumption upgrading (Xie Qi et al., 2022). Compared with the traditional economic development mode, digital transformation plays a promoting role in various aspects such as product production efficiency, sales channels, and product quality, increasing residents' disposable income, and thus promoting the improvement of residents' consumption levels and the enhancement of residents' living standards. Based on the above analysis, this paper proposes the following research hypotheses:

Hypothesis 2: Residents' income plays a mediating role between the digital transformation of industries and the upgrading of residents' consumption.

From the supply perspective, on the one hand, the digital upgrading of industries can improve the supply quality of products themselves. Enterprises can enhance product diversity and quality by adopting advanced production

technologies and management methods. Through the application of digital technologies, the production process of products can be more refined and intelligent, thus producing products that better meet consumers' needs. This improvement in the supply side will drive the upgrading of residents' consumption, making them more inclined to purchase high-quality and personalized products (Yin Bocheng, 2021). On the other hand, from the perspective of consumption supply, the digital upgrading of industries provides a wider space for consumption choices for the upgrading of residents' consumption. Through e-commerce platforms and online markets, consumers can easily obtain product information from across the country and even the world, and make comparisons and selections. Digital transformation also encourages enterprises to develop and launch more products and services that meet the needs of the upgrading of residents' consumption, satisfying consumers' demands for diverse and personalized products. The above two factors enable residents to have more purchase options and increase consumption diversity on the premise of increased income. In addition, the application of digital technologies also helps enterprises gain a deeper understanding of the current situation of residents' consumption, tap potential consumption demands, conduct accurate analysis and prediction of consumers, and provide them with personalized products and services. This can improve consumer satisfaction and loyalty and drive the upgrading of residents' consumption. Based on the above analysis, this paper proposes the following research hypotheses:

Hypothesis 3: The supply level plays a mediating role between the digital transformation of industries and the upgrading of residents' consumption.

3. EMPIRICAL ANALYSIS

3.1 Variable Selection and Data Source

Explained variable: Consumption upgrading of residents (Cu), measured by the proportion of residents' enjoyment and development-oriented consumption in total consumption.

Core explanatory variable: Industrial digital transformation (InId), measured by the ratio of the intermediate input of the global computer manufacturing and information service industries to their added value in each industry in WIOD (Gao Peng et al., 2022).

Mediating variables: Residents' income (InCr) and supply level (Sup), measured by residents' disposable income and the added value of the tertiary industry respectively (Ma Pengfei, 2023).

Control variables: Include residents' education level (Edu), price level (Pj), employment level (Job), social security level (Soc), and industrial structure (Str). Among them, the education level is measured by the average years of education of residents; the price level is measured by the consumer price index; the employment level is measured by the ratio of the number of employed people to the permanent population; the social security level is measured by the proportion of social security expenditures in government budget expenditures; the industrial structure is measured by the proportion of the tertiary industry (Peng Wei et al., 2021).

This paper selects the panel data of 30 provinces from 2015 to 2021 (excluding Hong Kong, Macao, Taiwan regions and Tibet) as the research sample to explore the mechanism of the impact of industrial digital transformation on residents' consumption upgrading and the mediating effects of income level and supply level. The original data involved in each variable are from the bulletins released on the official website of the National Bureau of Statistics, the CSMAR (China Stock Market & Accounting Research) digital economy research database, the statistical yearbooks of each province and city, and the EPS (Economy Prediction System) database. Among them, in some years, due to the existence of a small amount of missing data in some regions, linear interpolation method is used to fill it. At the same time, in order to reduce the impact of heteroscedasticity on the analysis results, all indicators are logarithmically processed.

3.2 Model Construction

The benchmark regression analysis model is as follows:

$$\ln Cu_{it} = \alpha_0 + \alpha_1 \ln Id_{it} + \alpha_2 X_{it} + \varepsilon_{it}$$

Among them, α represents the regression coefficient, i, t represents each region and time respectively, X represents the control variable, and ε represents the random disturbance.

The regression model of the mediating variable (M) is as follows:

$$M = \beta_0 + \beta_1 \ln Id_{it} + \beta_2 X_{it} + \varepsilon_{it}$$

$$\ln Cu_{it} = \gamma_0 + \gamma_1 \ln Id_{it} + \gamma_2 M_{it} + \alpha_3 X_{it} + \varepsilon_{it}$$

3.3 Descriptive Statistics

The descriptive statistical results of the variables are shown in Table 1. The average value of Cu is 0.388, the standard deviation is 0.039, the minimum value is 0.298, and the maximum value is 0.492. This indicates that the internal gap of residents' consumption upgrading is relatively reasonable and not affected by extreme values. Similarly, it can be seen that each variable meets the requirements.

Table 1: Descriptive Statistics Results of Variables

	Mean	Standard Deviation	Minimum	Maximum
Cu	0.388	0.039	0.298	0.492
lnId	0.229	0.142	0.059	0.788
lnCr	4.108	0.148	3.752	4.538
Sup	4.082	0.361	3.237	4.773
Edu	7.802	0.601	5.853	9.657
Pj	1.088	0.051	1.021	1.232
Job	0.283	0.442	0.019	3.107
Soc	1.298	0.707	0.568	5.301
Str	1.302	0.708	0.568	5.303

3.4 Baseline Regression Analysis

The regression analysis results of the direct effect of industrial digital transformation on the upgrading of household consumption are shown in Table 2. In column (1), the regression coefficient of the core explanatory variable, industrial digital transformation, is 0.189, which is significant at the 1% level, preliminarily indicating that industrial digital transformation plays a significant promoting role in the upgrading of household consumption. In column (2), after adding control variables, the regression coefficient of the core explanatory variable, digital transformation, becomes 0.132, which is significant at the 1% level, fully indicating that industrial digital transformation plays a significant promoting role in the upgrading of household consumption. Therefore, Hypothesis 1 is verified. For the control variables, the regression coefficients of the education level, social security level, and industrial structure are significantly positive, indicating that they have a promoting effect on the upgrading of household consumption. The improvement of the education level helps to increase household income and establish a reasonable consumption concept, thus promoting the upgrading of household consumption; the improvement of the social security level is conducive to increasing the disposable income of households, and thus conducive to increasing consumption expenditure; the upgrading of the industrial structure provides more consumption choices for households and is also conducive to the upgrading of household consumption. In addition, the regression coefficient of the price level is significantly negative, indicating that price factors are the key factors restricting the upgrading of household consumption.

Table 2: Regression Analysis Results of the Direct Effect of Industrial Digital Transformation on Residents' Consumption Upgrade

Variable	(1) ln Cu	(2) ln Cu
lnId	0.189*** (0.035)	0.132*** (0.026)
Edu		0.154*** (0.035)
Pj		-0.125*** (0.027)
Job		0.043 (0.002)
Soc		0.057*** (0.005)
Str		0.018*** (0.007)
Cons	0.356*** (0.015)	0.145*** (0.052)
R ²	0.165	0.579

Note: *, **, *** indicate that the P-value is less than 0.1, 0.05, 0.01 respectively, and the standard errors are in parentheses. The same applies hereinafter.

3.5 Robustness Tests

This paper refers to the research results of Gao Jie et al. (2022) and measures the level of industrial digitalization

through three dimensions: agricultural digitalization, industrial digitalization, and service digitalization. Among them, agricultural digitalization is measured by the proportion of administrative villages with broadband Internet services, rural broadband access users, and the e-commerce volume of agricultural products; industrial digitalization is measured by the number of computers used per 10,000 people in industrial enterprises, the integration index of industrialization and informatization, and the e-commerce transaction volume of industrial enterprises; service digitalization is measured by the proportion of enterprises with e-commerce transaction activities, e-commerce transaction volume, investment in Internet-related services, and digital finance index. As shown in Table 3, the coefficients and significance levels of each variable are not significantly different from those in the previous text, indicating that the previous research is robust and the next step of analysis can be carried out.

(VI) Mediating Effect Analysis

Table 3: Results of Robustness Tests

Variable	(1) ln Cu	(2) ln Cu
lnId	0.193*** (0.041)	0.128*** (0.023)
Edu		0.161*** (0.042)
Pj		-0.133*** (0.031)
Job		0.052 (0.005)
Soc		0.063*** (0.011)
Str		0.031** (0.012)
Cons	0.362*** (0.021)	0.151*** (0.048)
R ²	0.173	0.582

The regression analysis results of the income and supply mediating effects are shown in Table 4. In columns (2) and (3), with income and supply level as the explained variables, the regression coefficients of industrial digital transformation are both significantly positive (0.132*** and 0.412***), indicating that digital transformation has a significant promoting effect on both income and supply level; in columns (4) and (5), the regression coefficients of industrial digital transformation are significantly positive (0.063*** and 0.165***), and at the same time, the regression coefficients of the mediating variables income and supply level are also significantly positive (0.345*** and 0.015**), which indicates that income and supply play a partial mediating role between industrial digital transformation and residents' consumption upgrading, and Hypothesis 2 and Hypothesis 3 are verified.

Table 4: Results of Mediating Effect Regression Analysis

Variable	(1) ln Cu	(2) lnC	(3) Sup	(4) ln Cu	(5) ln Cu
lnId	0.132*** (0.026)	0.132*** (0.057)	0.412** (0.147)	0.063*** (0.024)	0.165*** (0.045)
lnC	-	-	-	0.345*** (0.058)	-
Sup	-	-	-	-	0.015** (0.013)
Edu	0.154*** (0.035)	0.254*** (0.018)	0.549*** (0.049)	0.131*** (0.015)	0.128*** (0.021)
Pj	-0.125*** (0.027)	0.025 (0.239)	0.146 (0.315)	-0.505*** (0.075)	-0.135*** (0.054)
Job	0.043 (0.002)	0.059 (0.011)	0.0078 (0.056)	-0.025 (0.002)	-0.019 (0.001)
Soc	0.057*** (0.005)	0.049*** (0.004)	0.053*** (0.013)	0.045*** (0.003)	0.038*** (0.002)
Str	0.018*** (0.007)	0.005 (0.003)	0.165** (0.128)	0.018** (0.017)	0.026*** (0.026)
Cons	0.145*** (0.052)	2.254*** (0.098)	2.215*** (0.206)	-0.615*** (0.125)	0.165*** (0.059)
R ²	0.579	0.958	0.645	0.529	0.398

4. CONCLUSION

The digital transformation of industries has a significant positive impact on the upgrading of residents' consumption. This is because: First, the digital transformation of industries brings a more intelligent, convenient and personalized consumption experience. Through digital technologies, enterprises can better understand consumers' needs, customize products and services in a personalized manner, and improve consumers' satisfaction, thus prompting residents to be more willing to choose high-quality and personalized consumer goods. Second, the digital transformation makes goods and services more diversified and more widely accessible. Residents can easily obtain goods and services worldwide through Internet platforms, which not only expands the breadth of consumption choices, but also increases the demand for different categories and qualities, driving the upgrading of consumption. Third, the application of digital technologies simplifies processes such as shopping and payment, reducing transaction costs. Residents can complete shopping more conveniently and enjoy more efficient consumer services, which not only improves the convenience of shopping, but also promotes the improvement of consumption levels. Fourth, the digital transformation enables enterprises to better understand market demands and consumers' feedback. In order to stand out in the digital competition, enterprises have to improve the quality of their products to meet consumers' demands for high-quality products, thus guiding the upgrading of residents'

consumption.

Income level plays a partial mediating role between the digital transformation of industries and the upgrading of residents' consumption. This is because: First, the digital transformation of industries promotes the development of emerging industries and creates more high-skill and high-value-added job opportunities. These job opportunities in emerging fields usually come with higher salary levels, thus improving the overall income level of residents. The digital transformation brings automation and intelligent production, improving labor productivity. With the improvement of production efficiency, enterprises can usually provide better salaries and benefits for employees, thus increasing the income level of residents. Second, the increase in income level enables residents to have higher purchasing power, allowing them to buy more and higher-grade goods and services, driving the upgrading of consumption; the increase in income level makes residents more inclined to pursue quality and personalized consumption, thus guiding the market to provide higher-quality products and services; the increase in income level enables residents to engage in more diversified consumption fields, thus expanding the breadth of consumption choices, prompting residents to increase their demand for diversified consumer goods, and further promoting the upgrading of residents' consumption.

The supply level plays a partial mediating role between the digital transformation of industries and the upgrading of residents' consumption. This is because: First, the digital transformation of industries introduces advanced production tools and intelligent technologies, improving production efficiency. This means that enterprises can produce goods and provide services more quickly and efficiently, thus increasing the speed and scale of supply. The digital transformation makes production more flexible and supports customized production. Enterprises can better meet consumers' needs, provide personalized products and services, thus enhancing the diversity and adaptability of the supply level. Second, the improvement of the supply level leads to the emergence of more abundant and diverse products and services in the market, giving residents a wider range of choices, thus driving consumers' pursuit of quality and personalization. The improvement of the supply level is usually accompanied by economies of scale and increased production efficiency, which helps to reduce product prices, enabling more consumers to afford higher-quality goods and services.

5. POLICY RECOMMENDATIONS

First, promote the digital transformation of industries. First, formulate a digital training plan. The government needs to formulate and implement a wide-ranging digital training plan to improve the digital skills of the workforce. The government can cooperate with educational institutions and enterprises to offer online training courses covering all levels from basic to advanced. Encourage enterprises to provide digital skills training for employees to meet the requirements of digital transformation for job skills. Second, establish a digital innovation fund. The government needs to establish a digital innovation fund to support small and medium-sized enterprises in adopting digital technologies for innovation and transformation. The fund can provide low-interest loans, entrepreneurship support, and technology cooperation to help enterprises accelerate digital transformation. The government can cooperate with financial institutions to ensure the sustainability and wide coverage of the fund. Third, implement policy incentives. The government needs to introduce tax incentives and subsidy policies to reward enterprises for digital investment. Encourage enterprises to adopt advanced technologies such as intelligent production equipment, Internet of Things technology, and big data analysis to improve production efficiency and product quality. At the same time, establish a monitoring mechanism to ensure that enterprises meet digital standards.

Second, raise the income level of residents. First, promote vocational training and retraining. The government needs to implement a comprehensive vocational training and retraining plan to improve the vocational skills of workers so that they can better meet the employment needs of the digital economy. The government can cooperate with enterprises and academic institutions to provide targeted training courses covering different industries and skill areas. Second, implement support policies for small, medium-sized, and micro enterprises. The government needs to formulate and strengthen support policies for small, medium-sized, and micro enterprises, including tax exemptions, providing low-interest loans, and technical support. By reducing the operating costs of enterprises and enhancing their competitiveness, promote the development of small, medium-sized, and micro enterprises, thereby creating more employment opportunities and raising the income level of employees. Third, establish a wage survey and supervision mechanism. The government needs to establish a comprehensive wage survey and supervision mechanism to ensure fair and reasonable wage levels in all industries. The government can set up a wage level survey bureau to regularly release the average wage levels of various industries and occupations and set a minimum wage standard to protect the basic economic rights and interests of workers.

Third, improve the supply level. First, promote the construction of digital infrastructure. The government needs to invest in the construction of digital infrastructure, including high-speed broadband networks, Internet of Things coverage, and cloud computing infrastructure. The government can set up special funds to promote the construction of digital infrastructure, improve the information transmission efficiency of the supply chain, and lower the threshold for enterprises' digital transformation. Second, establish a supply chain coordination mechanism. The government needs to establish a supply chain coordination mechanism to promote cooperation and information sharing among enterprises. The government can encourage the formation of a digital supply chain network to improve the supply level of the entire industrial chain and accelerate the circulation of products from production to the market through data sharing, collaborative innovation, etc. Third, build a digital employment platform. The government needs to create a digital employment platform to promote better participation of the labor force in the digital industry through the precise matching of talents and enterprises. The government can support the construction of online recruitment and training platforms to increase the employment opportunities of the labor force in the digital field and promote the organic connection between the upstream and downstream of the industrial chain.

REFERENCES

- [1] Jin Fei. Multi-dimensional Innovation Characteristics and Development Strategies of Industrial Digitalization [J]. Modern Economic Research, 2023 (8)
- [2] Zhu Heliang, Wang Chunjuan. Industrial Digital Transformation under the Strategic Background of the New Development Pattern of "Dual Circulation": Theory and Countermeasures [J]. Finance & Trade Economics, 2021 (3)
- [3] Gao Peng, Yue Shujing. Does Global Value Chain Embedding Reduce the Embodied Carbon of Chinese Industrial Sectors? On the Moderating Effect of Industrial Digitalization [J]. Journal of International Trade, 2022 (7)
- [4] Liu Bo, Hong Xingjian. Measurement and Analysis of the Degree of Chinese Industrial Digitalization [J]. Statistical Research, 2022 (10)
- [5] Chen Jian, Zou Hong, Zhang Junying. The Impact of Digital Economy on the Temporal and Spatial Pattern of Chinese Residents' Consumption Upgrade [J]. Economic Geography, 2022 (9)
- [6] Zeng Jiehua, Zhong Ruoyu. Does the Internet Promote the Upgrade of Residents' Consumption? Research Based on the Urban Consumption Search Index in Guangdong Province [J]. Economist, 2021 (8)
- [7] Ye Jingjing. Research on Regional Differences, Distribution Dynamics and Convergence of the Level of Chinese Residents' Consumption Upgrade [J]. Inquiry into Economic Issues, 2021 (4)
- [8] Liu Min. The Path of Chinese Residents' Consumption Upgrade and New Consumption Trends in the Future since the Founding of the Communist Party of China for a Century [J]. Reform of Economic System, 2021 (2)
- [9] Zhang Cheng, Hong Zheng. Social Security, Inclusive Growth and the Upgrade of Residents' Consumption [J]. Population & Development, 2022 (1)
- [10] Gao Jie, Wang Jun. Research on the Impact of Industrial Digital Transformation on Residents' Consumption [J]. Study & Exploration, 2022 (8)
- [11] Peng Yihui, Chen Lei. The Impact of Industrial Digitalization on Residents' Consumption under the Background of "Dual Circulation" [J]. Journal of Commercial Economics, 2023 (3)
- [12] Feng Qian. The Impact of Industrial Digitalization on the Expansion of Residents' Consumption - Based on the Mediating Effect of Circulation Industry Agglomeration [J]. Journal of Commercial Economics, 2023 (21)
- [13] Zhu Heng, Xiong Bo, Gong Yu. The Driving Mechanism and Development Path of Promoting Industrial Digital Transformation in Chengdu City [J]. Economic & Trade Update, 2023 (5)
- [14] Xie Qi, Feng Jing. An Empirical Study on the Impact of Urban Residents' Income Structure on Consumption Demand - From the Perspective of Mental Accounting [J]. Economic & Trade Update, 2022 (11)
- [15] Yin Bocheng. The Dynamic Balance and Benign Interaction between Supply and Demand under the New Development Pattern of Dual Circulation [J]. Jianghai Academic Journal, 2021 (3)
- [16] Mapengfei. Research on the Impact of Industrial Digitalization on the Upgrading of Rural Residents' Consumption Structure [D]. Chongqing: Chongqing Technology and Business University, 2023
- [17] Peng Wei, Xiong Langyu. Supply-side Structural Reform and Resident Consumption Upgrading under the New Normal of the Economy - From the Perspectives of "Reform Threshold" and "Consumption Stickiness" [J]. Journal of Jinan University (Philosophy and Social Sciences Edition), 2021(4)