**Literature review and research prospect of digital inclusive finance and gig economy under the background of new quality productivity**

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**Abstract:** With technological advances and the development of digital platforms, the gig economy, characterized by flexible, short-term employment, is rapidly evolving, providing new opportunities for employment and economic growth. Digital financial inclusion is important in promoting gig financial services, thereby increasing their economic participation and reducing financial exclusion. In the context of new quality productivity, the future can further study the synergistic effect of digital finance and gig economy, as well as the mediating effect of new quality productivity in this dynamic interaction. This study can provide innovative insights into the sustainable development of the gig economy and future research directions.

1. Introduction

With the deepening development of globalization and the rapid progress of information technology, enterprises' demand for flexible and efficient labor force is increasing: the new gig economy is developing rapidly in China. The new gig economy based on the Internet era refers to the gig economy generally referred to today, which generally includes capital platform gig based on platform selling or leasing assets, crowdsourcing through the platform and gig jobs that provide various local services based on App. At present, gig platforms such as ByteDance's "Bamboo Festival", Meituan's "Sky Star" and Code Market are developing rapidly. Taking "Bamboo Festival" as an example, the positions provided by the platform include subtitle translation, dialect dubbing, and body data collection, assigning tasks around the main business of bytes. This economic form has brought new impacts and changes to the traditional economic model, and has become a "booster" for flexible employment and a "reservoir" for national employment (Zhao Runxin et al., 2023)[1]. It is expected that the gig economy in China will account for 6.82 percent of GDP by 2035, and will have 400 million people by 2036[2]. This shows the huge potential and development space of the gig industry economy.

In addition, in the existing financial system, small and medium-sized enterprises, micro enterprises, self-employed, farmers or natural customers, and many other potential customer
demand ignored, if they through informal financial way to obtain financial services, not only increased the burden of their individual, and even may cause other social risk. The reform of the financial system is urgent. In order to solve the last mile of financial services, China proposed the concept of digital inclusive finance for the first time at the G20 Summit, and promoted and participated in the issuance of the G20 High-level Principles of Digital Inclusive Finance. digital inclusive finance is the inclusive finance integrated with the digital economy, which refers to the form of digital driven inclusive finance. To some extent, digital inclusive finance is indispensable for participants in the gig economy. It can help participants to better manage their income and expenditure, and obtain the necessary financial support, so as to more flexibly respond to work opportunities and life needs. digital inclusive finance has become an important technical factor driving the development of gig economy.

"Developing new quality productivity is an inherent requirement and an important focus for promoting high-quality development. We must continue to do a good job in innovation and accelerate the development of new quality productivity." The essence of new quality productivity is the output efficiency and level reflected in the new mode of production based on knowledge production, which is highlighted in the ability to transform the advantages of scientific and technological innovation resources into development advantages and then internalize them into social capital (Liu Yajing, 2024)[3]. This productivity emphasizes the central role of technology and innovation in economic growth, in stark contrast to the traditional resource and labor-driven models. The rise of new quality productivity provides technical support and innovation power for the development of gig economy, and people use digital technology to complete their work more efficiently or obtain economic sources. At the same time, the emergence of new quality productivity puts forward higher requirements for the knowledge reserve and innovation ability of the labor force, and promotes the reform of education and training system, so that individuals can realize the maximum self-value and economic benefits on a broader platform.

At present, the academic research on the influence and path of the new quality productivity and digital inclusive finance on the gig economy has just started. First, the gig economy originated in the context of the digital economy and the mobile Internet era. The initial relevant research is closely linked to economic phenomena such as flexible employment and flexible employment (Zhang Chenggang et al., 2022)[4], The gig economy uses the Internet and mobile technology to quickly match the supply and demand side, changing the traditional employment mode and forming a new economic form (Zhang Yiqi, 2021)[5]. Secondly, digital inclusive finance, as a product of the digital economy and mobile Internet era, on the one hand, provides important capital guarantee and payment guarantee for the gig economy through the use of network, communication and other technologies (Guo Feng et al., 2020)[6]. On the other hand, it also reduces the financial transaction costs of the gig economy participants. The concept of new quality productivity has been expounded in the academic circles. It is an advanced productivity quality that plays a leading role, getting rid of the traditional economic growth mode, productivity development path, high technology, high efficiency, high quality, and in line with the new development concept. Therefore, this research group will further explore and elaborate on the impact mechanism of digital inclusive finance and new quality productivity on the gig economy.

To sum up, the rise of gig industry economy, the development of digital inclusive finance and the promotion of new quality productivity together constitute the important characteristics of the current economic transformation. The interaction and influence of these three factors not only reshape the pattern of labor market and financial services, but also provide more freedom and opportunities for individuals, and promote the innovation and progress of social economy. This research group will further study the influence between the two through the intermediary variable new quality productivity, so as to provide innovative ideas and countermeasures for policy
formulation.

2. Review of the research status quo

2.1 Review of foreign literature

With the sharing of the development of the economy, digital information technology innovation and the development of new financial service form, foreign scholars also studied the influence of the economy development factors, mainly focused on the digital pratt & whitney financial to reduce transaction costs, to reduce the influence of the participants of the economy financing difficulty, and the digital pratt & whitney financial impact on the gig economic mechanism discussed less, and has not been to new quality productivity as intermediary variable research.

Digital inclusive finance is the product of the integration of digital technologies such as the Internet and inclusive finance (Y.N.Wang, Z.Tan, H.Zheng, L.K., 2020)[7]. Providing financial products and services with wide coverage, diverse variety, low cost, and high degree of convenience represents the digital transformation of the whole financial system (D.C.Donald,2020)[8]. However, on the one hand, there is a serious information asymmetry between fund providers and individuals (B.M.Barber, 2009)[9]. The lack of sufficient property prevented gig individuals to provide sufficient collateral for the financiers. Based on these two points, commercial banks are often unable to provide effective financial support for gig workers. As a result, gig workers usually face the problems of high financing threshold and high financing costs. However, with the progress and promotion of digital inclusive finance, the financial acquisition cost of gig economy participants is significantly reduced. Yong Jiao (2024) said that the rise of tailored financial instruments ensured safe and intelligent financial activities, stimulated innovation and entrepreneurship, which in turn created more jobs and promoted healthy industry competition[10]. Moenninghoff & Wieandt believes that risk assessment based on big data can help save transaction costs and reduce the degree of information asymmetry, thus helping small and micro businesses to obtain financing[11]. This shows that the development of digital inclusive finance has reduced the cost of financial acquisition for the groups such as small and medium-sized enterprises and the self-employed, and helped the participants in the gig economy to obtain the necessary financial support.

2.2 Review of domestic literature

In September 2023, During his visit to Heilongjiang Province, General Secretary, based on the fundamental issues of productivity development, proposed for the first time the integration of scientific and technological innovation resources, lead the development of strategic emerging industries and future industries, and accelerate the formation of new quality productivity[12]. New quality productivity thus become the latest in the current history of productivity form, and under the xi general secretary's interpretation and emphasis, "new quality productivity is innovation leading role, get rid of the traditional way of economic growth, productivity development path, with high-tech, high efficiency, high quality characteristics, conform to the new development concept of advanced productive forces quality" concept was clear[13]. Productivity forces are the decisive force to promote the development of human society. Therefore, in the new era where new opportunities and new challenges coexist and interweave, there is an urgent need for new productivity theories to provide guidance (Shi Dan, Qin Yi et al, 2024)[14].

Domestic scholars have relatively perfect research on digital inclusive finance. Wang Chaocai (2024) pointed out that finance, as the central nerve of modern economy, plays an important role in serving the real economy and has a profound impact on the employment and consumption mode of
residents[15]. Inclusive finance, based on the requirement of equal opportunity and commercial sustainability, provides appropriate and effective financial services at the cost of commercial sustainability[8]. In the era of digital economy, digital technology has become the core driving force of financial business expansion and service innovation, and the development of digital inclusive finance is formed by the organic combination of digital technology and inclusive finance[15]. It can not only eliminate poverty and promote social and economic transformation, but also lay a good foundation for the construction of a harmonious society.

The gig economy originated in the background of the digital economy and the mobile Internet era. The initial related research is closely linked to the economic phenomena such as flexible employment and flexible employment[16][17]. The gig economy is defined as a short and flexible form of work[16]. After the Fifth Plenary Session of the 18th CPC Central Committee in 2015, the gig economy and new employment forms were systematically studied as independent economic phenomena, which expanded and extended from the original description of the gig economy phenomenon to relevant macro policy research and behavior analysis of enterprises and workers. With the development of digital technology and digital platforms, the evolution of new employment forms and the further optimization of national policies. The gig economy uses the Internet and mobile technology to quickly match the supply and demand side[18]. It has changed the traditional employment and employment mode, become an important form of sharing economy and a new form of distribution of human resources, and created a large number of new jobs under the background of the new economy (Du Han, 2022)[19].

Digital inclusive finance combines the advantages of digital technology and inclusive finance, expands the availability and coverage of financial services, and provides financial and technical support for the development of gig economy and its platform. It is an important guarantee for the development of gig economy and promotes the active and development of gig economy[20].

In conclusion, existing studies include research on the concept and development of new quality productivity, as well as research on the impact of digital inclusive finance on the gig economy. In the process of financial business innovation and financial service optimization in the development of digital inclusive finance, every technological reform can bring subversive and leapfrog impact on the development of financial services. It can be seen that the combination of technology and finance and technology changes financial services. Therefore, the realization of digital inclusive finance cannot be separated from science and technology[21]. The new quality productivity are spawned by revolutionary technological breakthroughs, innovative allocation of production factors, and deep industrial transformation and upgrading, which is formed after the integration of scientific and technological innovation resources. Therefore, it can be seen that the impact of digital inclusive finance on the gig economy is closely related to the new quality productivity, but the existing research lacks to discuss the impact of digital inclusive finance on the gig economy in the context of the new quality productivity.

Based on the above studies, empirical analysis methods can be used in future studies to deeply explore the potential impact of digital inclusive finance on the gig economy, and further analyze the intermediary effect produced by new quality productivity factors in this process. Through data collection, model building and data analysis, we can reveal the correlation among the three policies, and provide theoretical basis and practical guidance for relevant policy formulation.

3. Research significance

With the continuous development of sharing economy, the proportion of flexible employment is gradually rising, for which labor market in China is also undergoing great changes. By 2023, the government report shows that the number of flexible employment has exceeded 200 million,
accounting for 65.35% of the total working population, mainly in the age group of 26-35. As early as July 2019, The State Council proposed to strengthen efforts to implement the employment priority policy, among which the "gig market", a new employment form, was recognized by The State Council. In July 2022, the Ministry of Human Resources and Social Security, the Ministry of Finance and other five departments jointly issued the Opinions, which clearly put forward a series of key tasks such as "strengthening gig market information service and establishing gig job-hunting and recruitment information service system".

In January 2024, the Ministry of Human Resources and Social Security issued the Notice on Strengthening the Standardization Construction of the gig Market, stressing that all localities should incorporate the gig market into the construction of the employment public service system, and promote the overall planning and planning. It can be seen that the gig market, as a "new growth point of employment" in economic development, has been recognized by the government's cultivation and support policies and the society. However, with the popularization of digital finance and the progress of productivity, the gig community, the main component of the growing gig market, has become different from tradition and gradually moved closer to information technology. This study will explore the transformation path of gig economy from traditional gig mode to information gig mode under the dual integration mode of digital inclusive finance and new quality productivity.

3.1 Theoretical significance

The gig economy, also known as the peer-to-peer economy, is an emerging economic model that relies on Internet technology and connects supply and demand through platforms to maximize the use of resources. It is characterized by fragmented work content, flexible working time, place and way, which can meet the diversified and personalized needs of modern society. Therefore, the continuous innovation of digital information technology is an important condition for the emergence and development of the gig economy. However, as a new generation of financial service model, digital inclusive finance has also been developed with the help of Internet technology, and its influence mechanism on the gig economy has not been fully studied. This study will discuss how digital inclusive finance can affect the participants, market structure and operation mechanism of gig economy by improving the accessibility of financial services, reducing transaction costs and optimizing resource allocation, provide a new perspective and thinking for theoretical research, and make up for the existing influencing factors of the development of gig economy.

3.2 Practical significance

In September 2023, General Secretary put forward the concept of new quality productivity for the first time during his investigation and investigation in Heilongjiang province. This concept emphasizes the integration of scientific and technological innovation resources, leading the development of strategic emerging industries and future industries, so as to accelerate the formation of new quality productivity. Based on the concept of new quality productivity, this study explores the path of active integration of digital inclusive finance and gig, which can provide targeted suggestions for policy makers. For gig workers, they can help them better understand and grasp the development trend of digital inclusive finance and flexible employment. For financial practitioners, help them reveal the development potential of digital inclusive finance in gig economy, and provide them with more targeted products and services in gig economy.
3.3 Social significance

The mutual integration and mutual development of the digital inclusive finance and the gig economy have provided more financial service support and guarantee for the gig workers. This study will help to raise the social awareness of the relationship between digital inclusive finance and the gig economy, and to promote a stable and sustainable socio-economic development. At the same time, this study also helps to further promote the development of digital inclusive finance, make it better serve the real economy and people from all walks of life, and realize the universality and sustainability of finance.

4. Theoretical principle and hypothesis

4.1 Theoretical principle

According to the scientific theory, relevant literature and practical experience basis of previous scholars and social core views, the research group further establishes the research direction, so that the research purpose of this topic is more clear, the research scope is more accurate and the research content is more specific.

Many social evaluations in the labor and economic industries believe that digital inclusive finance can promote the gig economy. In addition, many scholars also to digital pratt & whitney financial influence on the study of gig economy, found that digital pratt & whitney financial combined with digital technology to identify information into computer language after the role of various operations, and pratt & whitney financial for the demand of social groups to provide appropriate financial services, the availability of financial services and coverage, for the gig economy and platform development provides information and technical support, and promote the development of the active and gig economy. Specifically, the relevant practical logic and theoretical mechanism of digital inclusive finance on the gig economy are as follows.

4.1.1 Siphon effect

The application of the siphon effect in the field of regional economics means that the areas with favorable conditions will attract the capital, talents, technology and other resources of the surrounding areas in the past, forming the "siphon effect of the central city". In addition, the ability to attract investment in the surrounding areas is far less than the core area, making it difficult to retain enterprises and investment.[23] At the supply side of gig economy positions, enterprises will directly affect the development of gig economy and affect whether the demand of gig workers can be met. At the same time, under the siphon effect, more high-quality resources will be concentrated in the central city, and scientific and research-oriented enterprises can provide more modular high-skilled positions, which can play a certain role in promoting the development of high-level gig economy.

4.1.2 Long-tail market theory

The concept of the long tail was first proposed by Chris Anderson, editor in chief of Wired magazine, in his "Long tail" in October 2004 to describe the business and economic models of websites such as Amazon and Netflix. In statistics, the "long tail" is a colloquial expression of the power-law and Pareto distribution features. The "long tail theory" is considered as a complete rebellion against the traditional "80-80 law". In the past, people could only pay attention to important people or important things. If a normal distribution curve was used to describe these people or things, people could only pay attention to the "head" of the curve, but most people or
things would be in the "tail" of the curve and need more energy and cost to pay attention to ignore. However, in the Internet era, because the cost of attention is greatly reduced, people are likely to pay attention to the "tail" of the normal distribution curve at a very low cost, and the overall benefits of the "tail" will even exceed the "head". The gig economy is often regarded as the "long tail" part of economic development. With the improvement of the development level of digital inclusive finance, the financial acquisition cost of the gig economy participants is significantly reduced, and the gig economy is likely to have an increasing impact on the national GDP.

4.1.3 Financial exclusion theory

Financial exclusion refers to the inability of certain groups in society without the ability to enter the financial system and thus to access the necessary financial services in an appropriate form. Financial exclusion is a self-reinforcing process, which can be the cause or result of social exclusion, or both cause and result.

For gig economy participants, there is a serious information asymmetry, and due to the lack of sufficient property. This causes the gig economy participants to face the problem of financial exclusion, or causes these gig economy participants to change careers, affecting the development of the gig economy. The development of digital inclusive finance helps to save transaction costs, reduce the degree of information asymmetry, and reduce the financial exclusion faced by gig economic participants.

4.1.4 Bilateral market theory

Bilateral market theory provides a framework for analyzing the behavior and strategies of platform enterprises that connect two separate user groups. In the gig economy, platforms typically connect service providers (gig workers) to service demanders (consumers or businesses). By providing broader financial service coverage, such as low fees or subsidies, digital inclusive finance platforms can increase the financial inclusiveness of gig workers, thus improving their ability to participate in economic activities and increasing the liquidity and flexibility of the gig economy. This effect is reflected in the gig economy, where more gig workers get jobs through digital platforms and makes it easier for consumers to find service providers. Under the background of digital development, gig economic platform can be interconnected with other platforms or systems with the help of big data and artificial intelligence technology, so as to improve the efficiency of matching the supply and demand side of gig jobs and expand the scope of services.

4.1.5 Network effect

Network effects usually mean where the utility a user gets from consuming a product increases as the number of users using the product increases. Network effect includes direct network effect and cross network effect: direct network effect mainly refers to the scale economy of the same type of user. Cross network effect refers to the external effect of the platform to the users of the platform economy and the natural monopoly industry such as telecommunication. In the gig economy, the direct network effect is the increase of the number of workers and consumers on the platform, and the value of the platform also increases. More workers seeking gig jobs on the platform can promote the platform to provide more diversified services, while good work feedback can attract more platform users, forming a positive cycle.
4.2 Research hypothesis

4.2.1 Coordinated development of digital inclusive finance and Gig economy

In the digital era, digital inclusive finance is developing rapidly, and gig workers can realize long-distance office through VR equipment, which makes the application scenarios of gig economy more diversified and is conducive to promoting the further emergence and development of gig economy. In the Development Status, Social Impact and Policy Suggestions of Zoog Economy in the Internet Era released by the Institute of Economics of Tsinghua University and Beijing, the researchers used the spatial error model (SEM) to find that the gig economy plays a significant role in pulling the regional economy; at the same time, comparing the inferred coefficient of spatial autoregression model, the article found that the gig economy promotes the economic agglomeration on the basis of attaching to the regional economic development[22]. At the same time, the development of gig economy provides jobs and career choices for the market; the emergence of gig economy platform brings more vitality to the economy and business model, changes the allocation mode and efficiency of economic resources, promotes the development of new local enterprises, and increases the number of gig jobs.

According to the "2022-2028 China's gig economy Industry Competition Status and Investment Prospect Forecast Report" released by Zhiyan Consulting, with the development of mobile Internet, communication services, cloud computing and other digital technologies, the market demand for gig jobs is directly related to the development level of regional digital inclusive finance. This is because these technologies enable digital finance to not only break the limitation of established geographical space, improve the availability of financial services, promote new jobs and new demands, such as sharing economy, change the traditional employment mode, create a large number of flexible employment jobs, let workers participate in economic activities in the form of temporary workers and part-time jobs; but also can solve the problems of security risks, information mismatch and low resource utilization efficiency in the remote trading process, improve security and convenience. With these technologies, real financial institutions can obtain the network platform to provide financial services to customers, which can change the traditional financial service mode, improve the efficiency of financial services, and promote the e-commerce platform services to benefit a wider range of regions and groups. All these can reduce the cost of financial resource allocation, more conducive to promote the transaction, and improve the economic level of the region.

In addition, economically developed areas are often accompanied by a large population size and high per capita disposable income, with strong consumer demand and sound co-service infrastructure, which is conducive to the emergence and development of gig economy. Based on this, the following research hypotheses can be investigated in the future:

H1: The more developed digital inclusive finance is, the more gig jobs are provided.

4.2.2 Digital technology innovation and Financial product innovation

Technological innovation can give rise to new industries, new models and new growth drivers, and is the core element of the development of new quality productivity. new quality productivity is the leading role of innovation, get rid of the traditional economic growth mode and the development path of productive forces, with the characteristics of high technology, high efficiency, high quality, in line with the new development concept " concept[5].Through technological innovation, such as big data analysis and artificial intelligence, digital inclusive finance can more accurately assess the credit status of gig economic participants, so as to provide financial products more in line with their needs. And digital inclusive finance itself is the product of the integration of digital Internet and other digital technologies and inclusive finance, which represents the digital transformation of the
financial system. The continuous progress of digital technology has spawned the diversified innovation of financial products, which can also provide a strong impetus for the development of new quality productivity.

As a new model driven by digital technology, digital inclusive finance makes the ecological basis and policy environment of inclusive finance better adapt to the requirements of the digital era. New quality productivity are supported by digital, networked and intelligent new technologies, and with data as the key factor of production. It is the productive forces in which scientific and technological innovation plays a leading role. The labor data of higher technology content is the power source of new quality productivity. In this year's government work report, we will vigorously promote the development of a modern industrial system and accelerate the development of new-quality productive forces. And the digital inclusive finance is undoubtedly a "sharp weapon" to boost the new quality productivity.

At present, there have been studies on digital inclusive finance to reduce transaction costs and thus reduce the financing difficulty of gig economy participants, but there is little discussion on the specific impact mechanism of digital inclusive finance on gig economy, and there is no thematic research on new quality productivity as an intermediary variable.

Therefore, future research can be further expanded on the basis of existing research, put forward hypothesis 2, and expand to "independent variable to mediation variable" "mediation variable to dependent variable" "new productivity mediation effect" three angles of hypothesis, in order to better mediation effect test, certain supplement for the existing research.

H2: New quality productivity plays an intermediary role between digital inclusive finance and gig economy.

H2a (the influence of independent variables on intermediary variables): The expansion and deepening of digital inclusive finance can significantly improve the level of new quality productivity.

4.2.3 New quality productivity and High-level gig economy

The gig economy is a form of employment characterized by short-term and flexible work contracts, which has developed rapidly under the impetus of digital technology. The development of new quality productivity means the promotion of innovation ability and the optimal combination of production factors[24], also changes in production relations and social systems[25]. And the improvement of the quality of the workers[24].Ultimately, it will promote the transformation of the economy from non-traditional factors to innovation-driven ones, and promote the optimization and upgrading of the economic structure and high-quality development. In the background of the development of new quality productivity, new industries, new forms of business and new models will bring new forms of gig economy. The new quality productivity require that the matching workers are no longer ordinary workers who simply repeat labor, but strategic talents who can create new quality productivity and applied talents who can master the new means of production.[16] Under the background of new quality productivity, the mobility of talents and the modularization of work tasks coincide with the flexibility and specialization emphasized by the deepening development of high-level gig industry economy. In the era of increasing risk factors, the modular, unitary and task of work have faster response speed and adaptability, which is an important feature of gig economy and also one of the trends of the development of working mode. In the context of the development of digital technology, the gig economy participants can get more opportunities for high value-added jobs, and the gig economy can develop to a higher level.

Based on this, two additional subhypotheses can be further proposed in future studies:

H2b (the influence of intermediary variable on dependent variable): the improvement of new quality productivity can effectively promote the development of gig economy.

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H2c (intermediary effect based on new quality productivity): New quality productivity plays a significant intermediary role in the impact of digital inclusive finance on the gig economy. Among them, H2c is the validation of the whole mediation model, that is, testing whether the new quality productivity really plays a significant mediation role between digital inclusive finance and the development of gig economy. If the improvement of digital inclusive finance can indeed effectively promote the development of gig economy, and this improvement is driven by the expansion and deepening of new quality productivity, then we can think that new quality productivity plays a significant intermediary role in this process.

5. Conclusions

The mediation effect hypothesis proposed in this paper based on new quality productivity can be verified by using DID model and Sobel test in subsequent studies, and the data sources can be selected from the labor data of various countries and the digital financial inclusion index. Under the background of new quality productivity, the integration of gig economy and digital inclusive finance has a broad prospect. Future research should deeply explore the interactive mechanisms of the two, optimize the policy environment, and promote technological progress to achieve broader social inclusion and sustainable economic development.

References

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