

# Research on the development model of employment in industrial enterprises under the pattern of the internet industry

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**Abstract.** The evolution of the internet industry pattern has reshaped the employment ecology of industrial enterprises in an all-round way. With the intertwined creative and substitution effects, the transformation and reform of its employment model have become a core issue for the development of industrial economy and social stability. Taking Chinese industrial enterprises as the research object and relying on the relevant data of industrial employment from 1949 to 2024, this paper analyzes the differentiated impacts of different development stages of the internet industry on the employment scale and structural proportion of the overall industry and its sub-sectors such as mining and manufacturing from the perspectives of the three industrial sectors, urban non-private and private units. The study finds that the reshaping of China's industrial employment by the internet shows significant stage characteristics and industrial heterogeneity. Industrial employment has experienced a process from scale expansion to stabilization and adjustment with the development of the internet, and the decline is essentially a digitally driven structural optimization. There are significant differences in the employment development of industry in different types of urban units. Ultimately, the internet has driven the transformation of industrial employment from scale expansion to quality improvement, with flexibilization and high-skill orientation becoming the mainstream direction of the employment model.

**Keywords:** China, the internet, industry, employment, development model

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## 1. Introduction: background

### 1.1. Practical background

The employment situation of industrial enterprises is not only a core dimension determining the sustainable development of the enterprises themselves, but also a key field for maintaining the social stability of industrial-based economies. Since the 21st century, economies around the world have gradually entered a new development pattern led by the internet industry, and this transformation has exerted comprehensive and in-depth impacts on the employment ecology of industrial enterprises.

On the one hand, the vigorous development of the internet industry has effectively promoted industrial enterprises to expand online economic forms by fostering emerging business formats such as e-commerce and live streaming, thus spawning and expanding the employment groups related to the online economy. For example, Yangzhou Shuguang Toothbrush Factory, a well-established manufacturing enterprise, once faced the risks of idle production capacity and employment fluctuations due to the decline in foreign trade orders. By connecting with e-commerce platforms, adjusting product strategies and accurately meeting the demand of the domestic market, it not only made its carbon filament toothbrushes top the bestseller list, but also stabilized more than 500 jobs. Guangdong Yajin Battery Factory digested 50% of its overstocked production capacity through the "factory direct sales" model on e-commerce platforms, ensuring the continuous payment of social security for 213 employees and successfully avoiding the risk of layoffs. In addition, the extension of the e-commerce industrial chain has also driven the demand for new positions within industrial enterprises such as e-commerce operation, online customer service and logistics coordination, forming a stable employment absorption effect.

On the other hand, the in-depth application of new technologies such as big data and artificial intelligence driven by the internet industry in the industrial field has also replaced some traditional jobs, leading to a structural decline in the scale of traditional employment in industrial enterprises. For example, after promoting digital transformation, Anhui Tianhong New Material Co., Ltd. reduced the labor force of one shift in the production workshop from 40 to 32, with automated equipment undertaking most of the repetitive operations. RootCloud built an industrial internet platform for a heavy industry enterprise, which optimized the production process by integrating data from more than 30,000 sensors, reducing the number of workers needed in the workshop from more than 400 to 120 while increasing the equipment operation rate by nearly 20%. After the digital transformation of the machining production line of Shanxi Huaxiang Group, the personnel reduction rate reached a maximum of 90%, and the per capita output increased by 30%. Such technological substitution is particularly prominent in standardized positions such as assembly line work, warehouse sorting and basic data entry.

Therefore, under the pattern of the internet industry, what development trend will the employment of industrial enterprises present? Furthermore, what essential changes will take place in the employment model of industrial enterprises due to the innovation of internet-related technologies or business formats? Ultimately, how to leverage the technological advantages and business format innovations of the internet era to facilitate the healthy and sustainable development of employment in industrial enterprises? These issues have become core topics concerning the transformation effect of industrial enterprises and the social stability of industrial-based economies.

As mentioned above, based on the current situation and development trend of China's internet industry development and industrial employment, combined with the relevant data of industrial employment from 1949 to 2024, this paper analyzes the development characteristics and influence laws of employment in industrial enterprises under the evolution of the internet industry pattern.

## 1.2. Theoretical background

The most closely related literatures to this research focus on the core issue of manufacturing employment development in the internet era. Through empirical analysis, Xu Jiayun and Mao Qilin [1] clearly revealed the internal mechanism of the internet's impact on China's manufacturing employment and confirmed that it can significantly increase the proportion of market demand for skilled labor. The research by Xu Mengran et al. [2] further clarified that the "Internet +" is driving the distributed transformation of manufacturing employment forms, and this transformation effect shows significant heterogeneity among different industries. Taking

regional manufacturing as the research starting point, Wei Yanqiu [3] pointed out that in the process of industrial transformation and upgrading, the employment structure and job types have undergone systematic changes simultaneously.

At the same time, researches on human resource management in manufacturing in the internet era have constructed an important theoretical support framework for this paper. Both Zheng Sheng [4] and Zhang Xi [5] pointed out that manufacturing enterprises need to actively promote the flexibilization and digital innovation of human resource management to adapt to the structural changes in the employment model. Based on the application scenarios of "Internet +", Shi Guni [6] emphasized that manufacturing enterprises should build an adaptive flexible human resource management system to achieve a dynamic balance with workers' demands while improving enterprise operational efficiency.

In addition, literatures focusing on the development laws of manufacturing in the internet era or specially discussing the employment issues of manufacturing are also importantly related to this research. In response to the practical demand of industrial internet empowering manufacturing transformation, Qin Haisi [7] constructed a targeted innovative talent training model, providing a feasible practical path for the adaptation of employment structure and industrial transformation. From the unique perspectives of digital economy and industrial intelligence, Wu Xiaoyu [8], Guo Mi [9] and Duan Chengyun [10] systematically analyzed the influence mechanism of technological change on manufacturing employment and the corresponding response directions respectively. In the process of exploring the high-quality development path of manufacturing, Qu Zejing [11] also indirectly involved the internal logic and realization path of employment structure optimization.

## 2. Main content

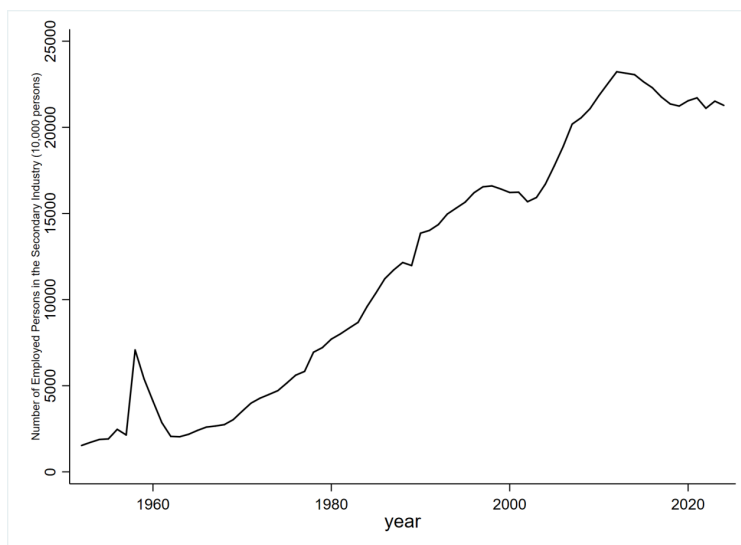
### 2.1. Development characteristics of China's industrial employment from the perspective of the three industrial sectors

As the core carrier of the secondary industry, the changes in the employment scale and structure of industrial enterprises have always been deeply interconnected with the adjustment of the employment pattern of the three industrial sectors and the development process of China's internet industry. Figure 1 presents the fluctuation trend of the line chart of employment in the secondary industry from 1949 to 2024. Taking the three stages of the embryonic start, rapid expansion and in-depth integration of China's internet development as the time axis, it can accurately disassemble the phased reshaping path of the evolution of the internet industry pattern on the employment model of industrial enterprises, clarify the interconnection logic and influence mechanism between the two, and provide solid dual-dimensional support of data and process for the research.

From the long-term trend of the industrial employment in Figure 1, its three-stage changes of fluctuating growth, stable peak and slight decline are highly consistent with the development process of China's internet industry from scratch and from weak to strong. The stage inflection points of the line chart exactly correspond to the key nodes of internet development, and the gradient upgrading of the internet pattern has gradually penetrated and reshaped the industrial employment form, forming a clear interconnection between the process and trend of the two, which provides an intuitive data anchor for analyzing the influence mechanism.

From 1949 to 1978, China had not yet formed an internet industry and was in the closed development stage of the initial industrialization. As can be seen from Figure 1, the scale of industrial employment had a low base and grew slowly, increasing from 15.31 million in 1949 to 69.45 million in 1978, a growth of about 3.53 times in 30 years, and its proportion in the total employment of the three industrial sectors was lower than 20% for a

long time. During this period, industrial employment was dominated by traditional heavy industry and basic manufacturing, and the employment model presented the characteristics of "centralization, directive-based and homogenization". Restricted by technological conditions, production and employment were disconnected from external technological iteration. The slow trend in Figure 1 also confirms the current situation that industrial employment was bound by the traditional production model and lacked the driving force of new momentum. Together with the pattern of low mobility of agricultural employment and small scale of service industry employment, it constituted a closed employment ecology.



**Figure 1.** Development trend of industrial employment in China from 1949 to 2024

From 1979 to 2010, China's internet industry experienced the embryonic start and initial expansion stages, with the full-functional access to the internet in 1994 as the key node, and the rise of portal websites and e-commerce after 2000. Corresponding to Figure 1, industrial employment showed a rapid growth trend, increasing from 72.14 million to 218.42 million, a growth of about 2.03 times in 32 years, reaching a phased peak in 2010. During this stage, the rapid advancement of industrialization made industrial enterprises the core carrier of employment absorption, and the employment structure of the three industrial sectors gradually transformed to "industry-led". The steep growth curve of the line chart confirms the scale expansion momentum of industrial employment. However, the internet industry was still in the basic layout stage during this period, focusing on consumer-side applications and not yet deeply penetrating the industrial production link. Its impact on industrial employment only stayed at the superficial level of information circulation and did not touch the core reform of production model and employment form. Therefore, the line chart only reflects the scale growth without structural fluctuations. Industrial employment was still dominated by traditional manufacturing positions, relying on the labor-intensive production model, with no obvious digital and flexible characteristics.

From 2011 to 2024, China's internet industry entered the stage of in-depth integration and ecological formation. During this stage, industrial internet, big data and artificial intelligence technologies were rapidly popularized, and the internet pattern extended from the consumer side to the industrial side. Corresponding to Figure 1, the scale of industrial employment fluctuated and declined from 225.39 million to 212.75 million, showing a slight decline and a stabilizing adjustment trend. At the same time, the employment scale of the tertiary industry continued to rise, and the employment structure of the three industrial sectors officially entered the "service industry-led" stage. During this period, the internet industry pattern completed the

transformation from "consumer internet" to "industrial internet", and digital technologies were deeply integrated with industrial production, with industrial enterprises starting intelligent and digital transformation. The decline trend in Figure 1 is not the employment loss caused by the recession of the industrial economy, but the structural adjustment of industrial employment under the reshaping of the internet pattern, and the reshaping effect of the internet on industrial employment has fully emerged.

## 2.2. Development characteristics of China's internal industrial employment from the perspective of urban non-private units

The structural reform of industrial enterprise employment is a direct embodiment of the in-depth penetration of the internet industry pattern from the consumer side to the industrial side. Figure 2 presents the employment scale of urban non-private units in industrial sub-sectors including mining, manufacturing, the production and supply of electricity, heat, gas and water, and construction from 2003 to 2024, and Figure 3 presents the corresponding proportion data of employment in urban non-private units of these industries. Taking the three stages of China's internet development, namely the initial stage of industrial internet from 2003 to 2010, in-depth integration from 2011 to 2018, and ecological formation from 2019 to 2024, as the time axis, it can clearly disassemble the differentiated impacts of the evolution of the internet pattern on the employment scale and structural proportion of industrial sub-sectors, and reveal the transformation logic of the employment model of industrial enterprises.

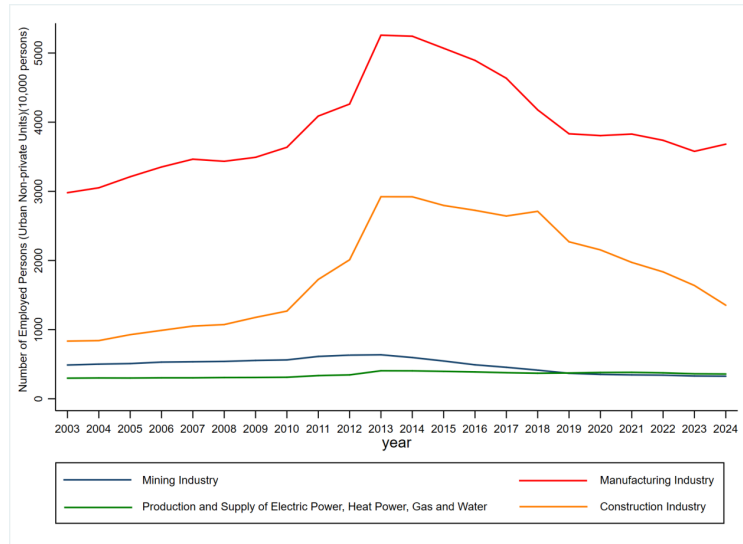
From 2003 to 2010, China's internet was in the initial stage of transition from the initial development of the consumer side to the exploration of the industrial side. Consumer internet forms such as e-commerce and portal websites gradually matured, and the application of the internet in the industrial field was still dominated by basic information communication, without touching the core production link. During this stage, the employment of industrial sub-sectors presented the characteristics of overall scale expansion and steady proportion increase, corresponding to the weak intervention of the internet on industrial production.

In terms of employment scale, all four sub-sectors showed a sustained growth trend. It can be seen from Figure 2 that the mining industry increased from 4.88 million in 2003 to 5.62 million in 2010, a growth of 15.16%; as the core of industry, the manufacturing industry increased from 29.80 million to 36.37 million, a growth of 22.05%, becoming the main force of employment absorption; the production and supply of electricity, heat, gas and water increased from 2.98 million to 3.11 million, maintaining steady growth; the construction industry had the most significant growth, increasing from 8.34 million to 12.68 million, a growth of 52.04%, reflecting the pulling effect of infrastructure construction on employment in the process of industrialization and urbanization.

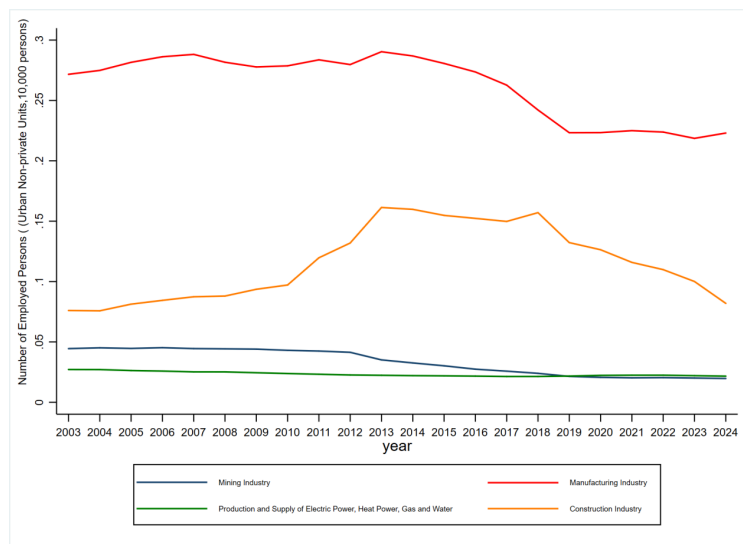
In terms of proportion data, the employment proportion of all industries showed a steady upward trend. It can be seen from Figure 3 that the proportion of manufacturing industry rose from 27.17% in 2003 to 27.87% in 2010, always occupying a dominant position in industrial employment; the proportion of construction industry rose from 7.60% to 9.72%, with the largest growth range; the proportion of mining industry slightly changed from 4.45% to 4.31%, basically maintaining stable; the proportion of the production and supply of electricity, heat, gas and water slightly fluctuated from 2.72% to 2.38% but remained stable on the whole. During this stage, the internet's impact on industry had not formed large-scale penetration, and industrial employment still relied on the endogenous driving forces of traditional industrialization and urbanization. The scale expansion and proportion increase were mainly driven by the expansion of industrial scale, and the employment model was still dominated by centralization and permanent employment.

From 2011 to 2018, China's internet industry entered the stage of in-depth integration of industrial internet. Industrial internet platforms were gradually built, and big data and cloud computing technologies began to be

applied to industrial production processes, with the internet pattern rapidly extending from the consumer side to the industrial side. During this stage, the employment of industrial sub-sectors presented the characteristics of fluctuation after peaking and structural differentiation of proportion, and the substitution and creative effects of the internet on industrial employment began to emerge.



**Figure 2.** Development trend of industrial employment in China from the perspective of urban non-private units



**Figure 3.** Proportion trend of industrial employment in China from the perspective of urban non-private units

In terms of employment scale, various industries showed differentiated fluctuation trends. It can be seen from Figure 2 that the manufacturing industry peaked at 48.94 million in 2016 and then gradually declined to 41.78 million in 2018, a decrease of 14.63% from the peak. The intelligent production lines empowered by the internet replaced a large number of low-skilled and repetitive positions, which was the core reason for the scale decline; the construction industry peaked at 27.11 million in 2018, an increase of 57.16% from 17.25 million in 2011, but the growth rate slowed down compared with the previous stage. The application of

internet remote collaboration and intelligent construction technologies reduced the labor demand for some positions; the mining industry peaked at 4.14 million in 2018, a decrease of 32.35% from 6.12 million in 2011. The application of internet combined with work safety and intelligent mining technologies greatly reduced the demand for frontline operators; the scale of the production and supply of electricity, heat, gas and water remained stable, reaching 3.69 million in 2018, an increase of 10.15% from 3.35 million in 2011. The application of intelligent operation and maintenance technologies replaced traditional positions, but the creation of new technical positions offset part of the employment loss.

In terms of proportion data, the characteristics of structural differentiation were significant. It can be seen from Figure 3 that the proportion of manufacturing industry peaked at 26.27% in 2017 and then declined to 24.21% in 2018. Although it still occupied a dominant position, the downward trend of the proportion was obvious; the proportion of construction industry rose from 11.97% in 2011 to 15.71% in 2018, becoming the sub-sector with the fastest proportion growth. The internet's penetration into the construction industry lagged behind that of the manufacturing industry, and the traditional labor demand was still released; the proportion of mining industry dropped from 4.25% in 2011 to 2.40% in 2018, with the largest decrease range, reflecting the efficient transformation of the resource mining industry empowered by the internet; the proportion of the production and supply of electricity, heat, gas and water dropped slightly from 2.32% in 2011 to 2.14% in 2018, reflecting the fine adjustment of the employment structure by the digital transformation of the energy industry. During this stage, the internet's impact on industrial employment showed industrial heterogeneity. Technology-intensive manufacturing and mining industries were impacted earlier, while labor-intensive construction industry still maintained employment expansion, and the employment model began to transform to skill-oriented and flexible employment.

From 2019 to 2024, China's internet industry formed an ecological pattern of coordinated development of industrial internet and consumer internet. Technologies such as artificial intelligence, industrial internet and digital twin were fully integrated into the entire chain of industrial production, management and service, and the reshaping effect of the internet on industrial employment was fully deepened. During this stage, the employment of industrial sub-sectors presented the characteristics of a slight decline amid overall stability and the optimization of proportion distribution, with the improvement of employment quality becoming the core trend.

In terms of employment scale, all industries showed a slight decline but a stabilizing trend. It can be seen from Figure 2 that the manufacturing industry decreased from 38.32 million in 2019 to 36.82 million in 2024, a decrease of 3.91%, with the narrowing of the decline range compared with the previous stage. The internet-driven optimization of job structure was gradually completed, and the creation of high-skilled positions stabilized the employment scale; the construction industry decreased from 22.70 million in 2019 to 13.53 million in 2024, a decrease of 40.39%, with a significant decline. The large-scale application of new construction models empowered by the internet such as intelligent construction and prefabricated construction replaced a large number of traditional construction positions; the mining industry decreased from 3.68 million in 2019 to 3.26 million in 2024, a decrease of 11.41%. The maturity of intelligent mining and unmanned mine technologies further compressed the demand for traditional positions; the scale of the production and supply of electricity, heat, gas and water was basically stable, reaching 3.58 million in 2024, a slight decrease of 4.02% from 3.73 million in 2019. The improvement of the digital operation and maintenance and intelligent dispatching system made the employment scale maintain a dynamic balance.

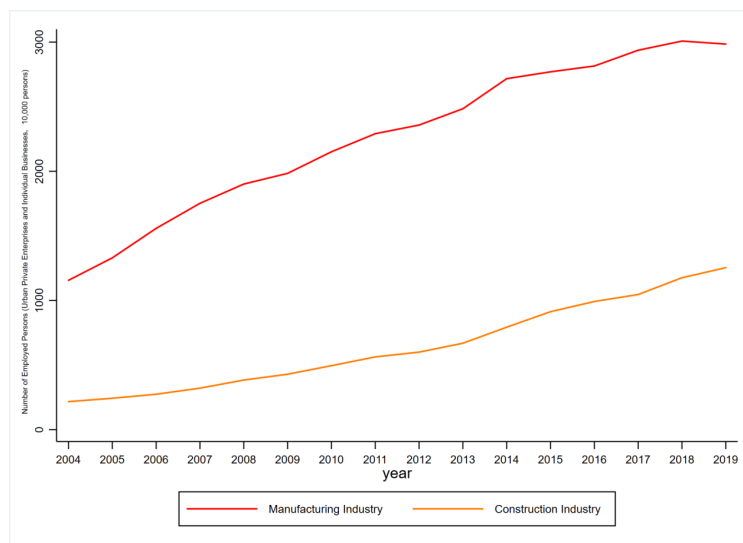
In terms of proportion data, the proportion pattern of industries tended to be optimized. It can be seen from Figure 3 that the proportion of manufacturing industry slightly decreased from 22.33% in 2019 to 22.30% in 2024, basically maintaining stable. Although the scale slightly declined, the proportion of high-skilled

positions increased and the employment quality improved significantly; the proportion of construction industry dropped sharply from 13.23% in 2019 to 8.19% in 2024, reflecting the in-depth adjustment of the employment structure by the digital transformation of the industry; the proportion of mining industry continued to decrease slightly from 2.14% in 2019 to 1.97% in 2024, with the industry employment transforming to technology-intensive; the proportion of the production and supply of electricity, heat, gas and water remained stable at 2.17% from 2019 to 2024, and the impact of digital transformation on the employment proportion had been basically digested. During this stage, the formation of the internet ecology promoted the transformation of industrial employment from scale expansion to quality improvement. The employment scale of various industries tended to be stable, and the proportion pattern was highly adapted to the degree of digital transformation of the industry. The flexible, project-based and high-skill-oriented employment model became the mainstream.

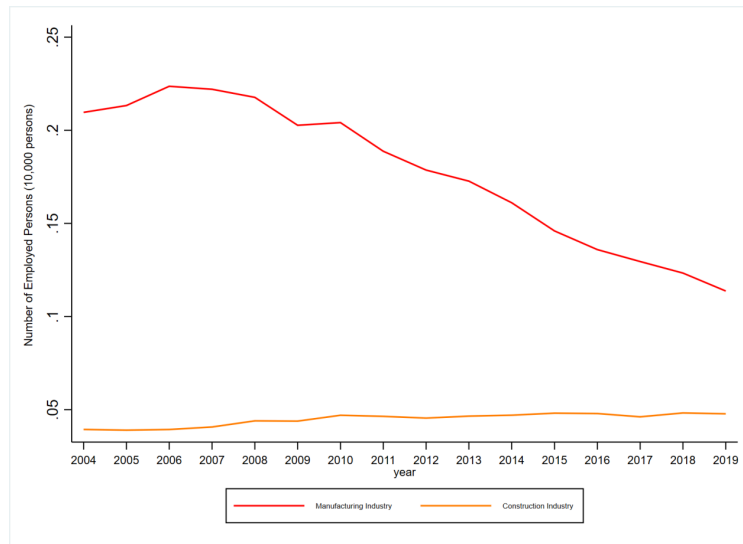
### 2.3. Development characteristics of China's internal industrial employment from the perspective of urban private units

In the process of the comprehensive penetration of the internet industry from the consumer side to the industrial side, urban private enterprises and individual economy, as an important supplementary force of industrial employment, their changes in employment scale and proportion profoundly reflect the diversified reshaping of industrial employment forms by the internet. Figure 4 presents the development trend of industrial employment in China from the perspective of urban private units, and Figure 5 presents the proportion trend of industrial employment in China from the perspective of urban private units.

From 2004 to 2010, China's internet focused on consumer-side applications, and business formats such as e-commerce and online information services initially emerged, providing low-cost marketing channels and resource matching platforms for private enterprises and individual economy. The private and individual employment in the industrial field presented the characteristics of rapid scale growth and continuous proportion rise, becoming an important supplement to traditional industrial employment.



**Figure 4.** Development trend of industrial employment in China from the perspective of urban private units



**Figure 5.** Proportion trend of industrial employment in China from the perspective of urban private units

In terms of employment scale, both manufacturing and construction industries achieved leapfrog growth in private and individual employment. It can be seen from Figure 4 that the private and individual employment in the manufacturing industry increased from 11.56 million in 2004 to 21.51 million in 2010, a growth of 85.90% in 6 years with an average annual growth rate of 10.83%. The internet lowered the market access threshold for private manufacturing enterprises, and small-scale private enterprises engaged in processing and parts supporting expanded their orders through online platforms, driving the rapid expansion of employment scale; the private and individual employment in the construction industry increased from 2.17 million in 2004 to 4.95 million in 2010, a growth of 128.11% with an average annual growth rate of 14.01%. The internet provided accurate supply and demand matching channels for individual practitioners such as decoration workers and small construction teams in the construction industry, reduced intermediate links and activated the vitality of flexible employment.

In terms of proportion data, the proportions of both industries showed a steady upward trend. It can be seen from Figure 5 that the proportion of private and individual employment in the manufacturing industry slightly decreased from 20.96% in 2004 to 20.41% in 2010, but remained above 20% on the whole and showed an upward trend, reflecting the gradually increasing weight of private and individual economy in manufacturing employment; the proportion of private and individual employment in the construction industry fluctuated and rose from 3.93% in 2004 to 4.70% in 2010, with a significant increase range. The flexible employment form empowered by the internet was highly compatible with the "project-based" production characteristics of the construction industry, promoting the continuous growth of the scale of individual practitioners. During this stage, the core role of the internet was to reduce the operating costs and expand the market space of private enterprises and individual economy. Its impact on industrial employment was concentrated on incremental expansion, and the employment model was mainly small workshop-style production and flexible order receiving, becoming an effective supplement to traditional large-scale industrial employment.

From 2011 to 2018, the industrial internet accelerated its penetration, and technologies such as industrial internet platforms and big data collaborative manufacturing began to be applied to the production link. The internet's impact on private and individual employment shifted from incremental expansion to quality improvement and optimization, with the employment scale showing the characteristics of fluctuation and stabilization and the proportion entering a period of structural adjustment.

In terms of employment scale, manufacturing and construction industries showed differentiated fluctuations. It can be seen from Figure 4 that the private and individual employment in the manufacturing industry increased from 22.91 million in 2011 to 30.08 million in 2018, a growth of 31.30%, but the growth rate slowed down compared with the previous stage and basically stabilized from 2017 to 2018. The internet-driven industrial upgrading put forward higher technical and compliance requirements for private enterprises. Some small-scale and low-tech private enterprises were eliminated, while enterprises with digital transformation capabilities achieved employment stability through online collaboration and flexible production; the private and individual employment in the construction industry increased from 5.63 million in 2011 to 11.76 million in 2018, a growth of 108.88%, maintaining rapid growth. The popularization of internet home decoration platforms and intelligent construction matching tools further activated the employment vitality of individual practitioners in the construction industry, and the adaptability of the flexible employment model to the industry production characteristics continued to improve.

In terms of proportion data, the characteristics of structural adjustment were significant. It can be seen from Figure 5 that the proportion of private and individual employment in the manufacturing industry fluctuated and dropped from 18.87% in 2011 to 12.33% in 2018, a decrease of 34.65%. The core reason is that the internet promoted the transformation of the manufacturing industry to large-scale and intensive development, and the employment proportion of traditional small private enterprises was diverted by the digital positions of large enterprises. At the same time, private enterprises were also carrying out skill upgrading, with the proportion of low-skilled positions declining; the proportion of private and individual employment in the construction industry fluctuated and rose from 4.64% in 2011 to 4.82% in 2018, remaining stable on the whole and slightly increasing. The internet's empowerment of flexible employment in the construction industry continued to deepen, and online order receiving and project-based cooperation became the mainstream forms. The stable proportion reflected the improved maturity of the flexible employment model. During this stage, the internet's impact on private and individual employment presented the dual characteristics of survival of the fittest and model innovation, and the employment model transformed from extensive flexible employment to skill-based flexible employment.

In 2019, China's industrial internet ecology was basically formed, and technologies such as artificial intelligence and digital twin were deeply integrated with industrial production. The reshaping effect of the internet on private and individual employment was fully deepened, with the employment scale showing a trend of adjustment amid overall stability and the proportion pattern being highly adapted to the demand of digital transformation.

In terms of employment scale, it can be seen from Figure 4 that the private and individual employment in the manufacturing industry was 29.85 million, a slight decrease of 0.77% from 30.08 million in 2018, with the scale basically stable; the private and individual employment in the construction industry was 12.54 million, an increase of 6.63% from 11.76 million in 2018, continuing the growth trend but with a slowdown in the growth rate. This change indicates that after the transformation and screening in the previous stage, private manufacturing enterprises with digital production capabilities have formed a stable employment scale, while some enterprises that failed to adapt to the internet technological iteration have gradually withdrawn from the market, leading to a slight decline in the scale; the construction industry benefited from the continuous empowerment of internet home decoration and intelligent construction collaboration platforms, and the demand for flexible employment was still released, but the slowdown in the growth rate reflected the improved skill requirements for practitioners due to industrial transformation, with some low-skilled individual practitioners facing employment thresholds.

In terms of proportion data, it can be seen from Figure 5 that the proportion of private and individual employment in the manufacturing industry was 11.37%, a further decrease from 12.33% in 2018. The proportion optimization was consistent with the transformation of private manufacturing enterprises towards the direction of "specialized, sophisticated, distinctive and innovative" enterprises. The increase in the proportion of high-skilled positions drove the optimization of employment quality, and the proportion of low-skilled positions was continuously compressed; the proportion of private and individual employment in the construction industry was 4.78%, a slight decrease from 4.82% in 2018, remaining stable in a reasonable range, reflecting that the flexible employment model of the construction industry empowered by the internet has entered a mature stage, and the employment scale has achieved a dynamic balance with the industry demand. During this stage, the formation of the internet ecology promoted the comprehensive transformation of private and individual employment from quantity growth to quality improvement, with skill matching and flexible collaboration becoming the core characteristics of the employment model.

### 3. Conclusion

This paper mainly draws the following conclusions: The reshaping of China's industrial enterprise employment by the evolution of the internet industry pattern shows significant stage characteristics and industrial heterogeneity, and the two form the characteristics of in-depth interconnected development. From the perspective of development stages, with the internet developing from embryonic start and expansion to in-depth integration, industrial employment has experienced a process of slow growth with a low base, rapid scale expansion, and slight decline and stabilization adjustment. The decline is essentially a digitally driven structural optimization of employment, rather than a substantial loss of industrial employment. From the perspective of industrial and subject differences, manufacturing has always been the main force of industrial employment in urban non-private units. The mining and construction industries have seen a significant decline in employment scale and proportion due to digital transformation, while the employment in the power industry has remained stable; the employment in the manufacturing and construction industries of urban private units, empowered by the internet, has transformed from rapid scale growth to quality improvement and optimization. The vitality of flexible employment in the construction industry has been continuously released, and the manufacturing industry has completed the structural adjustment of employment proportion. On the whole, the creative and substitution effects of the internet on industrial employment coexist, which ultimately drives the transformation of China's industrial employment from scale expansion to quality improvement, with flexibilization, project-based and high-skill orientation becoming the mainstream development direction of the employment model of industrial enterprises.

The enlightenment significance of the above conclusions lies in the following three points: First, in the process of promoting industrial digital transformation, the government needs to take the lead in popularizing industrial internet technologies to effectively improve the production and operational efficiency of enterprises. At the same time, it should urge enterprises to formulate specific internal job transfer and resettlement plans in accordance with the job demand after technological upgrading, carry out targeted pre-job training for traditional post employees replaced by technology, and give priority to resettling them in new positions such as industrial internet operation and maintenance or data entry and analysis, so as to achieve the dual goals of enterprise technological upgrading and employee employment security. Second, the government also needs to build an exclusive skill training system in conjunction with universities, vocational colleges and leading enterprises in the industry around the actual job demand of each industrial sub-sector, carry out customized skill training such as intelligent manufacturing operation and digital mining technology for different fields,

and cultivate traditional low-skilled workers into high-skilled talents meeting the demand of industrial development, thus consolidating the basic plate of industrial employment while completing the overall skill upgrading of industrial talents. Third, the government should implement differentiated employment policies in light of the actual progress of digital transformation in various industries. For industries with an earlier start of digital transformation such as manufacturing and mining, it should focus on improving the employment security mechanism for new positions; for industries with relatively lagging digital penetration such as construction, it should launch supporting policies such as targeted skill training subsidies and employment incentive subsidies for enterprise digital transformation, and at the same time protect the legitimate rights and interests of traditional post employees, so as to align the employment development rhythm of various industries with the overall advancement process of industrial digitalization.

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