

ARTIFICIAL INTELLIGENCE AND THE EVOLUTION OF JOB MARKET IN CHINA

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Purpose: China is a country where artificial intelligence is being used on a mass scale. Demographic processes taking place in China have made production automation a requirement for Chinese industry. Artificial intelligence is increasingly replacing human resources in decision-making about production methods and techniques used in Chinese factories.

Design/methodology/approach: Conducting a bibliometric review in online resources. Both in scientific publications and journalistic articles concerning the phenomena analyzed in the article. Due to the specific nature of the phenomenon analyzed, the bibliography is based on relatively recent publications.

Research limitation/implications: This analysis is merely a contribution to broader research that seems necessary to understand the technological processes and related social implications currently taking place in China. This article serves as an introduction to further analyses that seem necessary to properly assess the use of artificial intelligence in the Chinese labor market.

Practical implications: Artificial Intelligence should become one of many tools used in the labor market. The Chinese experience should be thoroughly analyzed in other countries, including Poland.

Social implications: Artificial intelligence will be, or rather, already is, a revolution in the labor market. Like previous new technologies, it will lead to, at least temporarily, technological unemployment. Many professions will not withstand the competition from AI. Observing this process taking place in China may allow us to avoid the pitfalls inherent in the mass use of this new technology.

Originality/value: Drawing on a wealth of sources, this article presents a phenomenon being studied on a large scale worldwide. China's experience, in particular, appears pioneering and original in its methods of implementing new technology.

Keywords: China, job market, Artificial Intelligence, evolution, experiences.

Category of the paper: Literature review.

1. Introduction

Artificial intelligence has gone beyond a specialized technological field and become a force that is changing industries, economies, and societies at an exponential pace. This change is more obvious and imperative in China than other countries due to the large population size, speedy industrial upgrade, and the highest degree of digitalization. The advancement of AI technologies has created unprecedented challenges and opportunities in the job market of China, resulting in a drastic change that requires critical and systematic exploration. Thus, the research question will be: How is the introduction of artificial intelligence reshaping the job market in China, and what are the implications for technological unemployment, new professions, educational reform, economic development, and ethical and social issues?

The study of the relationship between artificial intelligence and the labor market in China is not only an important aspect to consider for the country's internal economic health, but also a key factor for the overall global competitive arena. Emerging technologies such as machine learning, big data, robotics, and natural language processing are all changing the structure of the labor market through automation, leading to higher productivity gains. However, Chinese trends, such as demographic transition, urban-rural disparities, constantly changing policies, and strong government initiatives to develop AI, add more complexity to the picture of this relationship.

This paper aims to analyze the impact of artificial intelligence on the labor market in China. It also aims to explore the consequences that AI has had on the development of the Chinese economy, education, employment, and moral issues. This paper will answer the main research question and other related questions, addressing the opportunities and challenges of incorporating AI. In addition, it can contribute to the formulation of appropriate measures that are related to policy making, education and training, employment security, economic restructuring, and the development of AI technologies, as well as the promotion of the stability and development of the Chinese economy and society.

This paper is intended to use a multidisciplinary approach. Data and arguments are extracted from various disciplines in the social science. This paper adopts literature reviews, policy analysis, case studies, official data reports, comparative research methods, historical analysis, and critical reflection. Literature reviews are undertaken from academic perspectives to find relevant findings in academia. Policy analysis will provide some insights into Chinese policies and government interventions. Official data is used to assess AI-based economic changes, labor employment structure, educational inputs, etc. Case studies provide us with anecdotal data to support the key points that this paper addresses. Furthermore, historical analysis is incorporated into this paper in order to explore how AI has evolved to dominate the economy. To address ethical and social concerns raised by the intrusion of AI into the job market, this paper will

adopt critical reflection. All in all, this study attempts to bring different research methods to answer the main research question.

To provide some preliminary evidence of how AI has been changing the landscape of the job market in China, several recent studies provide a comprehensive overview.

First of all, research on China's employment structure demonstrates the displacement of jobs through automation. As shown by a survey of American experts by Frey and Osborne, there is a 51% probability that all activities in some occupation are replaceable by AI technology (Frey, Osborne, 2017).

In addition to the displacement of the original employees, the emergence of artificial intelligence has generated new professions and occupations. One of the most noticeable jobs is AI trainer/expert and algorithm engineers. Some researchers have stated that the internet of things (IOT) and algorithm-driven technology are becoming the leading industries (Duan et al., 2017). The development of the IOT has given rise to many AI-related jobs.

There is inequality regarding the development of AI at the rural and urban levels in China. While AI in urban areas shows significant advancements, in rural areas AI seems to still be at the experimental stage.

Moreover, Chinese government policies play an important role in the construction and development of AI technology. Policies that are proposed at the national and local level are considered an important factor for achieving the goals of AI transformation. The government-based AI transformation may act as a role model and accelerate this change, allowing companies and businesses in China to undergo this transformation in a more systematic and orderly manner.

Moreover, Chinese AI-related policies are also aimed to boost employment and innovation, with most of the regulations relating to talent recruitment, training programs, educational intervention, and technological innovation.

Due to the quick pace of technological upgrade, not all workers in the Chinese workforce are capable of dealing with new techniques and methods. A large number of manual workers are left behind and will struggle to find suitable new occupations.

This paper is divided into five chapters. Chapter two introduces the status quo and prospect of China's AI development, AI market size, and AI-related Chinese government policies. Chapter three analyzes the influences of AI on the job market in China, especially on job market transformation and the emergence of new professions. Chapter four describes the challenges of incorporating AI into the job market. In chapter five, a brief summary of the implications for the future job market and the conclusion of this paper are presented.

2. Methods

This article uses a research method called desk research to collect, analyze, and synthesize relevant information from a wide range of scientific and other professional literature. Desk research is a complete research method. A well-conducted desk research can provide an insight into the current state of knowledge in a given field and provide reliable answers to research questions (Snyder, 2019). It is an excellent analysis method in interdisciplinary research. It also allows for the synthesis of research results and the discovery of areas where further research is needed. The literature review was conducted in Google Scholar and Science Direct. The databases were searched using the following keywords: human resources, artificial intelligence, management, new technologies, labor market, China.

3. China's AI Development Strategy

A China's national strategy in artificial intelligence, characterized by government-led initiatives, significant investments, and an innovative ethos, sets the stage for the country's ascension as a leader in AI. Understanding these policies is critical to grasping China's rapid developments in technology, industry integration, and talent recruitment, all of which form an integral part of analyzing the impact of AI on China's economy and society.

3.1. Current State and Market Size

China's AI sector is one of the fastest-growing in the world. By company number, it comes in second to the United States as home to the most AI companies. The government has encouraged the development of over 4300 AI firms by providing state support, investment, subsidies, grants, and relaxed regulatory structures (Greeven, Liu, 2025). State investments and favorable government policies have fostered rapid growth of new AI enterprises (Greeven, Liu, 2025). China has also become the global leader in research publications and citations on AI (Yu, Liang, Xue, 2021; Li, Tong, Xiao, 2021). 17% of US-trained AI doctorates returned to China, and 40% of them entered industry jobs (Yu, Liang, Xue, 2021). Over half of all highly cited AI papers in China involve international collaborations (Yu, Liang, Xue, 2021). The country has the largest number of AI-related patents and peer-reviewed journal citations, signifying its impact on shaping industry standards (Pitukhina, Gurtov, Belykh, 2024; Slotta, 2025). High-speed information and communication technologies, vast internet usage, and low labor cost all provide the impetus and scale required for AI developments to become fully functional in commercial and industrial settings (Yu, Liang, Xue, 2021). Government support provides favorable computing capacity and low barriers to entry (Greeven, Liu, 2025), making

China an environment for innovation and competitiveness for AI. The goal for China's artificial intelligence firms is to have 50% of AI systems be domestically made by 2030 (Olotu, Famiyesin, 2024). The government predicts the artificial intelligence sector's value will double from \$70 billion to \$140 billion by 2030 (Greeven, Liu, 2025).

State policy has helped expedite the growth of many AI companies. An example of this is government investment in supporting compute resources, which can be critical for startups (Greeven, Liu, 2025). In March 2023, the government also stated it would spend an estimated 364 billion yuan in AI, with an additional 750 billion yuan in funding during a 5-year period (Pitukhina, Gurtov and Belykh, 2024). It incentivizes risk-taking by investing billions of dollars and lowering the barrier of entry by supporting startup subsidies, grants, and government subsidies. This environment fosters innovation and commercialization. (Greeven, Liu, 2025) By designing its AI talent, funding, and education programs, China continues to adapt to a global technological shift in competitiveness (Olotu, Famiyesin, 2024). Capital inflow is the greatest asset for AI growth; it enables companies to swiftly and readily prototype and test AI in areas like autonomous driving and healthcare. In fact, it takes China's AI companies only five years to become unicorns (a billion-dollar-value-creating company), in contrast to the US and the EU's average of eight to ten years. This shows the close relationship between startup financing, venture capital, and government regulations (Pitukhina, Gurtov, Belykh, 2024).

State funding allows the rapid scaling of prototypes into pilots and finally the commercialization of AI products (Pitukhina, Gurtov, Belykh, 2024). State support for compute power provides a lower barrier to enter the market and therefore encourages more AI companies to emerge (Greeven, Liu, 2025). Therefore, capital has been paramount for AI companies in China, and has spurred growth in emerging AI fields, such as urban AI, especially in top metropolitan areas such as Beijing and Shenzhen.

There is a growing AI trend within multiple sectors in China. In terms of transportation, state AI policies incentivize rapid experimentation, allowing AI-operated traffic optimization technologies to reduce congestion in cities such as Hangzhou. For example, the government teamed up with the technological and e-commerce company Alibaba to install 128 cameras across 420 streets that used machine learning algorithms to predict optimal traffic flow (Barton et al., 2017). For automobiles, artificial intelligence has allowed for advancements in autonomous vehicles, route optimization, and battery enhancements for electric vehicles. This allows China to establish global leadership in the car sector with smart EVs, thus improving transportation sustainability (Greeven, Liu, 2025). AI provides improvements to healthcare such as better clinical diagnosis accuracy, new ways of drug discovery, and greater coverage for people living in rural areas through the use of digital healthcare and telemedicine (Greeven, Liu, 2025). Artificial intelligence will also advance industrial processes by incorporating robot-based processes like machine control, automatic detection, and predictive maintenance (Pitukhina, Gurtov, Belykh, 2024). In the state sector, experimental applications

of AI are advancing smart cities through the creation of digital administrative assistance and automated urban planning (Zeng, 2020).

China has positioned itself as the leader in AI research, accounting for the largest AI-related patents in the world (Slotta, 2025), and more than 73.4% of the total number of published AI papers (Yu, Liang, Xue, 2021). Also, China is listed as the leading country on citations in peer-reviewed journals (Pitukhina, Gurtov, Belykh, 2024). AI-related publications in China are rapidly increasing, having grown from 7276 in 2016 to around 42,556 papers in 2021 (Pitukhina, Gurtov, Belykh, 2024). China uses foreign partnerships to foster innovation and improve AI technology. For example, the amount of research output from the foreign partnerships China made, 51.1%, is more cited than its domestic counterparts (Yu, Liang, Xue, 2021). One of China's primary concerns regarding AI is securing national and intellectual property, so China dominates the number of AI-related patents (Slotta, 2025).

Political ideology in China is an impetus for the country's AI sector because the central government views AI policy as a way to demonstrate and expand the country's capabilities and governance style. For example, China adopts a light, regulatory approach to AI, which allows companies to experiment with technologies freely (Zeng, 2020). In 2017, the AI Development Plan stated, "AI is the new focus for the global competition on technologies, and AI constitutes the latest frontier for economic development" (Olotu, Famiyesin, 2024). This initiative highlights the political legitimacy that AI policy gives for future technology control in China. State policies align AI across the provincial levels to coordinate efforts (Olotu, Famiyesin, 2024). Many AI academic programs have been launched in over 30 universities throughout China (Olotu, Famiyesin, 2024). Overall, China legitimizes its expansion in AI by incorporating it into political and economic narratives.

3.2. Policy Framework

China's AI policy framework is characterized by an overt centralism with robust public sector investments into research, infrastructure, and industrial transformation over five years and has committed an additional 364 billion yuan in 2023 to sectoral growth and transformation (Pitukhina, Gurtov, Belykh, 2024). Such investments have fostered technological advancements by building over 250 advanced AI data centers and high-performance processors (Shao, 2025). They are also designed to serve the military and space industries to further achieve China's strategic ambitions (Shao, 2025). China's national policy plan further emphasizes the need to rapidly deploy physical infrastructure to support the burgeoning AI economy in all major industrial and administrative sectors to make the nation a global AI industry power (Greeven, Liu, 2025). However, such a highly centralized strategy may entail inherent risks of entrepreneurial and innovative constraints for an overreliance on state support. to become the global leader in artificial intelligence by 2030. To this end, the nation is investing 750 billion yuan (USD 105 billion).

Beyond infrastructure and investment, China's AI policies foster innovation and growth via flexible regulations by promoting public and private AI development. With 4300 AI companies in 2023 (Pitukhina, Gurtov, Belykh, 2024; Greeven, Liu, 2025), China's AI industry expansion is not solely dependent on government-funded entities. Regulatory and financial flexibility coupled with significant central funding has fostered the development of numerous companies that can operate within their own unique experimental spaces and develop AI-enhanced products and services to enhance all sectors. Furthermore, local governments are increasingly using AI to improve traffic, healthcare, and other critical public services (Shao, 2025), signaling a commitment to optimizing public services with intelligent technologies.

In line with AI development, China's national policies proactively address human capital deficiencies and ensure access to hardware resources by subsidizing the cost of high-performance computing (Greeven, Liu, 2025). To attract domestic and foreign AI researchers and engineers in a competitive field, China's national policies have strategically developed educational programs and incentives to mitigate the acute shortage of skilled AI professionals (Shao, 2025; Greeven, Liu, 2025). Through subsidized high-performance computing and talent development, AI adoption barriers are low for new startups as well as existing companies in China (Greeven, Liu, 2025), thus making the sector attractive for growth and experimentation.

Although the United States has imposed export controls on China's purchases of advanced semiconductors and manufacturing equipment, China's AI policy framework has successfully enabled the AI sector to adapt to this pressure. For example, the government has incentivized firms to optimize software efficiency and use less powerful and older hardware as a stop-gap strategy (Shao, 2025; Kilic, 2025). Furthermore, it has actively promoted the use of indigenous semiconductor manufacturers, thus increasing the resilience and autonomy of the nation's AI sector. Overall, China's flexible policy approaches have been successful in counteracting international pressure and keeping AI development competitive despite the semiconductor shortages.

With goals beyond sectoral development and economic benefits, China's AI policies are clearly aligned with an ideological framework. By prioritizing strategic AI advancement in areas such as health, transportation, and national defense, China hopes to increase and optimize the power of the state (Triolo, Schaefer, 2024; Shao, 2025). In addition, through policies designed to foster growth in autonomous vehicles and smart cities, China aims to promote public safety and welfare (Triolo, Schaefer, 2024). To increase national administrative competence, AI tools are being adopted across the country to modernize government administration and state control through smart cities, AI-based education, and a social credit system (Triolo, Schaefer, 2024; Shao, 2025). These approaches increase the competence of the state to govern efficiently.

To further optimize resources, China's national policies support the growth of the platform economy, particularly with gig work (Li, Moa, Zhou, 2022). However, in the context of growing gig work, regulatory frameworks for employment protection and compensation for workers are

lagging. Specifically, lack of insurance portability and flexible healthcare plans for contract workers lead to significant economic vulnerability for them and necessitate the need for policy innovation (Li, Moa, Zhou, 2022). As such, China's national policies should also adopt measures to strengthen social security and welfare for gig workers such as the introduction of flexible benefit accounts.

Studies on policies related to AI in BRICS countries have found that they lead to improvements in economic growth rates, higher employment rates, and more productive economic output (Abir et al., 2024). In addition to this positive effect, results suggest that the interplay between governance quality and the integration of AI into policies has a positive association with economic outcomes (Saba, Ngepah, 2024). As such, economic success brought about by the integration of AI into national policies will become significantly greater if there is also a commensurate improvement in the quality of governance (Saba, Ngepah, 2024). This result reinforces the point of view that well-structured regulatory practices in AI sector policies can significantly enhance a country's ability to adapt to economic shocks and to improve national resilience to labor and technology disruptions.

In sum, the national policies around AI and platform economies that support their growth in China demonstrate a strong centralized structure and approach to regulation to foster sectoral growth and expansion.

4. Impact on Employment Structure

The transformation that artificial intelligence has brought on China's job market has caused different changes concerning job availability, as well as within certain industries and regions. However, these changes have also opened new job opportunities in certain regions or industries. It is crucial to examine how AI is affecting the job market in China to learn about China's future economic and societal success.

4.1. Job Market Transformation

The effect on China's job market, due to AI, is characterized by job loss combined with job creation. According to predictions, 26% of employment will likely be automated or displaced by AI in the next two decades, while net employment will increase by 12%, creating around 90 million new jobs (Chang et al., 2017).

The effect of AI on China's sectoral labor changes, in the next two decades, predicts a rise of 29% for employment in the service sector, 23% for construction, and 39% for industry. However, agriculture will see a net loss of 10% (Chang et al., 2017). This shift will have a particularly adverse effect on the job market in areas that rely heavily on agriculture, where the ability for employees to find jobs elsewhere is limited due to a lack of connectivity

and technology. The anticipated rise in manufacturing and services, though, is coherent with the goals of China's development strategy in areas such as urbanization, etc.

The substitution of repetitive, low-skill jobs by AI and robots initially means a loss of jobs, but this will lead to an improvement in the overall quality of jobs. This is observed in China's manufacturing sector, where the U-shaped curve exhibits a significant and positive effect (Huo, Ruan, Cui, 2024). Furthermore, AI is expected to reduce the income gap by generating job opportunities in areas with lower rates of employment. However, employment quality will ultimately depend on the ability of governments and organizations to implement policies that mitigate the initial unemployment effect in certain areas.

Employment polarization is heightened by the adoption of AI and digital technologies as demand for low-skilled employees falls and for medium- and high-skilled jobs grows. This describes a 'hollowing out of the middle' (Karippacheril, Alassani, Pela, 2024), which can lead to skill-based inequality. The accelerated introduction of AI could further contribute to the skills mismatch already prevalent in China's job market, threatening the progress of inclusive economic development. AI could impact almost 40% of the workforce and employment in many countries, adding to the likelihood that this phenomenon will worsen, leading to increased societal inequality.

One effect of AI adoption in China is that labor structure and the level of skill exhibited are better in coastal provinces, which have relatively advanced digital infrastructure, high labor costs, and an aging population (Hua et al., 2024; Wang, Chen, Chen, 2024). On the other hand, there are higher employment rates in regions with poor digital infrastructure and low labor costs. Therefore, it is essential to consider regional disparities to improve overall job quality.

With the growth of AI and digital technologies, new business models have emerged that provide more flexible employment options. Such AI-driven trends have made working as a platform or gig worker possible. Though these opportunities facilitate greater job flexibility and a wider range of employment choices, such benefits do not come without drawbacks, such as a lack of benefits, limited job security, and regulatory measures to manage new job types. Thus, governments and organizations should consider such effects when considering and implementing AI and digital technologies in China to ensure job security and social welfare.

The current upgrading and optimization of the labor force are due to industrial restructuring prompted by the adoption of AI and digitalization. AI and digitalization are helping China advance up the industrial chain and optimize its sectoral production (Wang, Chen, Chen, 2024). With greater technical expertise required to operate and maintain AI-driven facilities, traditional manual labor is replaced. However, the new industrial trends lead to various labor challenges.

Interregional labor flows have increased because of regional integration within the Chinese labor market. Furthermore, spatial heterogeneity models provide evidence that the effect of AI adoption is positively correlated to other provinces in close proximity (Wang, Chen, Chen, 2024). As such, it is essential to consider the interconnection of labor trends between

different provinces to facilitate the smooth integration and optimization of the labor force across all regions.

Displacement of employees in unskilled and routine-intensive jobs as a result of AI adoption has worsened in China. However, structural transformation in this area also implies an upgrading of the skills of the workforce. Regions and provinces with high labor market protection and relatively strong digital infrastructure show a more positive influence on employment structure (Hua et al., 2024). This suggests that the lack of such resources and infrastructure leads to a negative effect, resulting in poorer integration of resources in AI and technological advancements, thus widening the disparity in employment structures between regions.

The introduction of AI in the Chinese manufacturing sector has brought upon adverse effects on employment and skill mismatches and heightened the income gap. This reflects the unequal growth effects between skill groups and, to some extent, an increasing skills mismatch as a consequence of AI. However, large-sized organizations and firms show relatively less negative impacts, thus supporting evidence of heterogeneity (Ren, Ishak, Hamzah, 2024).

China's unemployment rates are up due to the loss of low- to medium-skilled jobs. Additionally, due to skills-job mismatches, higher education graduates often struggle to find jobs. According to Ren, Ishak and Hamzah (2024), "The AI implementation increases the unemployment rate in provinces with a higher proportion of the population with a higher education degree". This demonstrates the growing challenge facing educated workers in the Chinese labor market, which has not yet optimized a suitable ecosystem of education or upskilling opportunities.

The increasing demand for AI-related jobs also poses challenges for the government due to the large skills gap between job requirements and current capabilities of employees and job-seekers. With China now the country with the greatest employment in AI-related jobs, the need for digital talent and digital upskilling has also increased (Liu Yukun, 2024). In China, AI programmers receive an 81.3% higher premium for technology roles and a 39.4% higher premium for non-technical roles compared to non-AI programmers (Liu J. et al., 2025). As such, more AI programmers will fill those in-demand roles, highlighting the importance of China filling in its skills gap in the technological areas. The national talent shortage is also estimated to be around 25 to 30 million, indicating an increasing need for investment in upskilling, education, and training programs to promote digital talents that can meet the increasing demand.

The forecasts of total employment will depend on a variety of other factors, such as economic conditions, external factors, policies, investments, and technologies (Chang et al., 2017; Wang, Chen, Chen, 2024). This can lead to greater risks of job losses despite the overall benefits that AI adoption brings to economic activity.

China's labor market is undergoing transformation and optimization. AI is used in China's labor market to improve its efficiency. As a result, there are new challenges arising that need to be considered to provide stable and positive economic results.

4.2. Emerging Professions

The emergence of new professions is inseparable from the rapid development of artificial intelligence and the growth of digital economy and platform economy. In the four years from 2021 to 2024, over 50 new types of occupations emerged. Whether it's e-commerce, entertainment, logistics, or smart manufacturing, artificial intelligence has injected new vitality into almost all fields (Liu, 2024). The jobs like livestreaming anchor, AI trainer, drone pilot, and medical escort reflect both the transformation and the new requirements for work. The content of the work and the requirement for personnel are changing drastically as artificial intelligence is being more widely used in various areas (Rashid, Kausik, 2024). Moreover, the most-developed platform economy in the urban areas promotes the development of new professions. However, different progress of digitalization in different areas leads to the problem of inequality. More opportunities for new professions will be generated in the eastern China compared to the western China.

The shortage of AI-related professionals can be well supported by the data on job posting. According to statistics, the posting of AI trainer-related roles increased by 62% and the posting of drone pilot jobs soared by 177% (Liu, 2024). Besides logistics, agriculture, and disaster relief, AI has also been widely used to improve service experience, efficiency, and reliability. The shortage of talent and the high demand for such professions are in line with the fact that many high-tech professions command decent salaries. AI engineer tops the chart with the highest average monthly salary in China (RMB 24,127) (GT staff reporters, 2024). Moreover, the recruitment demand for drone assembly and testing positions increased by 82.7%, which is a reflection of high growth. In addition to the fact that these kinds of jobs usually have higher salaries, the supply of professionals is far lower than demand, resulting in a large gap. These professions will encounter problems recruiting talent from the job market, as a sufficient supply will be extremely hard. Hence, China still needs to optimize the current educational system and workforce training so as to reduce the talent shortage and catch up with the trend (GT staff reporters, 2024).

The application of artificial intelligence to the fields of manufacturing, medical care, and climate also created some new professions such as AI algorithm engineer, chip designer, and developer of multimodal AI system (GT staff reporters, 2024). Many emerging professions are specialist jobs that require a high degree of expertise in some of these industries. For instance, the positions in medical area such as responsible AI ethicist and AI interpreter are created to combine professional knowledge in the medical area with technical capabilities of artificial intelligence. The positions in medical areas require individuals that have experience and a good understanding of the industry, along with knowledge of how to properly apply

artificial intelligence to that particular field to enhance service quality and reliability. Similar things have happened in finance-related fields. In addition, roles that facilitate the transformation from fossil fuel to sustainable energy are also emerging, with the help of AI. China is the country that employs the most workers in renewable energy, accounting for 46% globally (Li, Shine, 2025). Moreover, jobs related to AI-enabled devices and other technologies applied in climate change mitigation and adaptation are growing fast (GT staff reporters, 2024). This has proved that AI-related jobs are more diversified than general digital jobs, and future success will be dependent on the development of multidisciplinary talent.

China is still facing a severe shortage of digital talent at both national and city levels. According to estimations, the shortage of digital professionals is about 25 to 30 million nationwide (Liu, 2024). With the shrinking of the working-age population, the digital economy can suffer further from talent shortage unless more professionals are hired, promoted, and retained (GT staff reporters, 2024). Although professional skills and knowledge are being continuously enriched due to the rapid technological evolution, educational institutions have failed to catch up and thus there are few graduates prepared for emerging jobs (GT staff reporters, 2024). Policymakers and organizations have responded to the shortage of digital workers by improving digital talent training and reskilling programs, but these policies remain inadequate. Moreover, there is also the issue of digital imbalance at the city level. Cities with higher digital penetration have attracted a large percentage of digital professionals, while regions with lower digital penetration have lost considerable digital talent.

With the development of AI, roles for domestic service jobs, such as babysitter or companion of the elderly, are becoming more popular. According to recent data, recruitment demand in the elderly care sector increased by 21%, and the recruitment need for baby or toddler care increased by 34% (Liu, 2024). Most elderly individuals are able to understand and accept new services and experiences introduced to them, supported by new technologies. Moreover, 83% of the elderly users of elderly-care services are very satisfied with what artificial intelligence offers them (Zhao, Li, 2024).

To reflect the labor market's current needs, the Chinese government has updated the national occupation classification system and released a list of 97 new digital occupations (Liu, 2024). New job titles such as fintech professional, e-sports job, and digital engineering professional are included to reflect the market's current conditions (GT staff reporters, 2024). As more new occupations are emerging, these changes highlight the necessity of improving the national education system and talent training to meet the market's demand.

The emergence of AI has brought new requirements to many conventional occupations. The core skills such as problem-solving, constant learning, and ability to interact with automated systems are now of crucial importance to be qualified for AI-based professions (Chowdhury, 2021). Also, the changes in labor markets lead to changes in the roles of AI talents. All of these things together are redefining professional identity.

5. Discussions

The challenges and future implications of artificial intelligence for China's labor market highlight skill mismatches, regional disparities, technological unemployment, and the ethical implications of AI that require immediate and decisive actions.

Persistent skill mismatches and high regional disparities hamper China's pursuit of equitable AI-driven economic growth. High-tech sectors like advanced manufacturing and technology demand a workforce with proficient STEM capabilities, an issue exacerbated by lagging vocational training and education in underdeveloped rural economies (Shi, 2024). Urban metropolises like Beijing and Shanghai outperform their rural counterparts in productivity, intensifying regional imbalances (Zhang, 2024). To counteract skill mismatches, training and re-skilling in areas like digital technologies and green-technology infrastructure should be strengthened at a regional level (Li, Shine, 2025). Expanding educational and technological infrastructure outside urban centers to include rural areas will be necessary for inclusive growth and the narrowing of regional divides.

With growing automation and AI, up to 51% of China's jobs are estimated to be under threat by the potential for replacement, especially repetitive and routine work (Pinar, 2024). Recent research indicates that, on average, 1.6 workers are displaced by the integration of a new robot into industrial tasks (Pinar, 2024; Liu et al., 2021). Industries characterized by labor-intensive, routine work, such as the production of electrical appliances, electronics, and machinery, are among those most significantly affected (Liu et al., 2021). While AI creates new jobs, it also results in increased unemployment, social instability, and underemployment, as a major portion of workers may not have the necessary skills to re-enter the workplace (Sun, 2024). Moreover, the decreasing labor force puts additional pressure on institutions and employers to engage in mass upskilling and training schemes. Therefore, addressing China's technological unemployment challenges will require extensive government-funded reskilling initiatives and the mobilization of businesses to ensure that their workforce receives training for emerging, in-demand AI-related skills.

AI-driven advances in industries such as renewables and big data have given rise to the rapid growth of new sectors and corresponding professions. Renewable energy industries, for example, employ 47% of the global workforce in the field of renewable energy (Li, Shine, 2025). Furthermore, AI trainers and drone pilots are among several emerging professions that are witnessing significant increases in demand. However, this dramatic growth has not yet been met with corresponding talent supply. By 2021, an estimated 50,000 individuals in China were trained in AI-related fields. This disparity fuels intense competition for jobs in strategic industries such as intelligent manufacturing, green industries, and climate technology, potentially lowering overall productivity and hindering industry advancement (Zhang, 2024). Policies promoting extensive, effective training programs will be instrumental in ensuring that

the growing skills gap is addressed and talent supply catches up with demand. Moreover, curriculum reform and the prioritization of lifelong learning in academic institutions should be undertaken to ensure students have the knowledge required to thrive in AI-driven fields.

Algorithmic management has led to increased labor extraction from individual workers, which is largely associated with lower job stability, lower employee satisfaction, and diminished autonomy (Sun, 2024). With algorithmic management, companies and employers achieve greater levels of control and data gathering, which leads to decreased bargaining power among workers. The increasing prevalence of algorithmic surveillance also hinders workers' ability to negotiate or bargain for fairer wages or better labor conditions, therefore lowering job quality. Policymakers must protect workers by regulating algorithms, enforcing fairer labor practices, and minimizing surveillance in workplaces.

Because AI has different impacts on the regional and national level across varying job titles and sectors, making generalizations about future employment in China is difficult. Previous studies on technological unemployment have shown that AI has a mixed impact on China's regions and sectors, causing increases and decreases in total employment (Filippi, Bannò, Trento, 2023; Shi, 2024). Thus, policymakers should approach this challenge by taking a regional approach. The regions or sectors with the most prevalent job disruption should be targeted through a social safety net that is specifically designed to address local economic, cultural, and employment factors.

The incorporation of AI into processes and tasks has greatly increased the productivity and energy efficiency of the electronics, robotics, and IT industries, which further advances China's goals of reducing national energy intensity and realizing national industrial modernization (Liu et al., 2021; Zhang, 2024). Yet, China's manufacturing industry accounts for over 70% of the country's total energy consumption. Thus, the large cloud computing and data-center industries are very high-energy sectors, as are heavy industries that utilize AI technology (Liu et al., 2021). This calls for policymakers to promote sustainable growth by incorporating green technology training and practices into industrial reskilling schemes.

Artificial intelligence will inevitably impact China's labor market, which requires extensive, coordinated actions to ensure a fair and more even transition to a post-AI labor market.

6. Conclusion

The purpose of this paper is to critically analyze the impact of AI on China's labor market in terms of opportunities and risks. This objective has been achieved through the analysis of the influence of technology advancement, governmental policies, restructuring of the labor market, and social impact. This paper seeks to answer the research question of how AI influences

China's employment. Through quantitative and qualitative analysis, it examines job creation and destruction as well as its impact on the country's economy and society.

Based on the analysis in the body of the paper, the entrance of AI into China's labor market is characterized by strong governmental intervention, industrial integration, the displacement of routine jobs, and the growth of new skills and occupations. This paper argues that China's AI policy has brought about the rapid rise of AI technology, which is characterized by strong governmental promotion and investment as well as the mobilization of technological innovation, as a result of which many non-skill-required jobs were terminated. However, the paper also argues that China's AI policy enables rapid growth in technology and leads to the rapid creation of new skills and occupations. The rapid growth leads to employment growth and offsets some of the job losses caused by AI technology. The paper also argues that AI policy tends to benefit urban areas and coastal provinces because of their advanced infrastructure and other resources, whereas rural and undeveloped areas cannot benefit from these policies as easily as urban areas.

This analysis also confirms that the global trend of the development of AI is converging with China's AI policy. However, China differs from other countries in the sense that the country's AI policy is driven by strong government interventions, compared to the policy or market forces in other countries. In addition, evidence of this analysis reveals the persistent trend of skill mismatches and skill gaps, particularly regarding digital talent, in the job market, thus highlighting the importance of multiple skills.

The main contribution of this research is that it provides a comprehensive review and analysis of empirical data and previous studies and adds China's AI phenomenon to the debate on the impact of new technology on labor and society. It also provides implications to policymakers on how to prevent widening gaps between the developed and less-developed economies in order to embrace technology without suffering its undesirable effects.

The limitations of this paper are that, first, the main source of data is secondary data, for example, government and industry reports, which may vary regarding reliability, precision, comprehensiveness, and so on. In addition, as a developing, relatively unexplored market, the lack of research on this market poses a challenge for drawing meaningful inferences. This limitation hinders the ability of the research to identify causality, as the primary method used is review and synthesis and does not engage empirical analysis. Lastly, the research suffers from a lack of dynamism, as the data are only recent and do not reflect future trends, which makes it difficult to foresee the long-term implications of the integration of AI technology.

Future research should further examine the ethical and social dimensions of technology-related career and organizational development. This includes, for example, the creation of an ethical work environment or the impact of automation on the future of work. Empirical research should explore the consequences and effectiveness of various policy interventions on the impact of technology and technology management on the workforce, such as education reform, vocational training, and the promotion of social equality. Further research should also

investigate the influence of social and political ideology on the process of technological change in a nation or economy. Lastly, the longitudinal analysis of the effects of artificial intelligence technology on human resource management, technology-related workforce development, and the development of jobs and careers is another potential area for further investigation.

Through this research, I learned about the growing gap and the complicated relationships between technology advancement and the job market. This research project motivates me to dive into the topics that combine society, economics, technology, and human resources and careers.

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