Employment Opportunities for College Students under the New Economic Cycle: Formation Mechanism and Practical Paths

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Abstract. The new economic cycle, with digital economy, green economy and artificial intelligence as the core growth engine, is characterised by accelerated technological change, industrial structure restructuring and strong policy intervention, which has not only given rise to emerging occupations such as Artificial Intelligence (AI) trainers and green technology engineers, but also resulted in the co-existence of supply and demand of "job vacancies and skill surplus" due to lagging of the education system. Mismatch. The study reveals that the formation of employment opportunities is mainly driven by three aspects: technological iteration reshapes the job structure, promoting the "human-machine collaboration" model and the growth of demand for high-skilled jobs; industrial policies (such as "speciality, speciality and newness" and "rural revitalisation") guide the demand for talents. Industrial policies (e.g. "speciality, special innovation", "rural revitalisation") have guided the demand for talents to shift to high-end manufacturing and agricultural digitalisation; and the lack of education-industry synergy has become a key bottleneck restricting the quality of employment. The study provides a theoretical basis and practical inspiration for the career development of college students, the optimisation of talent cultivation mode in colleges and universities, as well as the formulation of governmental employment policies. In the future, people need to pay attention to the direction of technological ethics and micro-certification system, so as to achieve an accurate match between supply and demand of skills.

Keywords: New economic cycle, college students' employment, employment opportunities, technology iteration, educational adaptation.

1. Introduction

In recent years, China's economy has boomed and entered a new economic cycle, which is different from the old economic cycle supported by traditional manufacturing industries, and is mainly based on the digital economy, green economy, artificial intelligence and other fields as the growth engine. The new economic cycle has profoundly reshaped the demand structure of the labour market and the logic of job creation, creating more new jobs and employment opportunities for today's society. On the one hand, the emergence of more new industries creates more job opportunities, and puts forward the demand for complex talents, which can further promote the renewal and progress of the education system. At the same time, however, the lagging nature of education reform has caused the professional settings of some colleges and universities to be out of sync with the labour demand of the society, and the uneven distribution of employment in traditional and emerging industries, so that some college students are still facing employment problems, which highlights the seriousness of the mismatch between supply and demand in the job market.

Unlike the traditional economic cycle, the core features of the new economic cycle are accelerated technology iteration, strong intervention of industrial policies and dynamisation of technology demand. For example, AI big model technology has given rise to new occupations such as "cue word engineers" but has also replaced a large number of basic clerical positions; China's 14th Five-Year Plan promotes the strategy of "specialisation, specialisation, and innovation", all of which have created a new job market with a serious mismatch between supply and demand. China's "14th Five-Year Plan" promotes the strategy of "speciality, precision, speciality and innovation", which creates high-end manufacturing jobs, but due to the lagging nature of university professional settings, "job vacancies and skill surplus" co-exist. Under this situation, university students are faced with a double challenge: they haveto cope with the career uncertainty brought about by technological disruption

and also need to adapt quickly to the employment opportunity shift driven by industrial policies. It is especially important to think about how to seize the development opportunities, better develop themselves and contribute to society.

This paper will reveal the practical insights into university students' employment opportunities under the new economic cycle by integrating the three aspects of technological evolution, industrial transformation and educational adaptation. It not only provides students with personalised development routes but also helps to optimise the cultivation mode of university talents and provides the basis for the government to design accurate employment policies, which promotes the further development of today's society and economy.

2. Core Features of the New Economic Cycle

2.1. Technological Changes

The development of artificial intelligence, as the core driving force of emerging industrial change and industry innovation, promotes the development and innovation of the new economy and the new quality of productivity through revolutionary development, and provides strong support for the development of modern science and technology. The Turing Trap' theory points out that the excessive pursuit of AI replacement will trigger skills disconnect [1]. This requires education that reinforces unique human strengths such as creativity. Thus, while the emergence of AI is replacing some clerical jobs, it is also creating careers such as AI trainers and ethics advisors that have 'human skills' that cannot be replaced.

Currently, the significant increase in the speed of technological iteration is profoundly reshaping the demand structure of the job market. According to the technology-economy paradigm, the cycle of new technology from laboratory to commercial application has been shortened from 50 years during the Industrial Revolution to 5-8 years in the digital era. Relevant scholars have found that the proliferation of digital technology has not only replaced routine jobs, but also significantly increased the pay premium of non-routine jobs, a phenomenon of "employment polarisation" that has become more prominent in the new economic cycle, confirming that technological iteration is the most important factor in the development of the economy. This "employment polarisation" phenomenon is more prominent in the new economic cycle, confirming the structural reshaping of skills demand by technology iteration [2]. The theory has further accelerated in the age of artificial intelligence. Scholars also constructed the "technology-education fit index", which shows that there is a 4-fold gap between the speed of technology iteration in the field of AI in China (32% annual update) and the updating rate of college courses (8%), resulting in 38% of computer science graduates needing to "go back to the furnace to re-engineer", creating a significant "technology-education fit index". The result is a significant "technology-education divide". In this case, college students should think about how to improve themselves to better adapt to social change [3].

2.2. Industrial Structure Changes

Driven by the "dual carbon" goal, the global industrial system is undergoing a profound green restructuring. In the past three years, the global new energy. The industry has grown by 300 per cent, with China contributing 42 per cent of the job growth. This structural change presents three significant features: firstly, the employment scale of traditional energy industry continues to shrink; secondly, the new energy industry chain creates diversified employment opportunities, from photovoltaic module manufacturing to carbon asset management to form a complete occupational spectrum; thirdly, the demand for green skills presents cross-industry penetration characteristics, and the proportion of green jobs in traditional industries such as construction and transport has exceeded 15%. However, the coverage rate of Chinese colleges and universities is only 21%, and China is facing a "green-collar talent deficit", and higher education should accelerate the construction of a cross-cultivation system covering "green technology + industrial application + policy management" [4].

The rapid development of platform economy is forming a polarised employment pattern. On the one hand, the local life service field shows the characteristic of "involution". On the other hand, globalised digital platforms such as cross-border e-commerce have given rise to a new type of "digital nomad" group, which has exceeded one million according to data from the General Administration of Customs, of which those who have mastered the skills of small languages and Direct To Consumer (DTC) operation can earn up to three times as much as those in traditional foreign trade positions, and more than half of them have adopted the mode of "living and working in travel offices". This divide reflects the duality of the platform economy, where algorithmic optimisation has led to increased competition for local service jobs and digital globalisation has created high-value flexible jobs, but the skills barriers between the two types of jobs are likely to exacerbate labour market fragmentation. By constructing a new historical dataset of state unemployment rates, this study found that the timing and severity of recessions in the US have become increasingly similar across states in recent decades, a convergence attributable to the transition from manufacturing to services and the increasing similarity of industry structures. This finding reinforces the profound impact of changes in industry structure on the economic cycle and the job market, as the restructuring of industries in the new economic cycle has led to significant changes in employment opportunities in different sectors [5].

2.3. Policy Changes

The "14th Five-Year Plan" explicitly establishes "high-end manufacturing" as a core development strategy, a policy that also contributes to changes in the pattern of demand in the labour market, and the industrial upgrading driven by this policy has had a significant "push effect" on the labour market. According to a document released by the Ministry of Industry and Information Technology (MIIT) in 2023, by 2025, there will be a talent gap of 30 million people in the ten key fields, with integrated circuits, aerospace and other strategic emerging industries accounting for more than 60% of the talent gap. Under this kind of technological transformation, the demand for cross-disciplinary expansion, as well as for the integration of traditional crafts and new technologies.

3. Formation Mechanism of Employment Opportunities for Contemporary College Students under the New Economic Cycle

3.1. Technology-Driven

According to the latest report of McKinsey Global Institute, with the increasing penetration of AI technology in manufacturing and service industries, the employment structure of enterprises has shown an obvious "polarisation": on the one hand, the demand for conventional jobs engaging in standardised and procedural work has declined significantly, and it is expected that the demand will decrease by 15-20% by 2025; on the other hand, the demand for non-conventional jobs that require creative thinking and complex problem solving abilities has shown rapid growth. On the other hand, the demand for unconventional jobs that require creative thinking and complex problem-solving skills is growing rapidly, with an annual growth rate of 8-10 per cent. This change not only reflects the reshaping effect of technological change on the labour market but also signals that the future job market will place greater emphasis on core qualities such as the ability to innovate and adapt to technology. It is worth noting that this transformation is giving rise to a new "human-computer collaboration" work model, where AI systems handle routine tasks while human employees focus on areas requiring emotional intelligence and creative thinking, and this complementary division of labour is becoming an important direction for enterprises to optimise the allocation of human resources. Jia Lumeng and Zhao Jiahuan pointed out that "intelligent machines have pushed the intermingling of technological systems and society to a new level, reshaping the social division of labour system".

3.2. Driven by Industrial Policy

The absorption capacity of China's "speciality, speciality and new" enterprises for science and technology graduates has increased significantly. Among the fresh graduates recruited by enterprises, the proportion of graduates majoring in science and engineering has reached 35%, which is 12 percentage points higher than that of 2020. Meanwhile, the deepening of university-enterprise co-operation has achieved remarkable results [6]. For example, the 186 modern industrial colleges jointly established by "speciality, speciality and new" enterprises and universities in Zhejiang Province will send 12,000 graduates in 2023, 78% of whom will enter key technical positions. In the future, as the strategy of "manufacturing power" is further promoted, the "specialised and new" enterprises will be able to provide 12,000 graduates in 2023, of which 78% will enter key technical positions.

In the future, as the strategy of "Stronger Manufacturing Country" advances, the demand for high-quality technical talents from "speciality, speciality and new" enterprises will continue to grow.

The in-depth promotion of the rural revitalisation strategy is facing the bottleneck problem of a serious shortage of agricultural digital talents. At present, the shortage of agricultural digital talents in China is expanding, mainly concentrated in three areas. The first is the smart agriculture technology application post, including agricultural Internet of Things engineers, Unmanned Aerial Vehicle (UAV) plant protection specialists, etc.; the second is the agricultural products e-commerce operation post, especially with agricultural products brand planning ability of composite talents; the third is the agricultural big data analysis post, the need for both knowledge of agronomy and data skills of the cross-training personnel. This talent shortage is directly related to the training mode of colleges and universities - only a few colleges and universities in agriculture and forestry have set up digital agriculture-related majors, and the practical teaching link is generally weak. In order to solve this dilemma, it is necessary to build a four-party linkage training system: government departments provide special training subsidies, colleges and universities set up micro-professions in "agriculture + digital technology", leading enterprises build training bases, and village-level organisations set up talent stations to jointly cultivate new talents who "understand agriculture and know technology". By training people who are skilled in the use of new means of labour and production, the development of agricultural productivity will be promoted [7, 8].

3.3. Education-Industry Synergy Driving Gap

The structural mismatch between the education system and industrial demand has become a key bottleneck restricting the improvement of college students' employment quality. According to the McKinsey Research Institute report "first show", the current college talent training mainly exists threefold disconnect. Firstly, the professional setting is lagging behind, and the distribution points of professions related to strategic emerging industries such as artificial intelligence and integrated circuits only cover 31% of the job demand; secondly, the curriculum content is outdated, 45% of engineering majors are still using the teaching materials of five years ago, and there is a generation gap with the development of industry technology; thirdly, the practice link is weak, 68% of enterprises reflect that fresh students need more than 6 months to adapt to the period. To solve this dilemma, it is necessary to build a closed-loop mechanism of "industry demand, talent training and quality feedback", including the establishment of a dynamic adjustment model for professional settings, the implementation of the teaching reform of "curriculum cluster + project system", and the improvement of the practical teaching system of university-enterprise collaboration.

4. Path of College Students' Employment Practice

4.1. Reconstruction of Education System

The dynamic adjustment mechanism should be based on the demand of industrial chain [9]. Referring to the relevant report of the Ministry of Education, it is suggested to build a whole-process management system of "monitoring - early warning - adjustment". Specifically, a three-level response

mechanism can be adopted to dynamically adjust the enrollment capacity of majors according to the employment rate of majors, and at the same time, establish a fast track for the declaration of new majors. This kind of dynamic adjustment needs to be accompanied by the construction of school-enterprise collaborative education platform, such as the college to implement the "2+1+1" cultivation mode (2 years of foundation, 1 year of enterprise courses, 1 year of on-the-job practice). At the same time, a digital signboard for professional construction should be set up, integrating data from recruitment platforms, enterprise evaluation and other diversified indexes, so as to realise the precision and foresight of professional setting.

Based on the adjustment of national policies and the promotion of industrial demand. Colleges and universities have adopted "Artificial Intelligence+" and "X+AI" cultivation modes, which have significantly improved the employment competitiveness of students. In the future, as the boundaries of disciplines become increasingly blurred, deepening cross-fertilisation will become an important direction of higher education reform.

4.2. Individual Career Navigation: Planning Employment Direction in Three Lines

In the current fast-changing employment environment, individual career development can adopt a multi-level "three-line planning" strategy. High-line planning focuses on cutting-edge fields, targeting core technology positions in national strategic industries such as artificial intelligence and quantum computing. Medium-line planning targets the digital transformation needs of traditional industries, such as smart grid engineers in the automotive industry and quantitative analysts in the financial industry, which require "professional+digital" compound skills. The bottom line is flexible employment protection, including cross-border e-commerce operation and freelance consultancy, etc. Although the income fluctuates greatly, it can accumulate practical experience. Graduates can dynamically adjust the proportion of the three lines of input according to their own conditions, attacking the high line while maintaining the "safety net" of the bottom line planning. College students can define their future career direction through vocational ability assessment [10].

4.3. Precise Policy Intervention

In terms of policy interventions to promote college students' employment, precision has become the core concept of current policy formulation. The report issued by the Ministry of Human Resources and Social Security (MOHRSS) in 2023 focuses on the implementation of three types of targeted measures: first, the establishment of the "Employment Impact Assessment" system, whereby 0.5% of the investment amount in major industrial investment projects is allocated to the creation of jobs for college students. Second, the implementation of the "Traineeship Subsidy Programme", whereby subsidies are given to enterprises for recruiting fresh graduates, and the policy has led to an increase in the number of trainee jobs by 42% during the pilot period of the policy in Jiangsu Province. Third, the implementation of the "Professional Matching Action", whereby enterprises can provide subsidies through industrial matching. The third is to carry out the "professional docking action", through the industry talent demand white paper to guide universities professional adjustment, nationwide withdrawal of low employment rate professional. In the future, it is necessary to further refine the policies on industry differences, such as giving special support to the cultural and creative industries, which absorb more liberal arts students.

5. Conclusion

Under the new economic cycle, the job market is undergoing a fundamental shift from "scale-driven" to "quality-driven". In today's society, technology iteration and industrial upgrading have given rise to a large number of high value-added jobs, but it is difficult for the traditional employment model to adapt to this change. College students must shift from "passive job-seeking" to "active ability construction" and enhance their competitiveness through continuous learning and technology integration. At the same time, the in-depth application of artificial intelligence may accelerate the

replacement of programmed work, leading to the intensification of the phenomenon of "depreciation of academic qualifications". It is suggested that a national employment opportunity monitoring platform be set up to accurately match the supply and demand of skills through dynamic early warning of endangered jobs, regulation of education supply, and promotion of micro-certification systems. In the future, attention should be paid to the synergistic effect of technical ethics and policy tools, so as to provide systematic solutions for employment transformation. Future research will focus on the following directions: exploring AI substitution flexibility and career resilience, promoting the standardisation of the micro-certification system, studying blockchain authentication technology and its acceptance by enterprises, deepening the research on technological ethics, carrying out the analysis of regional employment ecosystems' differences, and setting up a database on intergenerational career development.

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