

The Growth of Graduates and Economic Development

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Abstract. The expansion of higher education and the consequent increase in graduate numbers are widely seen as a key driver of economic development within the framework of human resource development (HRD) and human capital theory. This paper critically examines the extent to which rising graduate numbers effectively promote economic growth. It argues that while an increased supply of graduates can enhance human capital quality, spur technological innovation, facilitate industrial upgrading, and promote social equity, its benefits are not automatic. The analysis highlights significant challenges, including qualification devaluation, labour market mismatches, diminishing returns on educational investment, and intensified job competition, which can undermine positive economic impacts. To optimise the economic contribution of graduates, the paper proposes policy recommendations focused on improving education quality, enhancing industry-education-research integration, and facilitating efficient talent mobility.

Keywords: Economic development; graduate numbers; human resource development; labour market; higher education policy.

1. Introduction

With the transformation and upgrading of economic globalization and technology, high-quality labor force has become a key factor to promote economic development under the background of knowledge economy. Higher education graduates become an important part of the competitiveness of the country. Governments of various countries have expanded the scale of higher education, improved the overall quality of labor force and the overall level of human capital by expanding the source of university students, which promoted economic growth to meet the challenges of economic transformation and upgrading. The effectiveness of increasing the number of graduates in fostering economic development is still up for debate, though. The quality of human capital, scientific and technological innovation, and industrial upgrading can all be enhanced by an increase in the number of graduates [1]. However, excessive expansion may lead to the depreciation of academic qualifications, the imbalance between supply and demand in the labor market, and even the intensification of competition in the job market [2].

Based on the theory of human resource development (HRD), this paper critically examine the degree to which economic growth is impacted by the rise in the number of graduates. This paper will put forward policy recommendations to optimize the human resource development system and enhance the contribution of graduates to economic development, so that the rise in the number of graduates can truly promote economic development.

2. Theoretical framework

2.1. HRD and HCT

Human resource development (HRD) is training the workforce through education, training, and career development to prepare it to keep up with economic and technological changes. It can enhance the competitiveness of the graduates in the market to drive economic growth and social development [3]. HRD emphasizes capacity building at both organizational and societal levels to achieve sustainable economic growth. Human capital theory (HCT) is one of the important theoretical foundations of human capital development. Education can not only improve the productivity of workers and the



income level of individuals but also enhance the ability to adapt to economic changes, which is an important driver of economic growth [4, 5]. The upward trend in graduate numbers can improve the overall level of human capital and thus promote economic development.

2.2. The relationship between the growth of graduates and economic growth

Higher education graduates inject new impetus into economic development through technological innovation, knowledge dissemination and industrial upgrading. Graduates are an important source of new labor force in the economic system and have a direct impact on the supply and demand structure of the labor market. The quality and skills of graduates determine the quality and sustainability of economic growth. There is a positive correlation between higher education expansion and economic growth, especially in technology-intensive industries. The increase of higher education graduates significantly improves production efficiency and innovation ability [6].

However, if the supply of graduates exceeds the market demand, it may lead to problems such as the depreciation of academic qualifications and the intensification of job competition. This can weaken its role in promoting economic growth. In addition, if the higher education system fails to adjust the discipline setting and training mode in a timely manner, the skills of graduates do not match the market demand, which may lead to talent waste or underemployment and reduce its contribution to economic growth [7].

3. The beneficial impact of a growing number of graduates on economic development

3.1. Improve the quality of human capital and increase labor productivity

Graduates from higher education may have stronger professional skills, adaptability and technical application ability, which helps to promote enterprise innovation and productivity growth. The Ministry of Education reports that since the introduction of the university enrollment expansion policy in 1999, the number of ordinary university graduates in China has surged from 1.07 million to 8.74 million by 2020, significantly boosting the country's higher education output and enhancing the labor market's overall quality. This growth has provided substantial human capital backing for China's rapid economic advancement. As a pioneering city in China's reform and opening, Shenzhen has drawn high-tech and modern service sectors, driving its transformation from a manufacturing hub to a center of scientific and technological innovation [8]. By expanding the scale of higher education, China has significantly improved the quality of human capital, which can raise labor productivity and inject strong impetus into economic development. However, increasing the graduate pool is not the only solution for the attainment of lasting economic progress. One also must streamline the structure of education and reinforce the interaction of university, industry, and research to make the graduate pool the best possible use of the value of human capital.

3.2. Promote scientific and technological innovation and industrial upgrading

Investment in higher education is an important driver of economic growth, especially in economies close to the technological frontier. The number of patent applications was positively correlated with the states with intensive higher education resources in the US [6]. The number of patent applications increased by about 4%-6% for every 10% increase in the number of graduate students. This implies the improvement of the level of higher education increased the ability for innovation. The Silicon Valley region supported about 1 million employees in the tech field during the year 2019, the majority being for those possessing the level of a bachelor's and above. These highly educated talents have played an important role in innovative activities in the fields of information technology and biotechnology, which can promote Silicon Valley to become a global scientific and technological innovation center and promote the continuous growth of the US economy. Therefore, the expansion of higher education has not only enhanced the overall knowledge and skills of the workforce but has also been instrumental in driving scientific and technological advancements as well as facilitating industrial transformation.

3.3. Promote social equity

The expansion of the graduate workforce provides fair career development opportunities for more social classes. It can reduce social inequality, improve the overall cultural quality of society, and promote the accumulation of social capital. By increasing the proportion of university graduates, the British government hopes to cultivate more high-skilled labor to meet the development needs of the knowledge economy. The university enrollment rate in the UK raised from 6% in 1960 to 33% in 2001, allowing more children from low-income families to enter higher education, which improves social mobility and overall social welfare [9]. In addition, the emergence of new universities in the UK promoted the expansion of higher education, enabling more social classes to receive higher education and promoting social equity. With the growth in the graduate population, the overall level of human capital is improved, which provides more high-quality labor force for social and economic development and enhances social mobility. However, this may promote social equity to some extent. If the government and society do not provide enough economic support and employment guidance, it may exacerbate the imbalance in the distribution of educational resources.

4. Limitations and challenges of increasing number of graduates

4.1. The depreciation of academic qualifications and the imbalance between supply and demand in the labor market

As higher education has grown rapidly, the number of graduates has also increased, but the labor market's need for highly educated talent has not kept pace, forcing some graduates to accept low-skilled or unrelated jobs. As a result, the mismatch between supply and demand and the depreciation of academic qualifications have become increasingly prominent. The requirements for many jobs are moving from a high school degree to a bachelor's degree. In 2014, more than 21% of administrative jobs, 13% of sales jobs and 8% of low-skilled jobs in the UK were held by university graduates, rather than traditional highly educated jobs [10]. Many graduates with high degrees are forced to work in low-paying jobs such as retail and logistics. It is difficult to stand out in the job market and face higher barriers to competition. This trend not only increases the employment pressure of graduates and reduces the employment opportunities of workers with low degrees but also weakens the economic returns of higher education and makes it difficult for graduates to find jobs matching their degrees. It can lead to the waste of social resources and the mismatch of human capital, finally hindering the development of social economy.

4.2. The return on investment in higher education is declining

Due to the continuous increase in the tuition fee of higher education worldwide and the increasingly fierce competition in the job market. The return rate of education for some graduates has decreased significantly. For example, in the UK, the income of university graduates was significantly higher than that of non-university students in the past. However, now the gap is narrowing and graduates in some industries even fail to obtain higher salaries than high school graduates [10]. It is difficult for these graduates to recover the cost of their education investment in the short term due to employment difficulties or low-paid jobs. In addition, the current student loan debt problem in the UK is becoming increasingly serious. The average debt of graduates is 44,000 pounds and the official estimate is that 45% of the loans will never be repaid. Some graduates even face the risk of debt default. Graduates even default on loans. High levels of graduate debt not only deplete personal resources but also influence future professional progress and general lifestyle. If the graduate fails to make the best possible use of the skills gained, the investment by the country in education can be lost, eventually negatively contributing towards socioeconomic balance.

4.3. The job market is becoming more competitive

The increase in the number of graduates has led to increased competition in the job market, especially in the context of slowing economic growth or industrial restructuring. The expansion of the number

of graduates has forced many graduates into low-paying industries, hindering their long-term career development. Nigeria's unemployment rate rose to 18.8 per cent in the third quarter of 2017 from 14.2 per cent in 2016. Most of the unemployed are university graduates and the graduate job market is highly competitive. Some of these graduates turn to illegal activities such as destroying oil pipelines, stealing oil, which exacerbates social problems. This practice not only harms the physical and mental health of graduates but also seriously affects the stability of social order and economic vitality.

5. Suggestions

5.1. Improve the quality of education to match the market demand

Colleges and universities should dynamically adjust the discipline Settings according to the needs of the labor market, focus on the development of high-demand fields such as data science, engineering technology, increase practical links like enterprise internship and project cooperation to help students transform theoretical knowledge into practical skills. For example, in the German "dual system" education system, through cooperation with enterprises, universities and vocational training institutions will adjust the curriculum and training content according to market demand to ensure that the skills cultivated are in line with the direction of industrial development and closely connected with the needs of the industry. This kind of education system effectively improves the employability of graduates and ensures that graduates have high employment competitiveness to seamlessly connect to the job market.

5.2. Enhance the integration of industry, education, and research while increasing the efficiency of transforming scientific and technological advancements into practical applications

The government should encourage enterprises to participate in the establishment of joint training programs in colleges and universities, establish and improve the technology transfer mechanism, and promote the industrialization of scientific research results. American universities actively promote the commercialization of scientific research results. In Massachusetts Institute of Technology (MIT) and Stanford University, many successful technology companies like Google are derived from campus research and form a strong innovation ecosystem. The close connection between universities and enterprises not only enhances the social influence of universities but also provides more employment opportunities for graduates, who can directly enter the innovative industry. This has been a positive for US economic growth and the labor market.

5.3. Improve the job market and promote talent flow

Colleges and universities should improve the employment guidance system to help students clarify career goals and improve job-hunting skills. Colleges and universities should establish career development centers to provide students with personalized services such as resume revision and mock interviews to provide more employment opportunities and career development suggestions for graduates. The government should provide policy support and low-interest loans and entrepreneurship training, which can encourage graduates to start their own businesses. In addition, the government should encourage universities to cooperate with internationally renowned institutions to enhance the global competitiveness of graduates. It enhances the international vision and cross-cultural communication ability of graduates and improves the internationalization level of higher education [8].

6. Summary

The expansion of higher education improves the overall level of human capital and provides high-quality labor resources for economic growth. Graduates play a key role in scientific and technological innovation, industrial upgrading and labor productivity improvement, which can promote the

optimization and sustainable development of economic structure (M. and Becker, 1967). The expansion of education also creates equitable career development opportunities for a broader range of social groups while fostering the accumulation of social capital and promoting social equity. However, the growing number of graduates presents several challenges, including mismatches between supply and demand, the diminishing value of academic qualifications. Graduates may contribute less to economic growth. These issues can cause inefficient use of educational resources, lower returns on social investment, intensified job market competition, and restricted career prospects for graduates.

Future strategies must concentrate on raising the standard of education, bolstering the integration of research, education, and production to encourage the transition of scientific and technical advancements, and enhancing the labor market and talent flow mechanism. In conclusion, the growth in the graduate population has significant potential to drive economic development. However, its effect depends on the synergy of education quality, market demand and policy environment. Through scientific planning and effective implementation of HRD policies, it can maximize the economic benefits of the expansion of graduates and inject sustained impetus into the transformation and upgrading of the global economy.

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