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Analysis of the Role of Vocational Education Management Investment in Regional Economic Growth from the Perspective of Human Capital

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Abstract: In the new development stage, regional economic growth is gradually shifting from being driven by material capital to being driven by endogenous human capital. Vocational education, as the core carrier of skill based human capital cultivation, directly determines the quality of regional labor force, industrial adaptability, and economic development resilience through the efficiency of management resource investment. This article is based on Schultz's human capital theory, defining the four dimensions of investment in vocational education management: funding, faculty, system, and hardware. It analyzes the transmission mechanism of vocational education management investment empowering human capital quality improvement and promoting regional economic growth. Combined with the current situation of investment differentiation in the eastern, central, and western regions of China, it sorts out the problems of imbalanced allocation of vocational education management investment, inefficient transformation of human capital, and insufficient linkage between industry and education. Optimization paths are proposed from the aspects of optimizing investment structure, improving management mechanism, precise investment at different levels, and deepening the integration of industry and education. Research has confirmed that investment in high-quality vocational education management can expand the stock of skilled human capital, optimize labor structure, adapt to industrial transformation and upgrading, and empower regional economic growth in the long run. It provides theoretical reference for coordinating vocational education resources and linking regional economic development in various regions.

Keywords: Human Capital; Vocational Education; Educational Management Investment; Regional Economic Growth; Skilled Talent

1. Introduction

China's economy has entered a critical period of industrial upgrading and kinetic energy transformation. The high-end development of manufacturing, specialization of service industry, and modernization of rural industries have forced regions to fill the gaps in high skilled human capital. The traditional extensive regional growth model relying on land, factories, and funds is difficult to sustain, and human capital has become the core variable for differentiated regional economic growth. The Opinions on Deepening the Construction and Reform of Modern Vocational Education System proposed by the state to increase investment in the overall management of vocational education, optimize the allocation of educational resources, and cultivate skilled talents suitable for the real estate industry. At present, there is a significant gap in the financial allocation, teacher management, operation and maintenance, and institutional construction of vocational education in various provinces of China. The eastern region has a sound vocational education management system and a high rate of human capital conversion, while the central and western regions have insufficient investment and serious talent outflow, directly widening the regional economic development gap. Based on the theory of human capital, clarifying the mechanism of investment in vocational education management, solving the problems of low efficiency and insufficient transformation of investment, has become an important issue in promoting regional balanced economic growth.

2. Definition of Core Concepts and Analysis of Their Transmission Mechanisms

2.1 Definition of Core Concepts

2.1.1 Human Capital

The human capital referred to in this article is different from ordinary physical labor capital, specifically referring to the skill based human capital formed after specialized education, skill training, and literacy cultivation. It covers four major elements of workers' professional skills, professional literacy, job adaptability, and innovative practical ability, and has four characteristics of being cultivable, value-added, mobile, and adaptable to industrial production. It is the core production factor for improving the quality and efficiency of regional industries and promoting endogenous economic growth in the new era. Compared with material capital, it has a longer cycle of economic empowerment value.

2.1.2 Investment in Vocational Education Management

The investment in vocational education management is a comprehensive resource investment made by the government, colleges, and enterprises to ensure the education and talent cultivation of vocational colleges. It is divided into two categories: hard management investment and soft management investment, with a total of four dimensions. One is the investment in fund management, including per capita financial allocation for students, special training funds, teacher training funds, and school enterprise cooperation operation and maintenance funds; The second is the investment in teacher management, including the introduction of dual teacher teams, teaching and research management, teacher assessment, and skill cultivation management resources; The third is hardware operation and maintenance investment, including investment in training bases, smart vocational education platforms, and training equipment construction and management; The fourth is institutional governance investment, including vocational education regulation, industry education integration management system, talent evaluation management system, and cross regional vocational education linkage policy investment.

2.1.3 Regional Economic Growth

This article combines the dual connotations of total and quality growth in regional economic growth. On the one hand, it refers to the improvement of economic scale such as regional GDP, industrial revenue, and per capita income of residents; On the other hand, it refers to the upgrading of economic quality such as optimizing regional industrial structure, improving labor production efficiency, optimizing employment structure, and enhancing economic development resilience, taking into account both short-term economic growth and long-term sustainable development capabilities.

2.2 Theoretical Basis: Schultz's Human Capital Theory

The core viewpoint of Schultz's human capital theory is that the core driving force of national economic growth is not the accumulation of material capital, but the appreciation of human capital investment, and education is the highest form of return on human capital investment. Vocational education belongs to applied education investment, which aims to enhance the marginal output of workers' skills and reduce the cost of employment training for enterprises; Reasonable allocation of educational management resources can improve the efficiency of education and talent cultivation, cultivate higher quality skilled talents with lower investment, achieve maximum efficiency of human capital input and output, and ultimately affect regional industrial production, driving overall economic growth. This theory provides underlying theoretical support for the analysis of the transmission mechanism throughout the text.

2.3 Vocational Education Management Investment Empowers Regional Economic Growth Transmission Mechanism

2.3.1 Direct Transmission: Optimizing the Stock of Human Capital and Improving Labor Productivity

High quality vocational education management invests in improving the education system, expanding the scale of regional skilled talent cultivation, and directly increasing the stock of local skilled human capital. Capital investment ensures the implementation of practical training teaching, teacher investment improves teaching quality, institutional investment standardizes education standards, comprehensively improves the skills and professional qualities of labor force, enhances the practical efficiency and technical adaptability of workers, directly reduces enterprise production losses, improves unit production capacity, promotes the improvement of labor productivity in the primary, secondary, and tertiary industries in the region, and achieves steady growth in regional economic aggregate. This is a short-term direct empowerment path.

2.3.2 Indirect Transmission: Optimizing the Structure of Human Capital and Promoting Regional Industrial Upgrading

Relying on the overall management of vocational education, coordinating with local industrial planning to adjust professional layout, targeted cultivation of high-end manufacturing, modern agriculture, and modern service industry scarce skilled talents, optimizing regional human capital skill structure, educational background structure, and employment structure. Adapting to the talent demand of leading industries in the region, assisting in the technological transformation of traditional industries and the landing and development of emerging industries, forcing regional industries to eliminate low-end production capacity, optimizing the ratio of primary, secondary, and tertiary industries, promoting the high-end and intensive transformation of industries, optimizing the regional economic growth structure, and achieving high-quality economic growth, belong to the medium and long-term indirect empowerment path.

2.3.3 External Transmission: Activate the Flow of Human Capital and Balance Regional Economic Development

Cross regional vocational education coordination management investment, breaking down barriers to regional talent mobility, improving the employment guarantee and professional title recognition management system for skilled talents, and guiding human capital to flow from areas with saturated production capacity to areas with industrial gaps. On the one hand, retaining locally cultivated skilled talents and reducing the outflow of human capital from the central and western regions; On the other hand, attracting high-quality skilled labor from external sources, balancing the proportion of human capital in various regions, narrowing the gap in regional industrial development, weakening the polarization of regional economic development, and achieving coordinated and balanced growth across the entire region.

3. Current Status and Existing Problems of Vocational Education Management Investment from the Perspective of Human Capital

3.1 Regional Development Status of Vocational Education Management Investment in China

3.1.1 Fund Management Investment: There Is a Significant Difference in the Allocation Gradient between the Eastern, Central, and Western Regions

The economically strong provinces along the eastern coast have sufficient financial capacity, with high per capita funding for vocational education and special training funds. Special funds have been set up for the cultivation of skilled talents and the construction of dual teachers, with a high degree of precision in fund management and sufficient supporting funds for human capital cultivation; The central provinces rely on provincial-level coordination to ensure basic education funds, but there is a significant gap in special empowerment funds; The self-sufficiency rate of finance in western provinces is relatively low, and vocational education funds rely more on central transfer payments. The funds are mostly used for school building maintenance, and there is insufficient investment in skills training and teacher training. The shortage of funds for cultivating skilled human capital is prominent.

3.1.2 Teacher and Hardware Investment: Uneven Adaptation of Educational Software and Hardware

The proportion of dual qualified teachers and the scale of enterprise hired technicians in the eastern region far exceed that in the central and western regions. The management of teacher education and research, as well as the incentive system for assessment, are improved. At the same time, a national level industry education integration training base and a smart vocational education digital platform have been established, and hardware facilities are benchmarked against industry standards; There is a serious loss of dual teacher teachers in vocational colleges in the central and western regions, an imperfect teacher training management system, outdated training equipment that lags behind, training scenarios that are disconnected from enterprise positions, low adaptability of talent cultivation skills, and difficulty in unleashing the value of human capital.

3.1.3 Institutional Management Investment: Significant Differentiation in the Effectiveness of Regional Industry Education Governance

Eastern provinces and cities have introduced and improved the incentive system for school enterprise cooperation, the settlement of skilled talents, and the supporting system for salary guarantee. Enterprises have a high enthusiasm for participating in vocational education, and talent cultivation is in line with industry needs; The management system of vocational education in the central and western regions tends to focus on internal school management, with incomplete systems for enterprise empowerment, talent incentives, and cross regional vocational education linkage. School enterprise cooperation often remains at the shallow level of internships, and talent cultivation is detached from local industrial needs, resulting in low efficiency in human capital transformation.

3.2 Core Issues Restricting Human Capital Appreciation and Regional Economic Growth

3.2.1 Imbalance in Investment Structure and Insufficient Emphasis on Soft Management Investment

In various regions, there is a general emphasis on hardware investment and a lack of investment in institutional and soft management of teaching staff. In most areas, vocational education resources are concentrated on school building expansion and equipment procurement, with insufficient investment in long-term teacher training, improvement of production and education systems, and management of talent employment security. Excessive hardware investment and lack of educational management have led to low equipment utilization and lagging teacher capabilities in industrial technology iteration, resulting in severe homogenization of the cultivated labor force and the inability to form differentiated high-quality human capital, making it difficult to empower the development of regional characteristic industries.

3.2.2 Insufficient Investment Adaptability, Mismatch between Human Capital and Industrial Supply and Demand

The investment in vocational education management lacks research and analysis of local industries, the professional settings of colleges and universities are fixed, and the management of education continues to use traditional education models, without adjusting the direction of investment in line with the dynamic development of regional leading industries. For example, vocational education in resource-based regions still focuses on traditional engineering cultivation, lacking investment in green intelligent manufacturing, cultural and tourism service talent cultivation, resulting in a surplus of local skilled talents and a shortage of talent. There is a structural mismatch between supply and demand of human capital, and a large amount of vocational education human capital cannot be deployed to empower local industries, greatly reducing the economic benefits of investment.

3.2.3 Single Investment Subject and Uneven Allocation of Human Capital Cultivation Costs

At present, the investment in vocational education management is highly dependent on local government finances, and the willingness of industry enterprises and social capital to participate in vocational education management is weak. Enterprises rarely actively invest in teacher co construction, practical training operation and maintenance, and order based education management resources. The government is unilaterally putting pressure on the entire cost of education, and the increasing financial pressure has led to slow investment quality improvement. At the same time, enterprises have not participated in education management, and talent skills do not meet the employment standards of enterprises. Colleges and universities need secondary pre job training for enterprises to cultivate human capital, which prolongs the human capital appreciation cycle, raises regional industrial employment costs, and slows down economic growth efficiency.

3.2.4 Weak Investment Coordination and Serious Regional Loss of Human Capital

There is a lack of unified cross regional vocational education management mechanism nationwide, and the evaluation of vocational education talents, exchange of skill certificates, and employment security systems in different provinces are not unified. The central and western regions have invested in cultivating a large number of vocational and higher vocational skilled talents, but due to the influence of salary and development platforms, human capital continues to flow to the eastern industrial highlands, and local vocational education investment has become a free talent cultivation in the eastern region. The investment income in the central and western regions is inverted, and the regional human capital gap continues to widen, further solidifying the economic development gap between the east and the west.

4. Optimizing Investment in Vocational Education Management and Empowering

Regional Economic Growth Optimization Strategies

4.1 Optimize Investment Structure, Take into Account Both Soft and Hard Investments, and Strengthen the Foundation of Human Capital

4.1.1 Differentiated Allocation of Funds Investment, Precise Alignment with the Education Process

Various regions will optimize their investment in fund management based on their fiscal strength, reduce inefficient hardware expansion funds in the eastern region, increase investment in teacher research and skills innovation and training, and cultivate high-level technical and skilled human capital; Central China focuses on leading industries and allocates targeted funds for order classes and practical training; Relying on the central vocational education special subsidy, the western region prioritizes the introduction of dual teacher teachers and funding for basic training transformation, and eliminates blind hardware investment. Establish a performance management system for vocational education funds, assess the efficiency of fund utilization based on talent employment rate and industry adaptability, and improve the efficiency of fund human capital conversion.

4.1.2 Increase Investment in Soft Management and Improve the Human Capital Cultivation System

Enhance the weight of teacher management investment, regularly carry out teacher enterprise rotation and industrial technology training management, and improve the dual teacher title and salary incentive management system; Build a regional vocational teacher resource sharing management platform to activate high-quality teacher human capital. Synchronize the improvement of the internal education management system, revise teaching management norms based on enterprise job standards, implement integrated teaching management of job, course, competition, and certification, comprehensively enhance the professional competence of talents, and create a composite skilled human capital suitable for industrial development.

4.2 Anchoring Local Industries to Achieve Matching between Vocational Education Investment and Human Capital Supply and Demand

4.2.1 Establish a Mechanism for Industry Education Linkage Research and Judgment Management

A vocational education investment research and assessment team is jointly established by local development and reform, education, and industry and information technology departments to conduct an annual survey of regional industrial chain positions and talent gaps, and dynamically adjust the layout of vocational education majors and resource investment directions. Modern agricultural counties increase investment in horticulture, agricultural machinery, and rural service vocational education; Industrial cities increase investment in intelligent manufacturing and new energy technology majors; The cultural and tourism region focuses on investment in health and wellness, cultural and creative services, and vocational education, enabling precise management investment to cultivate local essential human capital and achieve a two-way match between talent output and industrial demand.

4.2.2 Implement an Order Based Closed-loop Education Investment Model

Relying on the mechanism of school enterprise joint management, enterprises participate in the entire process of training management, course management, and assessment management. Enterprises share the cost of training consumables and technician teaching management, and the government subsidizes the operation and maintenance expenses of school enterprise joint construction bases. Targeted customization cultivates exclusive human capital for enterprises. Shorten the adaptation cycle of talent positions, reduce the cost of employment training for enterprises, enhance regional industrial production capacity, and form a virtuous cycle of "vocational education investment - human capital appreciation - industrial income increase - feedback vocational education investment".

4.3 Establishing a Diversified Investment Mechanism to Share the Cost of Human Capital Cultivation

4.3.1 Establishing a Four Party Joint Investment System of Government, School, Enterprise and Society

Consolidate the government's responsibility for overall investment and ensure the funding for basic vocational education management; Introduce tax reduction and venue preferential policies, encourage large-scale enterprises to invest in training equipment and industry mentor management resources; Absorbing industry associations and social welfare capital to participate in the construction of characteristic vocational education projects; Encourage universities to independently carry out skills social training, generate revenue to support internal teaching management, break the government's single investment pattern, diversify and expand the total amount of vocational education management resources, and expand the stock of skilled human capital in the entire field.

4.3.2 Establish a Sound Input-output Linkage Mechanism

For enterprises participating in vocational education management, talent introduction subsidies and priority in project bidding will be provided, and enterprises will enjoy the dividend of human capital employment; Establish subsidies for local skilled talents to stay in the central and western regions, allocate funds for talent housing and employment support from vocational education management funds, retain local cultivated human capital, ensure the implementation of local vocational education investment returns, and solve the problems of talent outflow and investment losses.

4.4 Improve Cross Regional Coordinated Management to Support Coordinated Regional Economic Growth

4.4.1 Unified Vocational Education Talent Evaluation Management System

Provincial and even national unified vocational skill level evaluation and credit recognition management system, realizing cross regional exchange and mutual recognition of vocational education learning achievements and skill certificates, breaking down institutional barriers to human capital mobility, facilitating free labor mobility, and optimizing national human capital spatial allocation. Coordinate high-quality vocational education management resources in the eastern region to provide targeted assistance to universities in the central and western regions, jointly build online training and teacher research platforms, narrow the regional gap in vocational education personnel, and balance the level of human capital between the eastern and western regions.

4.4.2 Zoning Development Strategy for Investment

The eastern region focuses on investing in high-level innovative skilled talents, empowering high-tech industries to improve quality, and creating regional economic growth poles; The central region focuses on investing in the cultivation of workers in composite industries, undertaking the transfer of industries from the eastern region, and consolidating the foundation of the real economy; The western region focuses on investing in inclusive basic skills vocational education, supporting the development of rural industries and characteristic handicrafts, narrowing the economic gap across the region, relying on balanced development of human capital, and achieving long-term coordinated growth of the national regional economy.

4.5 Research Conclusion and Prospects

4.5.1 Research Conclusion

Based on the theory of human capital, it is known that the four-dimensional management investment of vocational education funds, teachers, hardware, and systems can positively drive regional economic growth through three major paths: directly improving labor efficiency, indirectly optimizing industrial structure, and expanding balanced talent flow. At present, there are problems with structural imbalance, insufficient industrial adaptation, single subject, and weak overall planning in vocational education management investment in China, resulting in inefficient human capital cultivation, supply-demand mismatch, regional loss, and restricting the balanced development of regional economy. Only by optimizing the ratio of soft and hard investment, anchoring industry demand, building diversified investment, and coordinating cross regional vocational education governance, can we maximize the value of vocational education human capital and empower regional economic quality growth in the long run.

4.5.2 Research Shortcomings and Prospects

This article focuses on theoretical mechanisms and qualitative analysis of the current situation, without conducting quantitative empirical regression using panel data. Subsequently, provincial panel data can be selected to calculate the contribution coefficients of different dimensions of vocational education management investment to human capital and regional GDP. At the same time, in the future, we can combine the new format of digital vocational education to study the mechanism of the impact of digital vocational education management investment on digital skills human capital and digital economic growth, and adapt to the new research direction of regional economic development in the digital economy era.

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