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Education as Support: An Analysis of the Feasibility of Emerging Productive Forces Taking Root in Western China

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Abstract: Emerging productive forces are the core driving force for leading high-quality development. Their rooting in Western China is crucial for breaking the imbalance of regional development in Western China and promoting the economic transformation and upgrading of the west. Starting from the internal logic of education supporting the development of emerging productive forces, this paper combines the educational foundation of Western China, analyzes the feasibility of education empowering emerging productive forces to take root in the west, and then puts forward practical paths such as optimizing education supply. It provides theoretical reference and practical ideas for Western China to cultivate emerging productive forces with the help of education.

Keywords: education support, emerging productive forces, feasibility, integration of industry and education

1.0 Introduction

China's economy has entered a stage of high-quality development. With scientific and technological innovation as the leading factor, data elements as the core, and green and low-carbon development as the direction, emerging productive forces have become an important force to break through development bottlenecks and reshape competitive advantages. As the "late-developing sector" of China's economic development, Western China has rich natural resources and strategic development space. However, it has long faced problems such as a traditional industrial structure, weak scientific and technological innovation capabilities, and a shortage of high-quality talents, which brings many challenges to the cultivation and implementation of emerging productive forces.

As the core carrier of "talent training, scientific and technological innovation, and knowledge dissemination", education is the "fundamental support" for the development of emerging productive forces. On the one hand, through cultivating talents with innovative thinking, digital skills, and the concept of green development, education provides a "human core" for emerging productive forces. On the other hand, education (especially higher education and vocational education) directly promotes the transformation of scientific and technological achievements through the collaborative innovation of industry, university, and research, injecting "technological momentum" into emerging productive forces. Therefore, exploring the feasibility of "promoting emerging productive forces to take root in the west with education as support" not only conforms to the national strategies of "Western Development" and "Education Power", but also provides a key breakthrough for the high-quality development of Western China.

2.0 Internal Logic of Education Supporting Emerging Productive Forces to Take Root in Western China

The core feature of emerging productive forces is "newness" – new technology, new models, and new elements. The realization of these "new" aspects depends actually on "human innovation capabilities" and "knowledge transformation efficiency", which are exactly the core functions of education. The supporting role of education in emerging productive forces forms a closed loop through three dimensions.

2.1 Talent Supply Dimension

The development of emerging productive forces requires "suitable talents", such as big data analysts and artificial intelligence engineers in the digital economy field, new energy technology researchers and low-carbon managers in the green economy field, and smart agricultural technicians in the modern agricultural field. The traditional education system in Western China mostly focuses on the training of talents in basic disciplines and traditional industries, which has a "supply-demand mismatch" with the needs of emerging productive forces. By optimizing the education structure – higher education strengthens the construction of new engineering, new medical science, new agricultural science, and new liberal arts; vocational education focuses on skill training for regional characteristic emerging industries; basic education integrates innovative thinking and digital literacy cultivation – a full-chain talent

supply system "from basic training to high-end research and development" can be built, providing "human support" for emerging productive forces to take root in the west.

2.2 Scientific and Technological Innovation Dimension

The core driving force of emerging productive forces is scientific and technological innovation, and universities and research institutions are the "main positions" of scientific and technological innovation. Western China has a number of universities with strong scientific research capabilities, such as Lanzhou University, Xi'an Jiaotong University, and Southwest Jiaotong University, which have formed certain research advantages in the fields of new materials, new energy, and ecological environmental protection. Through the "innovation-oriented reform" of the education system – encouraging universities to set up interdisciplinary laboratories related to emerging productive forces, supporting teachers to carry out joint technical research with enterprises, and promoting students to participate in innovation and entrepreneurship projects – the "scientific research advantages" of universities can be transformed into "industrial advantages". This solves the problem of "low local transformation rate of scientific and technological achievements" in Western China and provides "technological support" for emerging productive forces.

2.3 Factor Activation Dimension

The development of emerging productive forces is inseparable from the coordination of factors such as data, technology, and capital, and education is the "link for factor integration". On the one hand, by cultivating talents in data processing and digital modeling, education promotes the application of "data elements" in traditional industries (such as agriculture, energy, and manufacturing) in the west, realizing the digital transformation of industries. On the other hand, through industry-university-research cooperation platforms, educational institutions attract external capital and advanced technology to gather in the west. For example, they jointly build training bases with high-tech enterprises in the east and introduce leading enterprises in the industry to participate in curriculum design, forming a positive cycle of "education - talent - industry - capital" and providing "factor support" for emerging productive forces to take root.

3.0 Practical Foundation of Education Supporting Emerging Productive Forces to Take Root in Western China

3.1 Continuous Optimization of Education Scale and Structure, Laying the Foundation for Talent Supply

In recent years, the state has attached great importance to the development of education in Western China. Through policies such as the "Western Higher Education Revitalization Plan" and the "East-West Cooperation Plan for Vocational Education", it has promoted the expansion of educational resources and structural upgrading in the west. By 2023, the number of colleges and universities in Western China had reached 782, accounting for 28.3% of the national total. Among them, there are 27 "Double First-Class" construction universities, which have formed characteristic discipline clusters in the fields of new materials, new energy, and information technology. The number of vocational colleges exceeds 1,200, and some colleges have set up majors around regional emerging industries such as "photovoltaic industry", "smart agriculture", and "cross-border e-commerce". For example, the Photovoltaic Engineering Technology major of Ningxia Vocational and Technical College and the Smart Agriculture major of Sichuan Agricultural University have cultivated a number of skilled talents suitable for the needs of local industries. The expansion of education scale and the optimization of structure provide a supply guarantee for the "multi-level talents" needed by emerging productive forces.

3.2 Gradual Advancement of Industry-Education Integration Pilots, Initial Achievements in Scientific and Technological Innovation Transformation

To solve the problem of "disconnection between education and industry", many places in Western China have carried out industry-education integration pilots. For example, centered on Xi'an High-tech Zone, Shaanxi Province has promoted Xi'an Jiaotong University, Northwestern Polytechnical University to jointly build the "Integrated Circuit Industry College" and "New Energy Vehicle Research Institute" with enterprises such as Huawei and BYD. In 2023, relevant cooperation projects have achieved more than 120 technological transformations, driving the output value of the regional new energy vehicle industry to increase by 18%. Relying on the advantage of "China's Data Valley", Guizhou Province has promoted Guizhou University and Guiyang Vocational and Technical College to cooperate with enterprises such as Tencent and Alibaba, setting up majors such as big data technology and cloud computing technology application. The cultivated talents directly serve the local digital economy industry. In 2023, the added value of Guizhou's core digital economy industry accounted for 9.2% of GDP, 0.3 percentage points higher than the national average These pilot cases show that through the coordination of education and industry, Western China has initially formed a chain of "scientific and technological innovation - achievement transformation - industrial upgrading", providing practical experience for emerging productive forces to take root.

3.3 Continuous Release of Policy Dividends, Providing Guarantee for the Integration of Education and Emerging Productive Forces

At the national level, the "14th Five-Year Plan for Western Development" clearly proposes to "strengthen the supporting role of education in emerging productive forces and promote the connection between colleges, vocational

colleges and emerging industries". The "Outline of the Construction Plan for an Education Power" also lists "innovative development of education in the west" as a key task, and proposes to increase investment in the construction of new engineering and new agricultural science in the west. At the local level, provinces (autonomous regions and municipalities) in Western China have also issued supporting policies: Sichuan Province proposes to "build 10 provincial-level industry-education integration bases for emerging productive forces"; Gansu Province launches the "Special Plan for Talent Training in the New Energy Industry"; Yunnan Province clearly states that "the coverage rate of emerging industry majors in vocational colleges will reach 80% by 2025". The continuous release of policy dividends provides an institutional guarantee for the agglomeration of educational resources in the field of emerging productive forces and reduces the "institutional cost" of education supporting the development of emerging productive forces.

4.0 Challenges of Education Supporting Emerging Productive Forces to Take Root in Western China

4.1 Difficulties in "Attracting, Cultivating, Retaining and Using" High-End Talents, and the Quality of Talent Supply Needs to Be Improved

On the one hand, there is a gap between the economic development level and living facilities in Western China and those in Eastern China, making it difficult to "attract" high-end innovative talents (such as academicians, discipline leaders, and core technology researchers). On the other hand, the high-quality talents cultivated by local universities are "seriously lost". According to the "2023 China Talent Flow Report", the proportion of college graduates in Western China who stay in the local area for employment is only 45%, and the loss rate of graduates majoring in science and engineering and digital economy exceeds 60%. The situation that talents "cannot be attracted or retained" leads to a shortage of "high-end innovative talents" needed by emerging productive forces, restricting the speed of scientific and technological innovation and industrial upgrading.

4.2 "Supply-Demand Mismatch" Between Education and Industry Still Exists, and the Coordination Efficiency Needs to Be Improved

Many universities in the west still have a tendency of "emphasizing theory over practice", and the curriculum setting is disconnected from the needs of emerging industries. For example, the artificial intelligence major in some universities still focuses on traditional computer courses, lacking practical teaching content such as big data modeling and intelligent algorithm application. The construction of training bases in vocational colleges is lagging behind, and the training equipment for some majors such as new energy and intelligent manufacturing is not updated in time, resulting in the need for "secondary training" for students after graduation before they can take up jobs. In addition, industry-university-research cooperation mostly stays in "superficial cooperation" (such as signing cooperation agreements and holding lectures), and lacks "in-depth collaboration" (such as joint research and development and co-construction of industry colleges). The transformation efficiency of scientific and technological achievements is low, and the "supporting role" of education in the industry has not been fully exerted.

4.3 Unbalanced Distribution of Educational Resources, Weak Supporting Capacity in County and Rural Area

Educational resources in Western China are mostly concentrated in provincial capitals and central cities, while educational resources in county and rural areas are weak. For example, 80% of Gansu Province's higher education resources are concentrated in Lanzhou, and the number of county-level vocational colleges accounts for only 25% of the province. The coverage rate of digital teaching equipment in primary and secondary schools in rural areas of Yunnan Province is less than 60%, and the foundation for students' digital literacy cultivation is weak . The development of emerging productive forces not only requires the "core engine" of central cities, but also needs the "coordinated support" of county economies (such as rural digital economy and the upgrading of county characteristic industries). However, the weak educational support capacity in county and rural areas brings obstacles to the "comprehensive rooting" of emerging productive forces in the west.

5.0 Conclusion

The rooting of emerging productive forces in Western China is an inevitable choice for Western China to achieve high-quality development. As the core carrier of "talent training, scientific and technological innovation, and factor integration", education has the internal logic and practical foundation to support the rooting of emerging productive forces. The optimization of education scale provides a guarantee for talent supply, the industry-education integration pilots accumulate practical experience, and the release of policy dividends creates a good environment. Although facing challenges such as the shortage of high-end talents, insufficient industry-education coordination, and unbalanced resource distribution, these challenges can be effectively solved by building an integrated talent mechanism of "attracting, cultivating, retaining and using", deepening the integration of industry and education, promoting the balanced allocation of resources, and improving the policy guarantee system.

In conclusion, "promoting emerging productive forces to take root in the west with education as support" is feasible. This path can not only solve the development bottlenecks of Western China, but also provide a "western new plan" for China's regional coordinated development and the construction of an education power.

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