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PATHWAYS TO REGIONAL COORDINATED DEVELOPMENT FROM THE PERSPECTIVE OF EMERGING PRODUCTIVE FORCES

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Abstract: This study aims to explore the mechanisms and pathways through which new-quality productivity (NQP) drives regional coordinated development. By systematically reviewing existing literature and analyzing case studies, this paper delves into the contributions of NQP to regional economic development, particularly in terms of technological innovation, industrial structure optimization, and balanced factor mobility. The results indicate that NQP, with its efficient resource utilization and innovation-driven characteristics, effectively promotes the transformation and upgrading of traditional industries within regions and narrows development gaps between regions by facilitating the cross-regional flow of factors. The study concludes that the promotion of NQP requires not only policy support and infrastructure development but also the formulation of tailored development strategies based on regional characteristics to achieve coordinated and sustainable regional economic development.
Keywords: New-quality productivity; Regional coordinated development; Industrial structure optimization

1 INTRODUCTION

Regional coordinated development serves as a key foundation for high-quality development, an essential component of achieving common prosperity, and a critical factor in advancing Chinese-style modernization. Since the 18th National Congress, China has actively pursued a regional coordinated development strategy. Anchored in six major regional strategies and supported by four major regional clusters, this approach has shaped a new pattern of high-quality development characterized by regional synergy. A significant objective outlined during the 20th National Congress is to advance regional coordinated development. In his report, the Chinese President highlighted the importance of promoting regional coordination by deeply implementing regional development strategies, major regional initiatives, functional zoning strategies, and new urbanization strategies, as well as optimizing the distribution of major productive forces to build a complementary, high-quality regional economic and spatial system.

Since the concept of NQP was mentioned twice during the Chinese President's inspection in Northeast China in September 2023, research on NQP has been on the rise. However, existing studies mostly focus on internal development within single economies or productivity improvements in specific industries, with limited attention to the specific mechanisms and pathways of NQP in regional coordinated development [1]. With increasing demands for quality development across regions, it has become a research hotspot to examine how NQP can drive regional coordination through technological progress, industrial structure optimization, and rational allocation of human resources. In March 2024, the Chinese President proposed "developing NQP according to local conditions," making the understanding and implementation of this approach an important direction for the next phase of regional and industrial economic development in China.

NQP, as a fundamental outcome of breakthrough technological innovations and cross-disciplinary integration, possesses two dimensions: sustainable and leapfrogging drives. It is pivotal for less-developed regions to catch up and surpass. While developing NQP brings new opportunities for regional economic coordination, it also poses new challenges. The critical question that urgently needs answering is how to develop NQP without exacerbating regional disparities and promote regional economic coordination by optimizing the layout of NQP.

This paper explores the application and impact mechanisms of NQP in regional economic development to provide theoretical support for new models of regional coordinated development. First, it reviews the literature to summarize the basic concept and development trends of NQP and analyze its potential for regional economic integration. Next, it theoretically investigates the mechanisms through which NQP influences regional coordinated development and uses case studies to examine the practical effects and lessons of NQP across different regions. Finally, based on research findings, it proposes policy recommendations to provide feasible pathways for regions with varying levels of development to leverage NQP for coordinated development. Through these analyses, this study aims to offer policymakers, enterprises, and research institutions effective strategies for the application of NQP in regional coordination.

2 LITERATURE REVIEW

2.1 New-Quality Productivity and Balanced Factor Mobility

Existing studies indicate that NQP is characterized by its efficient resource integration capabilities and low environmental burden. By leveraging technological innovation and information technology, NQP enhances productivity while reducing resource consumption. Research highlights that the introduction of advanced information technologies

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and management models enables NQP to optimize production processes while increasing product value, thereby having a profound impact on sustainable regional economic development [2].

Notably, NQP is highly innovative. It not only relies on traditional production factors but also emphasizes the use of knowledge, data, and managerial innovation, which collectively drive the intelligent transformation of regional economies. Meanwhile, regional coordinated development is a focal point for governments and scholars worldwide. Originating from regional economics, this concept refers to the balanced economic development across regions through the rational allocation and effective utilization of resources within and beyond regions. Regional coordination does not imply complete homogeneity in regional development; rather, it stresses mutual complementarity and promotion of economic activities based on reasonable resource and industrial distribution, achieving overall balance and synergy [3].

Classical regional development theories, such as growth pole theory, location theory, and regional innovation systems, provide a theoretical foundation for understanding the mechanisms of regional coordination [4]. These theories generally suggest that through industrial clustering, regional specialization, and technological innovation, regions can achieve mutual benefits and resource sharing, thus improving overall economic efficiency and mitigating regional imbalances [5].

2.2 New-Quality Productivity and Industrial Structure Optimization

Recent years have witnessed growing interest in the impact of NQP on regional coordinated development, prompting scholars to conduct multi-dimensional research. First, NQP plays a vital role in upgrading regional industrial structures [6]. Literature shows that as NQP advances, traditional industries within regions gain access to technological support and innovation resources, facilitating the extension of industrial chains and optimization of value chains [7].

For instance, studies highlight how NQP, through data-driven insights and intelligent manufacturing, accelerates the transformation of the manufacturing sector, further driving industrial renewal. This transformation not only improves production efficiency but also fosters the emergence and growth of new industries, injecting fresh impetus into regional economies. Particularly in high-tech industrial clusters, the application of NQP promotes specialization and resource integration, tightening internal and external economic linkages.

2.3 New-Quality Productivity and Technological Innovation

Many scholars have examined how NQP fosters synergistic effects in regional coordinated development [8]. For example, cross-regional collaboration is critical to unlocking the value of NQP. By enabling the cross-regional flow of innovation and technological resources, regions can share complementary resources and promote collective development. This process hinges on the establishment of intra- and inter-regional cooperation mechanisms, such as industrial clusters and regionally linked science parks, to facilitate the rapid circulation and rational allocation of innovative resources.

Studies reveal that cross-regional collaboration breaks down geographical barriers, promotes interregional knowledge exchange, reduces technological barriers, and offers underdeveloped regions innovation-driven development opportunities. In nations with uneven economic development, regional cooperation can leverage the linkage effects of NQP to promote balanced development across regions [9]. This is analogous to the synergistic effects observed in medical treatments involving combinations of drugs: by optimizing resource allocation and mechanisms, the overall therapeutic outcomes improve. Similar synergies apply in regional coordinated development, especially in underdeveloped regions where resource sharing catalyzes transformative growth [10].

Nevertheless, gaps remain in the current research on the relationship between NQP and regional coordinated development. First, most studies focus on case analyses of single regions or industries, lacking generalizable theoretical models. For instance, the outcomes of NQP applications may vary depending on regional characteristics and policy environments, necessitating comparative studies across regions to identify differentiated pathways for realizing the value of NQP.

Second, insufficient attention has been given to the intrinsic driving mechanisms of NQP. How NQP spreads across regions through specific industrial chains, as well as the potential obstacles in this diffusion, remain underexplored both theoretically and empirically.

Third, the role of policy support in facilitating NQP's contribution to regional coordinated development has not been systematically addressed. The expansion and application of NQP depend on supportive policies, such as infrastructure development, incentives for technological innovation, and talent cultivation. However, existing studies lack a comprehensive examination of the role of policy measures in NQP diffusion.

Lastly, there is limited research on how to develop NQP according to local conditions while avoiding the exacerbation of regional disparities. Most studies rely on qualitative analysis, with insufficient quantitative research to test whether the proposed theoretical approaches are suitable for specific regions' coordinated development.

3 THEORETICAL ANALYSIS

NQP profoundly impacts regional economic development through various pathways, including technological innovation, resource integration, and industrial structure optimization. Within the context of regional coordinated development, the mechanisms of NQP's influence are reflected in the following aspects:

3.1 NQP Drives High-Quality Growth in Regional Economies through Technological Innovation

In traditional production models, regional development is often constrained by resources, capital, and labor inputs. This limitation is particularly evident in resource-scarce or underdeveloped regions. The emergence of NQP changes this scenario by placing technological innovation at its core. Through the integrated application of advanced technologies such as big data, artificial intelligence, and the Internet of Things, NQP enhances resource utilization efficiency and production effectiveness.

Technological innovation not only directly improves the production efficiency of regional enterprises but also strengthens their market competitiveness, enabling them to gain an edge in regional competition. Additionally, the introduction and dissemination of new technologies allow different regions to integrate production resources more effectively, achieving a rational distribution of economic activities and efficient resource utilization. This dynamic interaction is akin to the interdependence of elements in a complex system. For example, scholars have applied traditional Chinese medicine theories to study the multidimensional representation and intrinsic connections of digestive ulcers, providing insights for understanding the collaborative relationships among economic activities across regions [11].

3.2 NQP Optimizes Regional Industrial Structures and Enhances Collaborative Development Capabilities

In regional coordinated development, optimizing the industrial structure is a crucial prerequisite for achieving high-quality economic growth. NQP facilitates the transformation and upgrading of traditional industries, making them more technologically advanced and competitive.

For instance, under the influence of NQP, the manufacturing industry is transitioning towards intelligent manufacturing. By incorporating smart technologies and automation equipment, production efficiency and product quality improve while costs decrease. Simultaneously, NQP supports the emergence of new industries, such as high-tech industries, green industries, and modern service industries, which are becoming increasingly prominent in regional economies.

This restructuring and optimization of the industrial structure enable greater synergy in internal and external regional economies. Resources can be shared, and comparative advantages can be realized on a larger scale. Just as karyotype analysis reveals how subtle genetic changes can profoundly impact overall function, the application of NQP in regions must consider localized characteristics to formulate more targeted strategies [12].

3.3 NQP Facilitates the Flow and Balanced Distribution of Factors across Regions

One of the core elements of regional coordinated development is the rational allocation and mobility of factors, including capital, technology, and labor. NQP enhances factor mobility and sharing by breaking geographical constraints, allowing resources, technology, and management expertise from developed regions to reach underdeveloped areas and reduce regional disparities.

For example, the widespread adoption of the digital economy enables enterprises in remote areas to access market information and technological resources from developed regions, improving their production capacity and competitiveness. Additionally, NQP fosters talent mobility between regions, attracting and cultivating skilled professionals to strengthen regional innovation capabilities and development potential.

NQP also contributes to the establishment of regional innovation ecosystems, which are crucial for regional innovation activities. Through the sharing of technological resources, policy support, and inter-enterprise collaboration, dynamic innovation networks are formed. NQP provides the technical and data foundation for these ecosystems, enabling more effective cooperation and resource sharing among enterprises, research institutions, and government entities within regions.

3.4 NQP Benefits from Policy-Oriented Advantages in Regional Coordinated Development

To promote the diffusion and development of NQP, governments at various levels are increasingly emphasizing support for technological innovation in regional coordinated development policies. This includes measures such as innovation funds, tax incentives, and infrastructure development to encourage the dissemination and application of NQP across regions.

Policy support not only accelerates the adoption of NQP in the short term but also ensures long-term collaboration and innovation activities across regions. For instance, policies designed to support innovative enterprises and research institutions can effectively incentivize innovation investment, fostering scientific and technological collaboration within and beyond regions. Moreover, governmental support in infrastructure development reduces the costs associated with factor mobility, providing essential conditions for regional coordination.

In summary, NQP positively impacts regional economies through technological innovation, industrial structure optimization, factor mobility, innovation ecosystem construction, and policy support. Its pathways for promoting regional coordinated development encompass not only the optimization of economic activities but also collaborative innovation and resource sharing across regions. By deeply understanding the mechanisms of NQP, regions can formulate tailored development strategies based on their unique characteristics, achieving effective resource allocation and complementary advantages to drive coordinated and balanced regional development.

4 CASE ANALYSIS

Guangdong Province, as a major economic powerhouse in China, has actively explored and practiced promoting regional coordinated development through NQP.

4.1 Practices in Shenzhen and Surrounding Areas

Shenzhen and its surrounding areas have achieved remarkable results in leveraging NQP to foster regional coordinated development. For instance, the "enclave economy" model between Pingshan and Lufeng employs strategies such as "headquarters + base," "R&D + production," and "production + services" to extend the "industrial chain +" across regions. This approach guides enterprises to expand capacity and deploy projects in Lufeng, optimizing resource allocation and fostering industrial collaboration between regions.

For example, high-tech enterprises in Pingshan have relocated production processes to Lufeng, taking advantage of the latter's land and labor resources to reduce production costs while bringing advanced technologies and management expertise to Lufeng. This initiative has contributed to industrial upgrading and development in Lufeng.

Similarly, the Shenzhen-Shantou Special Cooperation Zone serves as another exemplary case of regional coordinated development driven by NQP. Located at the easternmost edge of the Guangdong-Hong Kong-Macao Greater Bay Area, the zone capitalizes on its geographic advantage of "land-sea linkage and east-west connection." With the new energy vehicle industry as its core, the cooperation zone actively cultivates NQP. By attracting leading companies such as BYD, it has spurred the development of the new energy vehicle industry chain and established a modern industrial system featuring "one core and three auxiliaries," comprising new energy vehicles as the primary industry, supplemented by new energy storage, new materials, and intelligent manufacturing.

Moreover, the cooperation zone emphasizes infrastructure development and improvements in public amenities, achieving the integration of industry and city development to support regional coordination.

4.2 Multifaceted Innovations

In talent services, Guangzhou has introduced favorable policies to attract high-level talent and innovative teams. For instance, Nansha District has implemented the "Nansha Talent Card," providing preferential policies and convenient services in areas such as housing, healthcare, and children's education.

Additionally, Guangzhou strengthens talent cooperation with surrounding cities to build a regional talent hub and promote the flow of talent and the sharing of innovation resources across regions. The cooperation zone continually drives industrial innovation, advances new industrialization, and improves total factor productivity. Each phase reflects a commitment to innovation, characterized by:

The approach emphasizes continuous innovation by introducing new industrial concepts and technologies, maintaining a steadfast commitment to high-quality development, and leveraging advanced productivity as a driving force to accelerate regional economic growth.

4.3 Exploring New Technologies and Models to Enhance Soil Resource Utilization

Environmental protection departments in Guangzhou, in collaboration with research institutions, have conducted studies on soil remediation technologies. Through the application of methods such as bioremediation and chemical remediation, they have treated and restored contaminated soil to a usable state. Simultaneously, Guangzhou has strengthened soil resource management and protection, establishing a comprehensive soil environment monitoring system to ensure sustainable use of soil resources.

In conclusion, various regions in Guangdong Province have undertaken active exploration and practices in promoting regional coordinated development through NQP, achieving significant results. These practices provide valuable experiences and lessons for other regions, contributing to advancing regional coordination in China to a higher level.

5 CONCLUSION

Through a systematic analysis of the mechanisms by which NQP contributes to regional coordinated development, the following key conclusions can be drawn:

5.1 NQP Facilitates Economic Balance Among Regions

Driven by technological innovation, NQP enhances production efficiency and optimizes resource allocation, playing a vital role in promoting high-quality regional economic development. Unlike traditional resource-intensive productivity, NQP emphasizes sustainability and innovation, enabling it to contribute to economic balance among regions. While strengthening industrial competitiveness in developed areas, it also creates opportunities for underdeveloped regions to catch up, narrowing economic disparities between regions.

5.2 NQP Provides a Solid Foundation for Regional Coordinated Development

NQP effectively drives the transformation and upgrading of regional industrial structures, laying a robust foundation for coordinated development. Traditional industries are gradually transitioning towards intelligent and high-value-added directions, while emerging industries are rapidly growing and expanding. This restructuring and optimization of industrial structures enhance the collaborative effects of economic activities within and across regions. Each region can leverage its own resource advantages while achieving complementary benefits through cross-regional industrial cooperation.

5.3 NQP Promotes Balanced Factor Mobility and Distribution Across Regions

By leveraging digital platforms, intelligent management systems, and innovative production models, NQP breaks geographical constraints, enabling the free flow of technology, capital, and labor across regions. The digital economy, in particular, helps remote and underdeveloped regions connect to global markets and access innovation resources, improving resource allocation and enhancing regional competitiveness and sustainability.

5.4 NQP Development Relies on Government Policy Support

The diffusion and application of NQP are closely linked to government policies. Policies that incentivize innovation, improve infrastructure, and promote technological collaboration play a pivotal role in supporting the spread of NQP. These measures not only reduce the costs associated with NQP adoption but also create favorable conditions for scientific and technological cooperation within and across regions. Under the guidance of regional coordinated development strategies, policy support has proven effective in reducing regional disparities and enhancing the development levels of underdeveloped areas.

Based on the above conclusions, this paper suggests that governments should strengthen support for new-quality productivity (NQP), especially in underdeveloped regions, through funding, tax incentives, and talent recruitment to accelerate its adoption and mitigate regional disparities. Policies should also promote regional industrial collaboration by encouraging enterprises in developed areas to transfer industries or provide technological support to underdeveloped regions, fostering specialization and cooperation. Furthermore, priority should be given to improving regional infrastructure, particularly digital and information technology infrastructure, to facilitate the seamless mobility of NQP across regions. Finally, policymakers should tailor strategies to account for regional differences and specific needs, ensuring that NQP applications yield optimal outcomes in diverse contexts.

Despite its contributions, this study has certain limitations. First, the pathways for promoting NQP may differ across regions due to variations in resource endowments, economic development levels, and industrial structures. Future research could focus on comparative regional analyses to identify effective pathways suited to specific regional contexts. Second, the analysis in this study is primarily based on existing literature and theoretical models, lacking empirical data support. Future studies could incorporate data-driven and case study approaches to validate the actual impacts of NQP on regional coordinated development.

Lastly, this paper does not delve deeply into the specific mechanisms of policy support for NQP. Future research should further explore the critical roles of policies in facilitating the expansion and application of NQP.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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