Knowledge Graph-Based Research on Domestic High-Quality Development Postprint

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Abstract

A macro-level review of the research status and hotspots of high-quality development in China in recent years can provide insights for future exploration in this field. The study employs the visualization software CiteSpace and adopts bibliometric methods. The findings indicate that: the number of research publications on high-quality development has shown a rapid upward trend in recent years; the disciplinary distribution exhibits strong economic attributes; important dissemination outlets include Reform, Economic Research Journal, China Industrial Economics, and Journal of Quantitative & Technological Economics; the author collaboration network is loosely structured; and scholars Jin Bei and Ren Baoping exert relatively substantial influence. The study also reveals that the main research hotspots in domestic high-quality development research in recent years primarily encompass the connotation of high-quality development, total factor productivity, innovation-driven development, and the Yellow River Basin. Finally, this paper forecasts future research directions.

Full Text

Preamble

Research on Domestic High-Quality Development Based on Knowledge Graphs

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Abstract: A macro-level review of the current state and hotspots of high-quality development research in China in recent years can provide inspiration for future exploration in this field. This study employs the visualization software CiteSpace and adopts bibliometric methods. The findings indicate that the number of publications on high-quality development has risen rapidly in recent

years; the disciplinary distribution shows strong economics attributes; important dissemination channels include *Reform*, *Economic Research Journal*, *China Industrial Economics*, and *Journal of Quantitative & Technical Economics*; the author collaboration network is loose; and scholars Jin Bei and Ren Baoping exert significant influence. The study also reveals that the main research hotspots in domestic high-quality development in recent years include the connotation of high-quality development, total factor productivity, innovation-driven development, and the Yellow River Basin. Finally, this paper predicts future research directions.

Keywords: high-quality development; scientific knowledge graph; dissemination channels; innovation-driven; research hotspots

1. Research Data Overview

As shown in Table , the search keywords selected were "high-quality development"or "economic high-quality development,"as these terms are interchangeable in meaning. The publication time was set to the default of all periods, but the search results showed that the literature publication period ranged from 2017 to 2020, which closely relates to the fact that the 19th Party Congress first introduced the new concept of "high-quality development." The temporal distribution of the literature indicates that the overall volume of publications has shown a rapid growth trend, demonstrating that domestic academic research trends closely follow national policy directions in recent years. The growth rate slowed between 2019 and 2020, which may be related to the slow update speed of the CSSCI database that has not yet fully included 2020 literature, but this does not affect the judgment of future publication trends. The disciplinary distribution of the literature exhibits strong economics attributes, though interdisciplinary research represents a future trend. With the arrival of a new development stage, the implementation of new development concepts, and the construction of a new development pattern, academic interest in high-quality development will continue to rise.

2. Analysis of Important Dissemination Channels for Research Literature

Academic journals constitute the most widely influential dissemination channels for research literature. The number of articles published in a journal most intuitively reflects its influence in disseminating academic knowledge. According to Bradford' s Law, journals can be divided into core zones, related zones, and non-related zones when arranged by the number of published articles from most to least. The method for calculating the number of articles in core zone journals is: $R_0 = 2\ln(eE \cdot Y)$, where R_0 represents the number of core zone journals, E is Euler' s coefficient (0.5772), and Y is the number of articles published in the most productive journal. Based on the data, *Reform* magazine published

the most articles (43). Substituting Y = 43 into the formula yields R_0 8.68. Accordingly, it can be approximated that the top 10 journals are all in the core zone. Statistics show that these top 10 journals, as presented in Table , published a total of 308 articles, accounting for approximately 33% of the total literature. When measuring journal importance, publication volume must be considered alongside citation frequency and betweenness centrality. Co-citation frequency reflects the reference value of the publishing journal in researchers' work. Betweenness centrality is another metric for measuring the importance of nodes in a knowledge graph, where nodes with betweenness centrality ≥ 0.1 have darker outer rings in Figure [Figure 1: see original paper], and high betweenness centrality typically indicates that a node serves as a critical hub connecting two different research fields.

According to Table and Figure [Figure 1: see original paper], when considering at least two of the three indicators—publication volume, co-citation frequency, and betweenness centrality—*Reform* demonstrates both high publication volume and high co-citation frequency. Journals including *Economic Research Journal*, *China Industrial Economics*, *Journal of Quantitative & Technical Economics*, *China Soft Science*, *Economic Perspectives*, and *American Economic Review* exhibit both high co-citation frequency and high betweenness centrality. *Shanghai Journal of Economics* and *Economic Issues* show both high publication volume and high betweenness centrality. Therefore, it can be determined that *Reform*, *Economic Research Journal*, *China Industrial Economics*, *Journal of Quantitative & Technical Economics*, *China Soft Science*, *Economic Perspectives*, *American Economic Review*, *Shanghai Journal of Economics*, and *Economic Issues* constitute important platforms for intellectual exchange among scholars in the high-quality development research field and serve as crucial dissemination channels for domestic high-quality development literature.

3. Analysis of Author Collaboration in Research Literature

As shown in Figure [Figure 2: see original paper], the author collaboration network in domestic high-quality development research is relatively loose with low collaboration rates. The more closely collaborating authors include: Ren Baoping, Shi Bo, Guo Han, and Song Xuechun; Xia Jiechang and Xiao Yu; Shen Kunrong and Zhao Qian; Shi Dan, Li Peng, and Xu Ming; Yang Yongchun, Mu Yanjie, and Zhang Wei; and Huang Haiyan, Xu Kaijuan, and Ren Bo. Many scholars complete papers independently, with few instances of collaboration among two or more authors. This indicates that multiple dense author collaboration groups have not yet formed in the domestic high-quality development research field.

4. Analysis of Highly Influential Authors

The emergence and dissemination of important literature cannot be separated from the contributions of influential scholars. Author co-citation and litera-

ture co-citation maps can reflect a scholar' s publication quality and thus their academic influence and status. According to Figure [Figure 3: see original paper], authors with both high co-citation frequency and centrality include Ren Baoping, Jin Bei, Liu Zhibiao, Shi Bo, and Chao Xiaojing. Professor Ren Baoping has produced numerous achievements in economic high-quality development research, such as annually publishing the *China Economic Growth Quality Development Report*, hosting multiple National Social Science Fund projects, and publishing in prestigious academic journals, demonstrating significant academic influence. Professor Ren has also cultivated a group of outstanding scholars, including Professor Chao Xiaojing, who has made substantial contributions to the field. Professor Shi Bo skillfully studies Chinese economic growth quality from the perspectives of energy efficiency, energy resource endowment, and energy intensity, representing an important young scholar in economic high-quality development research. Professor Jin Bei has long been engaged in industrial economics research, having presided over the compilation of the *China Industrial Development Report* (1996–2013) and *Made in China 2025*. His paper "An Economic Study on 'High-Quality Development' " has high download and citation rates, with notably influential theoretical contributions.

According to Figure [Figure 4: see original paper], authors of important literature include Jin Bei, Ren Baoping, Wei Min, He Xiaoyu, and Ma Ru. Considering both author co-citation and literature co-citation maps, this study finds that Jin Bei and Ren Baoping exert relatively greater influence. Professors Ren Baoping, Chao Xiaojing, and Shi Bo all belong to the School of Economics and Management at Northwest University, indicating that this institution represents an important base for high-quality development research.

5. Analysis of Research Hotspots

Keywords provide a high-level summary of literature themes and help readers quickly grasp authors' research focuses. Based on Figure [Figure 5: see original paper] and Table , combined with relevant literature review, this paper summarizes the main research hotspots in domestic high-quality development as: the connotation of high-quality development; total factor productivity; innovation-driven development; and the Yellow River Basin.

5.1 The Connotation of High-Quality Development

No consensus has been reached in domestic academia regarding the definition of high-quality development. The main research perspectives include: First, the Marxist political economics perspective. Jin Bei argues that observing the transition from high-speed growth to high-quality development through the lens of the dual character of commodities in market economies means shifting the goal and dynamic mechanism of economic operation from primarily focusing on the quantitative increase of products calculated in exchange economy (monetary units) to emphasizing the use value and quality desirability of products and economic activities. Ren Baoping profoundly interprets the theoretical logic

of high-quality development by analyzing the labor theory of quality, the relationship between quality and use value, quality and value, quality circular reproduction, quality of productive forces, and quality of foreign trade. Second, the new development concept perspective. Shi Bo et al. believe that high-quality development aligns with the five major development concepts, summarizing its connotation as: economic development with stable growth and rational structure that can produce eco-friendly and society-friendly development outcomes, ultimately serving the construction of a modern socialist strong country and the comprehensive development of individuals. Zhang Tao and Yao Huiqin point out that the new development concept constitutes the essence of high-quality development, with innovation at the core of national development, coordination as the key to addressing imbalances, green development as a profound interpretation of the basic national policy of resource conservation and environmental protection, openness focusing on solving internal-external development linkage issues, and sharing conforming to the essential requirement of common prosperity. Third, the relationship between quantity and quality perspective. Zhang Junfu et al. believe that high-quality development represents the unity of quantity and quality, where quantity forms the foundation—without quantity, quality becomes water without a source. Hu Angang et al. note that high-quality development is an economic form following the historical transition from quantitative expansion to quality improvement, conforming to the dialectical materialist logic of quantitative-qualitative change, the classical economics logic of equal emphasis on quality and quantity, and the logic of quantity-before-quality for latecomer countries. Some scholars have also interpreted high-quality development from macro, meso, and micro comparative perspectives, such as Wang Yiming and Zhao Jianbo et al.

5.2 Total Factor Productivity

Total factor productivity, also known as the "Solow residual," is a key indicator for testing whether high-quality development has been achieved. Research in this area has examined influencing factors and improvement methods. Jiang Zhu et al. investigated the impacts of economic system reform, technology introduction, opening-up, independent innovation, and infrastructure, recommending transformation of the economic development model with greater emphasis on independent innovation, strengthening infrastructure practicality, releasing dividends from key institutional reforms, and enhancing technology introduction and opening-up. Li Ping et al. systematically examined technological change, technical efficiency improvement, and industrial structure transformation, proposing policy recommendations from three aspects: accelerating technological innovation, helping enterprises improve quality and efficiency, and guiding industrial structure transformation. Hong Yinxing recognized the importance of human capital factors, advocating for cultivating entrepreneurial human capital, promoting talent introduction and mobility, and improving worker quality and skills. Some scholars have also studied green total factor productivity.

5.3 Innovation-Driven Development

In 1912, Schumpeter first proposed innovation theory and studied innovation as an independent variable affecting economic development. Domestic research on innovation-driven development for high-quality development includes: First, the mechanism of innovation-driven high-quality development. Lan Leqin et al. categorize the driving mechanisms into factor allocation transformation, evolution differences, global factor division evolution logic, and opportunity windows and regional strategic choices. Gao Bo studied the mechanisms through which technological, industrial, market, institutional, and cultural innovation drive consumption-led economic growth. Liu Siming et al. explored the synergistic innovation-driven mechanism of technology and institutions. Second, the effect of innovation-driven development on industrial structure upgrading. Wang Xiyuan studied this effect from the perspectives of marketization, government support, technology market development, financial development, and intellectual property protection. Zheng Wei et al. used spatial Durbin models to empirically test the spatial spillover effects of innovation-driven development on industrial structure upgrading. Third, the path of innovation-driven high-quality development. Scholars have explored this issue from perspectives including deepening capital market reform, leading core technology breakthroughs, and new Schumpeterian growth theory.

5.4 The Yellow River Basin

The ecological protection and high-quality development of the Yellow River Basin constitute an important component of China' s economic high-quality development. Some scholars propose constructing a strategic support system for Yellow River Basin high-quality development, covering strategic planning support, legal system support, spatial control support, and institutional mechanism support. Others categorize future spatial governance models for the Yellow River Basin into three types: classified governance, systematic governance, and collaborative governance, suggesting improvements to the basin division of labor system and policy system. Additional scholars indicate that to advance the Yellow River Basin high-quality development strategy, efforts should accelerate the cultivation of five major metropolitan circles, strengthen transportation infrastructure construction, deepen regional cooperation, enhance marketization levels, and improve technological innovation capacity.

6. Conclusions and Outlook

As shown in Figure [Figure 6: see original paper], the time-zone view of keyword co-occurrence reveals the following main conclusions: (1) Regarding research literature characteristics: Domestic high-quality development research officially began after the 19th Party Congress, with publication numbers showing a rapid upward trend, making it a key focus area in academia in recent years. Scholars have primarily approached high-quality development from economics, management, journalism and communication, and political science perspectives.

Important dissemination channels include *Reform*, *Economic Research Journal*, *China Industrial Economics*, *Journal of Quantitative & Technical Economics*, and *China Soft Science*. The most influential scholars are Jin Bei and Ren Baoping. The School of Economics and Management at Northwest University represents an important base for high-quality development research. (2) Domestic academic research hotspots mainly include: the connotation of high-quality development, total factor productivity, innovation-driven development, and the Yellow River Basin. As Figure [Figure 6: see original paper] shows, keywords at the research frontier in 2020 primarily include global value chains, the "14th Five-Year Plan," intellectual property protection, COVID-19 pandemic, ethnic regions, and population aging.

Based on high-frequency keywords, research hotspots, and Figure [Figure 6: see original paper], this paper proposes the following future research directions: (1) Against the backdrop of global value chain reconstruction, how Chinese manufacturing can escape the dilemmas of "low-end lock-in" and "high-end blockade" is a problem that must be solved for real economic development. (2) Integrating the new development concept into rural revitalization in ethnic regions of the Yellow River Basin aligns with the "14th Five-Year Plan" goals of "improving people' s well-being" and "enhancing national governance effectiveness," and research on its practical challenges and implementation pathways will attract widespread attention. (3) The innovation-driven development strategy constitutes the core driving force of high-quality development, and protecting intellectual property means protecting innovation. Future research will focus on the rule-of-law construction of intellectual property protection, full-chain intellectual property protection, and intellectual property protection under the new development pattern. (4) Meeting the people' s growing needs for a better life is the goal of high-quality development. How to address crises such as declining labor supply and increasing pension burdens brought by population aging is a problem China must consider under the new development pattern.

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Note: Figure translations are in progress. See original paper for figures.