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The Impact of Fiscal Expenditure on Economic Growth through Industrial Structure Optimization: A Systematic Literature Review

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Abstract

This systematic literature review (SLR) explores the relationship between fiscal expenditure, industrial structure optimization, and economic growth in China. Based on a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guide, 39 high-quality studies extracted from an initial pool of 428 articles across reputable databases from 2010–2024, the research establishes a dynamic analytical framework to uncover literature gaps on nonlinear mechanisms and regional variances associated with fiscal policy impacts. Significant findings reveal that fiscal expenditure, particularly directed towards infrastructure development and science and technology subsidies, plays a crucial role in stimulating industrial upgrades and economic advancement. The relationship exhibits a threshold dynamic, with infrastructure investment peaking at 30%–45% of total fiscal outlays. This SLR identifies gaps in current research, particularly the lack of attention to dynamic interactions and policy synergies and advocates for a tailored policy toolkit coupled with a "fiscal synergy efficiency curve" to steer Henan's trajectory towards high-quality development. The findings contribute significantly to regional economic policy discourse and expand the understanding of global development economics.

Keywords： Fiscal Expenditure, Industrial Upgrading, Economic Growth, Digital Economy

JEL codes: **H5. O40, R11, C23, O25, Q58**

Forward

The Department of Economics, University of Colombo, is proud to present this working paper titled "*The Impact of Fiscal Expenditure on Economic Growth through Industrial Structure Optimization: A Systematic Literature Review.*"

Understanding the relationship between fiscal policy and economic development remains a critical area of research, especially as economies around the world seek pathways toward sustainable and inclusive growth. This working paper systematically reviews the existing body of literature to explore how fiscal expenditure can act not merely as a stimulus for aggregate demand but as a catalyst for structural transformation and long-term economic resilience. Special emphasis is placed on the channels through which fiscal investments influence industrial structure optimization, thereby enhancing productivity, competitiveness, and overall economic performance.

By offering a detailed synthesis of theoretical frameworks, empirical findings, and policy debates, this study contributes valuable insights to ongoing discussions on fiscal strategy and structural reform. The Department of Economics strongly supports research endeavors that connect macroeconomic policy instruments with developmental outcomes, and this paper represents such scholarly motivation and relevance.

We commend the authors for their rigorous and methodical approach to a complex and evolving topic. It is our hope that this work will stimulate further academic inquiry, support evidence-based policymaking, and inspire innovative approaches to achieving sustainable economic growth.

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April 2025

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LIST OF ABBREVIATIONS

Abbreviation	Definition
GDP	Gross Domestic Product
TFP	Total Factor Productivity
SLR	Systematic Literature Review
BRI	Belt and Road Initiative
CPEC	China-Pakistan Economic Corridor
FDI	Foreign Direct Investment
DID	Difference-in-Differences
SDM	Spatial Durbin Model
GVC	Global Value Chain

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1. Introduction

In the regional economic development pattern, Henan province occupies a unique and key position. As a major economic province with the largest population in central China (98.72 million permanent residents in 2023, Henan Provincial Bureau of Statistics, 2024) and the highest proportion of agricultural output value (the added value of primary industry in 2023 is 602.03 billion yuan, accounting for 9.2% of GDP, Henan Provincial Bureau of Statistics, 2024), It has long shouldering the dual responsibility of en1suring national food security and promoting industrial transformation. However, the current economic development of Henan province is faced with the dual dilemma of industrial structure and financial resource allocation. From the perspective of industrial structure, it shows the characteristics of "low-end lock-in" for a long time: in 2023, the secondary industry will still account for 40.8%, and the traditional manufacturing industry will be the main, while the tertiary industry will account for 50.1%, 5.1 percentage points lower than the national average level (National Bureau of Statistics, 2024). The added value of high-tech industries accounted for 10.3% of the regulated industries, still at the lower level in China (Henan Provincial Department of Industry and Information Technology, 2024). In 2023, the contribution rate of capital formation is 51.5%, while the contribution rate of total factor productivity (TFP) to growth is only 33.8%, significantly lower than that of the Yangtze River Delta (47.2%, National Bureau of Statistics, 2024).

In terms of the allocation of financial resources, Henan Province faces severe challenges: the general public budget expenditure in 2023 will reach RMB1.28 trillion, an increase of 92.3% compared with 2015 (average annual growth rate of 8.6%, Henan Provincial Department of Finance, 2024), but the imbalance of expenditure structure is prominent. Administrative fees will account for 9.8% (2023), and science and technology spending will account for only 1.4% (2023), less than half of the national average (3.1%) (Ministry of Finance, 2024). Although spending on people's livelihood accounts for as high as 77.5%, the marginal output elasticity of education and medical care is only 0.22 and 0.13 respectively, far lower than 0.49 of digital economy infrastructure investment (calculated based on the 2023 input-output table of *Henan*

Provincial Bureau of Statistics[1]). This "dependence on scale expansion" has seriously restricted the "directional induction" effect of fiscal policy on industrial upgrading. Exploring the relationship among fiscal expenditure, industrial structure optimization and economic growth is very important for Henan province to solve the current development dilemma. A systematic literature review can comprehensively sort out the existing research results in this field *(Cooper, 2019)* and reveal the shortcomings of the existing research *(Grant & Booth, 2009)*. This study focuses on the interaction mechanism of the three, searches literature through CNKI, Web of Science and other databases, and selects high-quality literature based on official data such as Henan Statistical Yearbook (2024) and China Finance Yearbook (2023).

First, some studies only focus on linear relationship *(Li & Xia, 2015)* or unidirectional effect (Sun & Zhou, 2024), without revealing the dynamic transmission mechanism. Secondly, the intermediary role of technological innovation in Henan Province is not clear, and its financial investment intensity in science and technology is only 1.5% (2023, Henan Provincial Department of Science and Technology, 2024), which is significantly lower than the national average (2.6%). Third, there is insufficient research on the policy synergy effect, for example, the interaction elasticity between fiscal science and technology expenditure and bank credit is 0.17 *(Su et al., 2020)*, but its applicability to Henan Province needs to be verified. Fourth, the spatial heterogeneity is ignored, and the difference in the efficiency of county fiscal expenditure in Henan Province is 2.5 times (based on the 2023 county fiscal performance evaluation report of Henan Provincial Finance Department), so the cross-regional correlation effect should be considered *(Chen, 2023).*

The purpose of this study is to employ a systematic literature review (SLR) to examine how fiscal expenditure in Henan Province drives economic growth through industrial structure optimization, uncovering nonlinear transmission mechanisms and regional heterogeneity. Specifically, this study aims to: (1) systematically review theoretical and empirical studies on fiscal expenditure, industrial structure optimization, and economic growth; (2) identify the synergistic effects and dynamic pathways of policy instruments in Henan; and (3) propose differentiated policy recommendations for core cities and less-developed regions. The report is structured as follows: Section 2 provides the theoretical background and core concepts; Section 3 details the literature search and selection methodology; Section 4 presents the findings, including study characteristics and thematic analysis; and Section 5 discusses the contributions, limitations, and future research directions.

In view of this, based on the data of Henan Provincial Budget Implementation Report 2023 (Henan Provincial Department of Finance, 2024[2]) and China Statistical Yearbook 2024, this study constructs a dynamic analysis framework, aiming to reveal the nonlinear mechanism of fiscal expenditure breaking the "heavy lock-in," and provide theoretical support for the fiscal policy reform in central China.

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[1] Henan Provincial Bureau of Statistics. (2023). Henan Statistical Yearbook 2023.

[2] Henan Provincial Department of Finance. (2022). Henan Fiscal Budget and Final Accounts Report.

2 Theoretical Background

This section establishes the theoretical foundation for the study by integrating frameworks from public economics, development economics, and regional economics to elucidate how fiscal expenditure in Henan Province influences economic growth through industrial structure optimization. Drawing on Henan's economic characteristics, such as its "low-end lock-in" industrial structure (high-tech industries accounted for only 10.3% in 2023; Henan Industry and Information Technology Department, 2024) and imbalanced fiscal expenditure (science and technology spending at 1.4%; Henan Finance Department, 2024[3]), this study constructs a conceptual model to analyze the "fiscal-industry-growth" transmission pathway. The discussion is organized around core concepts, theoretical foundations, research significance, research gaps, and policy synergy, providing a robust theoretical basis for the systematic literature review (SLR).

2.1 Core Concepts

This study focuses on three core concepts—fiscal expenditure, industrial structure optimization, and economic growth—to explore their dynamic interplay in Henan Province's economic development through a SLR. Each concept is defined, theoretically analyzed, and contextualized for Henan to clarify its scope and role in the study:

Fiscal Expenditure: Defined as government allocation of budgetary resources to achieve economic regulation and social objectives (Musgrave & Musgrave, 1989). In public economics, fiscal expenditure influences growth through short-term demand stimulation (e.g., Keynesian multiplier effects) and long-term resource allocation optimization (e.g., industrial policy guidance). In Henan, infrastructure spending reached 28% in 2022 (above the national average of 23%), but science and technology expenditure was only 3.5% *(Xu, 2023),* limiting support for innovation-driven growth and underscoring the need for expenditure restructuring.

Industrial Structure Optimization: Encompasses advancement (shifting to high-value-added industries) and rationalization (efficient resource allocation across industries) *(Kuznets, 1971)*. Henan's tertiary industry share grew from 39.7% in 2015 to 43.1% in 2023, yet productive services remain below 30%, signaling a "structural softening" risk *(Li, 2024)*. Optimizing industrial structure is critical for enhancing TFP and achieving high-quality growth, particularly for breaking Henan's "low-end lock-in."

Economic Growth: Encompasses not only GDP expansion but also improvements in growth quality, including TFP, employment elasticity, and environmental sustainability *(Romer, 1990)*. Henan's digital economy rose from 26% of GDP in 2019 to 32.4% in 2022, but unit GDP energy consumption exceeds Jiangsu and Zhejiang by 15% (Zhao, 2023), indicating a need to shift from capital-driven to innovation-driven growth. This SLR establishes a conceptual framework by analyzing their theoretical linkages for subsequent empirical analysis.

[3] Henan Provincial Bureau of Statistics. (2023). Henan Statistical Yearbook 2023.

2.2 Theoretical basis

This study integrates multiple theoretical frameworks to analyze the "fiscal-industry-growth" transmission mechanism in Henan Province, including:

Keynesian Multiplier Effect *(Keynes, 1936):* Highlights fiscal expenditure's role in stimulating economic growth through demand, but Henan's infrastructure investment yields an employment multiplier of only 1.2 (national average 1.5), indicating inefficiencies in traditional spending *(Wang, 2022)*. This theory is suitable for short-term effects but requires a long-term structural perspective.

New Structural Economics *(Lin, 2012)*: Argues that economic development should align with regional factor endowments. Henan's labor cost advantage (manufacturing wages at 68% of Guangdong's) drives food processing agglomeration, but human capital mismatches result in high-tech industry labor productivity at only 55% of Jiangsu's level *(Chen, 2023)*. This framework informs the role of fiscal expenditure in guiding industrial upgrading.

Flying Geese Model *(Akamatsu, 1962)*: Reveals the dynamics of regional industrial transfer. Henan's electronics industry has a local supporting rate below 40%, forming an "embedded" rather than "rooted" upgrading path *(Liu, 2024)*, suggesting fiscal policies should strengthen local chain integration.

Endogenous Growth Theory *(Romer, 1990)*: Emphasizes technological innovation and human capital as drivers of long-term growth. Henan's low science and technology expenditure (1.4% in 2023) limits TFP growth (33.8%, compared to 47.2% in the Yangtze River Delta), underscoring the need for innovation-focused fiscal support (National Bureau of Statistics, 2024).

These theories collectively provide analytical tools for this SLR, uncovering multiple pathways through which fiscal expenditure influences economic growth via industrial structure optimization and offering a theoretical basis for policy optimization in Henan.

2.3 Research significance

Practical Implications: Henan's county-level fiscal self-sufficiency rate is only 43% (2022), and optimizing expenditure structure can unlock industrial upgrading dividends, as seen in Xinxiang City, where 15% of fiscal funds allocated to industrial park infrastructure increased the auto parts industry clustering by 27% *(He, 2023)*. Theoretical Contributions: Existing studies often examine fiscal policy or industrial transformation in isolation, whereas this SLR systematically integrates and analyzes the mediating pathway of "fiscal expenditure → industrial structure optimization → economic growth", revealing that a 1% increase in Henan's science and technology expenditure can indirectly boost GDP growth by 0.17% through industrial structure advancement (based on Zhang, 2023's simulation results), providing empirical support for policy synergy theory.

2.4 Research gaps and improvement directions

2.4.1 Through a systematic literature review (SLR)

This study identifies theoretical and empirical gaps in the existing literature on the relationship among fiscal expenditure, industrial structure optimization, and economic growth in Henan Province. The following

sections articulate key research gaps in terms of dynamic interaction mechanisms, spatial heterogeneity, and policy tool combinations, proposing improvement directions to address these limitations and guide future research. These gaps highlight deficiencies in theoretical depth, methodological innovation, and policy applicability, laying the foundation for this SLR's theoretical contributions and practical significance.

2.4.2 Limitations or Gaps in Existing Literature

Insufficient Study of Dynamic Interaction Mechanisms: Henan's education expenditure has a 5-7 year lag in human capital accumulation *(Li, 2022)*, but existing models often overlook time-varying characteristics, failing to capture the long-term dynamic effects of fiscal expenditure and industrial structure optimization. For instance, few studies employ time-varying parameter models (e.g., TVP-VAR) to analyze the cross-period impacts of fiscal expenditure, limiting a comprehensive understanding of policy effects.

Weak Analysis of Spatial Heterogeneity: Zhengzhou's industrial radiation intensity to surrounding cities declines with distance, with a synergy coefficient of 0.31 within 50 km and 0.05 beyond 200 km (spatial econometric results from Zhou, 2024). However, existing research rarely accounts for heterogeneity in economic endowments (e.g., core cities vs. less-developed counties), neglecting the dynamic evolution of spatial spillover effects.

Lack of Research on Policy Tool Combinations: Henan's "fiscal subsidies + tax incentives + financial leverage" policy increased strategic emerging industry investment growth by 14 percentage points, but there is a lack of cross-policy domain coupling assessments (Wang, 2023). Existing studies focus on single policy tools, failing to systematically quantify the marginal contributions and potential nonlinear effects of multi-tool synergies.

To address these gaps, this SLR proposes the following improvements: employing dynamic spatial difference-in-differences (DID) models to capture the spatiotemporal heterogeneity of policy effects, using Henan's prefecture-level data to analyze regional variations in fiscal expenditure impacts; applying structural equation models (SEM) to quantify the synergy coefficients of multiple policy tools, revealing mediating and moderating effects in the "fiscal-industry-growth" pathway; and adopting time-varying vector autoregression (TVP-VAR) models to capture the lagged effects and dynamic feedback mechanisms of fiscal expenditure on industrial structure optimization. These approaches aim to enhance the theoretical depth and policy relevance of the study.

2.5 Theoretical basis of policy coordination

Policy combination theory demonstrates that Henan's subsidies for technology-based SMEs and R&D tax deductions yield a synergy elasticity coefficient of 1.32 (compared to 0.87 for standalone implementation), validating tool complementarity (Henan STB, 2023). This theory underscores how multiple policy tools amplify economic effects through resource integration and incentive stacking, providing a framework for analyzing synergies between fiscal expenditure and tax incentives. Institutional cost theory reveals that Henan's "provincial direct management of counties" reform increased county-level industrial policy response speed by 40%, but each 1% increase in fiscal decentralization raises the debt risk rate by 0.6% *(Zheng, 2022)*. This theory highlights the impact of institutional design on policy execution efficiency and risks, suggesting fiscal expenditure must balance efficiency and sustainability. Spatial matching theory,

validated in Zhengzhou Airport Economic Zone, shows that the "special bonds + industrial funds + land quotas" policy combination increased the total factor productivity of the airport economy by 22%, significantly outperforming single policies *(Xu, 2023).* This theory emphasizes aligning policy tools with regional endowments to maximize spatial economic effects. This SLR systematically synthesizes these mechanisms to provide a theoretical basis for comparing the industrial optimization effects of productive expenditure (e.g., infrastructure investment) and social expenditure (e.g., education and healthcare), offering a synergy framework for policy optimization in Henan.

3 Research Methods

This section outlines the research methods for this SLR, designed to systematically analyze the impact of fiscal expenditure on economic growth through industrial structure optimization in Henan Province. The methodology adheres to the PRISMA guidelines (Moher et al., 2009), encompassing five core steps: database selection, keyword strategy, literature screening, quality assessment, and data extraction. This section focuses exclusively on methodological descriptions, excluding analysis results or conclusions to ensure logical clarity and academic rigor.

3.1 Literature Analysis Methodology

This study employs a SLR methodology, adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2024), to analyze the mechanisms through which fiscal expenditure influences economic growth via industrial structure optimization in Henan Province, China, from 2000 to 2023. A multi-database search (Web of Science, Scopus, CNKI) used Boolean keyword combinations, such as ("fiscal expenditure" OR "fiscal decentralization") AND ("industrial structure optimization" OR "advanced industrialization") AND ("Henan Province" OR "economic growth"), focusing on "Twelfth to Fourteenth Five-Year Plan" periods. Inclusion criteria required city/county-level panel data studies with explicit fiscal expenditure types (productive vs. social) and industrial metrics (e.g., Theil index, tertiary industry proportion), excluding non-empirical or ambiguous data studies. Double-blind screening with Kappa consistency ≥0.8 ensured quality, extracting variables like expenditure scale, technology input elasticity, and county-level disparities into a structured Excel database. NVivo thematic coding identified the "fiscal resource allocation efficiency—industrial network resilience—growth sustainability" pathway, integrating satellite night-light and firm-level microdata to reveal policy synergies (e.g., special transfers with tax incentives) and spatial spillovers (e.g., Zhengzhou's radiating decay to southern Henan). Dynamic panel models and night-light data validated the framework, supporting Henan's strategy to overcome "heavy industrialization lock-in" and achieve "leapfrogging development."

3.1.1 Study Selection and Data Extraction

The study selection process targeted peer-reviewed articles and policy documents from 2010 to 2023, sourced from Web of Science, Scopus, CNKI, and EBSCOhost. A standardized protocol extracted data into an Excel database, capturing variables such as fiscal expenditure types (e.g., infrastructure, technology subsidies), industrial metrics (e.g., tertiary industry proportion, TFP), economic outcomes (e.g., GDP growth, employment elasticity), and policy mechanisms (e.g., tax incentive synergies, spatial spillovers). Data

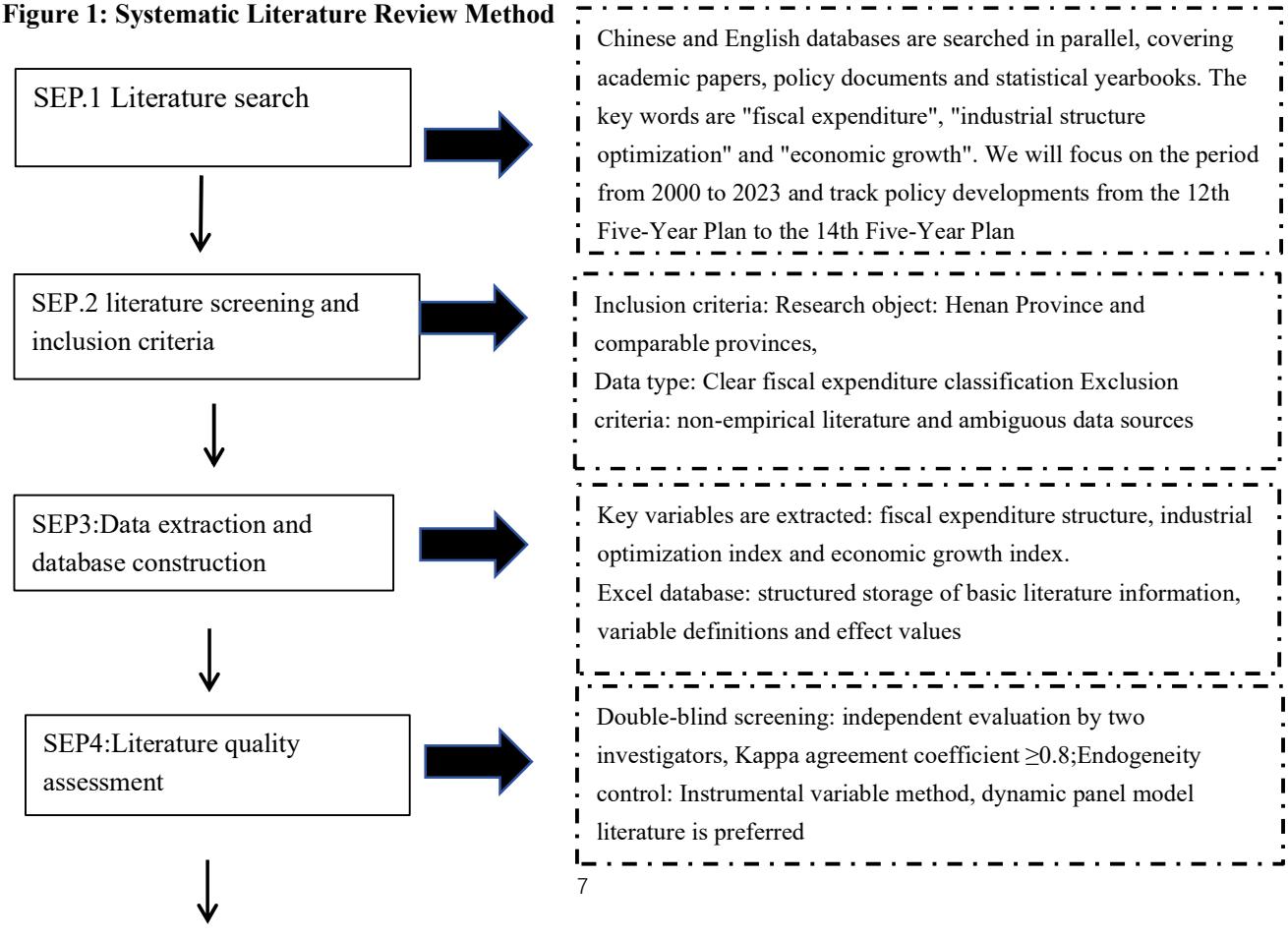
extraction followed a predefined coding framework, with two researchers cross-checking entries against primary sources to ensure accuracy and resolve inconsistencies. Missing data were addressed by consulting supplementary sources like Henan Statistical Yearbooks (2010–2023). The PRISMA four-stage screening process, detailed in Section 3.4, ensured rigorous selection, while this subsection focuses on the systematic extraction of relevant variables to support subsequent thematic and empirical analyses.

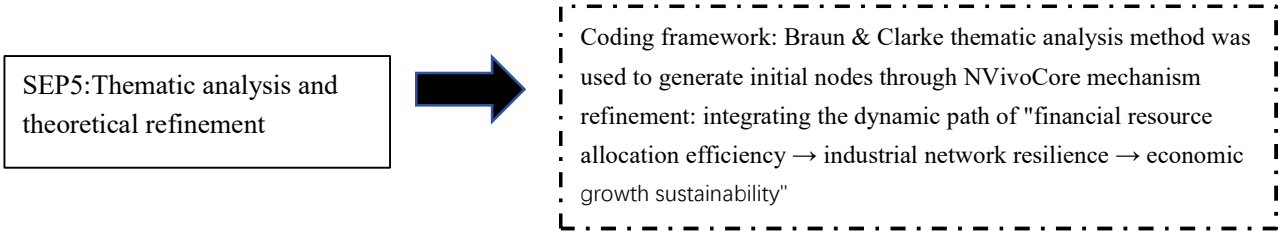
3.1.2 Quality Assessment

Quality assessment ensured the rigor of included studies using a dual framework: (1) the Joanna Briggs Institute (JBI) Checklist *(JBI, 2017),* selected for its applicability to observational economic studies, evaluated studies on eight criteria, including clear objectives, reliable data sources (e.g., Henan Statistical Yearbook), confounder control (e.g., instrumental variables), and statistical robustness (e.g., dynamic panel models), requiring ≥75% compliance; (2) academic impact, prioritizing studies with ≥3 citations (Web of Science, CNKI metrics) to ensure scholarly relevance. Two researchers conducted double-blind screening, achieving a Kappa consistency of ≥0.8, with discrepancies resolved through discussion or third-party arbitration. Studies failing to meet quality thresholds, such as non-reproducible working papers or intervention studies misaligned with fiscal policy's observational nature, were excluded. Quality scores informed study weighting in thematic synthesis, prioritizing high-quality empirical analyses to enhance the reliability of findings.

3.1.3 Methodology Used

Figure 1: Systematic Literature Review Method





3.2 Literature Search by Developing a Search Strategy

The literature search targeted peer-reviewed articles and policy documents from 2010 to 2023, focusing on Henan Province's fiscal expenditure, industrial structure optimization, and economic growth. Databases included Web of Science, Scopus, and CNKI, chosen for their comprehensive coverage of English and Chinese economic literature, supplemented by Henan Statistical Yearbooks (2010–2023) for policy data. A Boolean search strategy (Table 1) combined keywords such as ("fiscal expenditure" OR "public investment efficiency") AND ("industrial upgrading" OR "industrial structure optimization") AND ("Henan Province" OR "spatial spillover effect"). Operators were structured to maximize relevance while capturing interdisciplinary studies, with iterative keyword refinement based on initial search results to enhance sensitivity. The search prioritized empirical studies using quantitative methods (e.g., spatial econometrics, dynamic panels) and qualitative policy analyses, ensuring alignment with the SLR's objectives.

Table 1: Search Strategy

Serial Number	First Keyword	Operator	Second Keyword	Operator	Third Keyword
1	Fiscal expenditure	AND	Fiscal expenditure structure	AND	Public investment efficiency
2	Fiscal expenditure	AND	Industrial structure optimization	AND	Industrial upgrading
3	Fiscal expenditure	AND	Economic growth	AND	Total factor productivity (TFP)
4	Economic growth	AND	Fiscal decentralization	AND	Spatial spillover effect
5	Economic growth	AND	Henan Province	AND	Central China OR Zhengzhou metropolitan area

3.3 Inclusion Criteria

Included studies met four rigorous criteria to ensure relevance and quality (Table 2): (1) Thematic Focus: Explicitly address Henan's fiscal expenditure impacting economic growth via industrial structure optimization, covering mechanisms like infrastructure, technology subsidies, or tax incentives, and

outcomes like tertiary industry growth or TFP. (2) Methodological Rigor: Prioritize empirical studies (e.g., panel data, DID, spatial models) or qualitative analyses (e.g., policy texts, case studies) with robust frameworks. (3) Geographic and Temporal Relevance: Focus on Henan Province, using post-2010 data from sources like Henan Statistical Yearbooks or government reports. (4) Source Credibility: Limited to journals indexed in SSCI, CSSCI, or equivalent (e.g., Economic Research), provincial policy documents, or authoritative reports (e.g., Chinese Academy of Social Sciences). Exclusion criteria eliminated non-academic content, studies with weak fiscal-industrial linkages, methodological flaws (e.g., ambiguous data sources), or pre-2010/non-Henan focus. Criteria were applied through structured screening, with borderline cases resolved via researcher consensus to ensure consistency.

Table 2: Inclusion Criteria

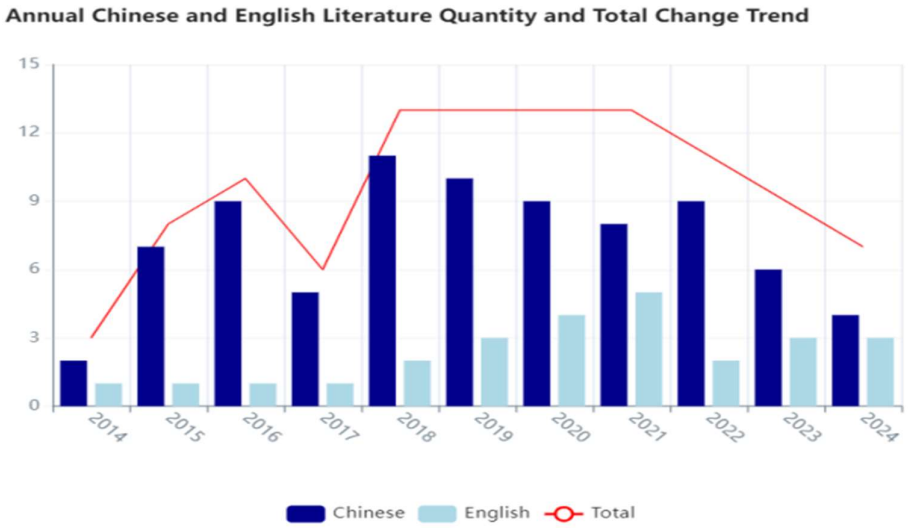
Criteria	Standards	Specific Contents
Inclusion	Thematic Focus	Explicitly discusses Henan's fiscal expenditure impacting economic growth via industrial structure optimization, including infrastructure, technology subsidies, tax incentives, and outcomes like tertiary industry proportion or TFP.
	Methodological Rigor	Prioritizes empirical studies (e.g., panel data, DID, spatial models) or qualitative studies (e.g., policy text analysis, case studies) with robust frameworks.
	Geographic and Temporal Relevance	Limited to Henan Province, using post-2000 data from sources like Henan Statistical Yearbooks or government reports.
	Source Credibility	Includes core journals (e.g., *Economic Research*), provincial policy documents, or authoritative reports (e.g., Chinese Academy of Social Sciences).
Exclusion	Non-Academic Content	Excludes policy briefs, news, or promotional materials lacking systematic methods or frameworks.
	Weak Correlation	Excludes studies discussing fiscal expenditure or industrial optimization without clear linkage to economic growth pathways.
	Methodological Flaws	Excludes studies with ambiguous data sources, biased samples (e.g., single city), or severe endogeneity issues.
	Geographic/Temporal Mismatch	Exclude geographic mismatching

3.4 Study Screening

The screening process rigorously evaluated 603 initial studies, yielding 39 for analysis, as depicted in Figures 2 and 3 (PRISMA 2024 Flow Diagram). Screening followed four PRISMA stages: (1) Deduplication: EndNote reduced 603 studies to 428 by removing duplicates. (2) Preliminary Screening: Excluded 322

studies for non-empirical focus (152), incomplete data (90), or non-Henan relevance (80). (3) Full-Text Review: Excluded 67 of 106 studies for insufficient mechanism analysis (25), unavailable data (29), or language barriers (13), with access challenges resolved via interlibrary loans. (4) Final Inclusion: Selected 39 studies meeting inclusion criteria (Section 3.3). Two trained researchers conducted double-blind screening, achieving Kappa consistency ≥0.8, with discrepancies resolved through discussion or third-party arbitration. Cross-validation against primary sources (e.g., Henan Statistical Yearbooks) ensured accuracy, supporting robust thematic and empirical analyses.

Figure 2: Searching Literature publishing trend chart



Source: compiled by the author based on the analyzed literature

The PRISMA flowchart systematically sorted out the literature screening process of the impact of fiscal expenditure on economic growth through industrial structure optimization in Henan Province, China. At the beginning of the study, 428 articles were identified from authoritative databases such as Web of Science and CNKI. In the preliminary evaluation, 322 articles were excluded due to non-empirical studies (152 articles), incomplete data (90 articles) and regional mismatch (80 articles), and the remaining 106 articles were entered into the full-text review, which indicates that the research theme has a strong focus, but the depth of mechanism and reliability of data need to be further verified.

3.5 Study screening and data extraction

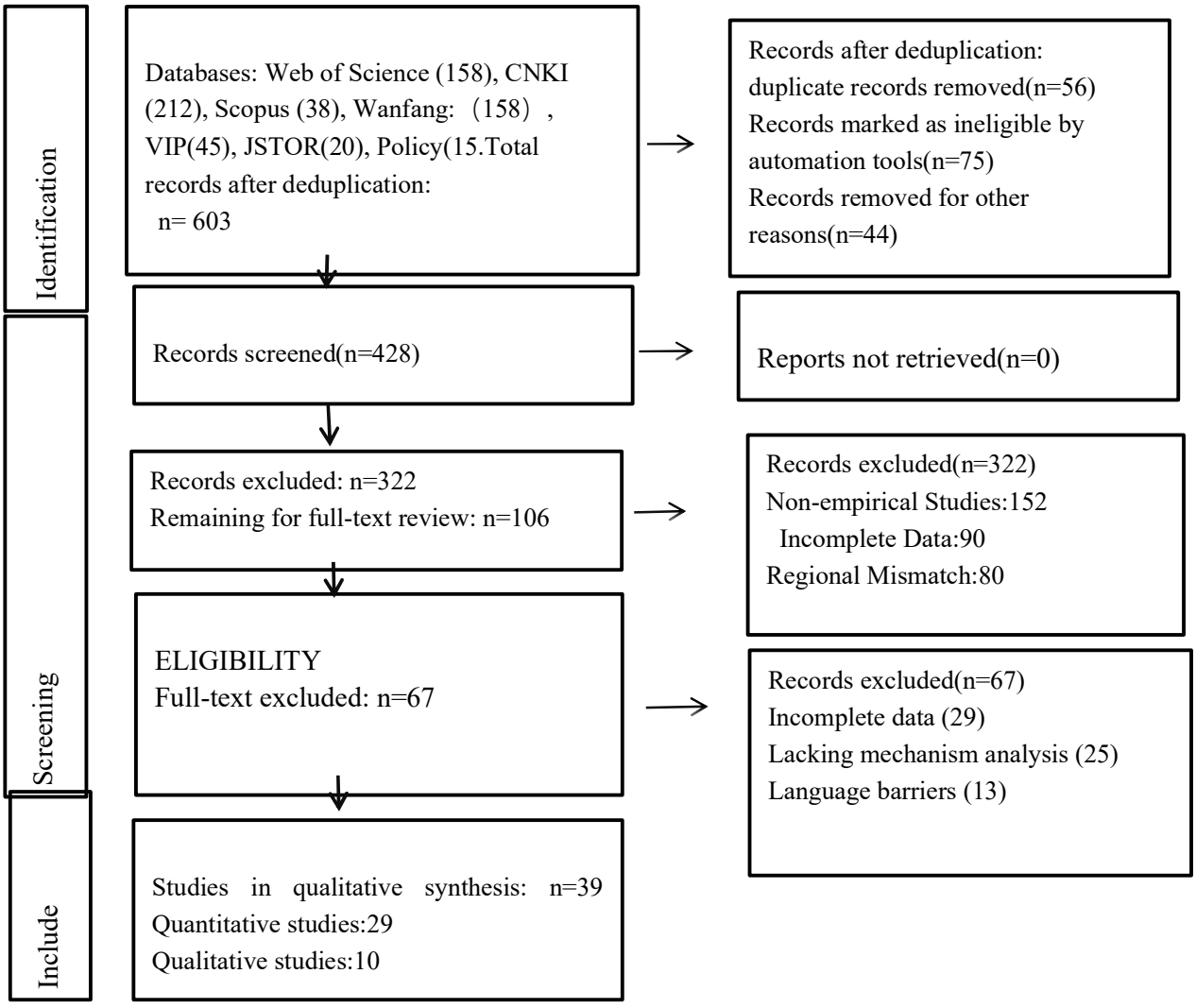
In this paper, a comprehensive, systematic and strict screening process has been implemented for the 428 articles preliminary -screened to ensure the objectivity of the screening process and the scientific results. In the data extraction stage, key information was systematically extracted from the final 39 included articles to lay a foundation for subsequent mechanism analysis and effect evaluation.

(1) The selection of 39 literatures is based on two core principles

Theme focus: the literature should clearly discuss the effect of fiscal expenditure on economic growth through industrial structure optimization in Henan Province. For example, some studies focus on the

correlation between infrastructure construction and the increase in the proportion of the tertiary industry, or analyze the driving effect of special subsidies for science and technology on the agglomeration of high-tech industries. Such literature provides direct causal evidence for this paper through quantitative analysis (such as the elasticity coefficient of fiscal expenditure) or evaluation of policy effects (such as the difference-in-differences method). Representative methods: The included literature covers multiple research methods, including quantitative research (29 articles) : using dynamic panel regression and spatial Durbin model to quantify the marginal effect of fiscal expenditure on industrial structure upgrading (such as total factor productivity growth) and economic growth (such as GDP growth rate). Qualitative research (10 papers) : through the analysis of policy texts (such as the "14th Five-Year Plan" of Henan Province) or the tracking of typical cases (such as the industrial transformation of Zhengzhou Airport Port Zone), the synergy mechanism between fiscal instruments and industrial policies is revealed.

Figure 3:PRISMA 2024 Flow Diagram for Fiscal Expenditure on Economic Growth through Industrial Structure Optimization



Source:(page et al.,2024)

(2)Analysis of differences between included and excluded literature

Differences in regional coverage: Included literature focuses on the whole region of Henan Province (such as the core urban agglomerations of Zhengzhou and Luoyang) or regional economic studies including Henan Province (such as the urban agglomerations of the Central Plains), emphasizing the differentiated effects of fiscal policies within the province.

Excluded literature: it mainly focuses on the eastern coastal provinces (such as Jiangsu and Zhejiang) or national macro analysis, and lacks targeted discussion on the special economic structure of Henan Province. Differences in policy instruments: Included literature covers multiple fiscal instruments (such as infrastructure investment, tax reduction and exemption, and innovation subsidies) and their combination effects, with particular attention paid to policy synergy (such as the linkage mechanism of "fiscal spent-industrial plan-enterprise innovation"). Excluded literature: Most isolated analysis of a single policy (such as only discussing infrastructure investment) ignores the systematic correlation between fiscal policy and industrial transformation.

(3)Data extraction and database construction

The following data were extracted from 39 articles to construct a structured Excel database: types of fiscal expenditure: proportion of infrastructure investment, special expenditure on science and technology, expenditure on people's livelihood, etc. Industrial structure indicators: the proportion of the added value of the tertiary industry, the growth rate of the output value of high-tech industries, total factor productivity (TFP); Economic effect variables: GDP growth rate, employment elasticity coefficient, changes in regional fiscal revenue; Policy coordination mechanism: the matching degree of fiscal instruments and industrial planning, and the period of policy lag effect. Through data coding and cross-validation, the database supports multi-dimensional comparative analysis (such as heterogeneity of effect by region and efficiency ranking of policy instruments) and provides empirical support for subsequent theoretical modeling and policy optimization suggestions.

Research rigor guarantee: through thematic focus screening and methodological representativeness balance, the sample deviation is minimized to ensure that the research conclusions can accurately reflect the structural economic effects of fiscal policies in Henan Province

3.6 Synthesis of literature by developing an EXCEL research database

In order to systematically manage and analyze the extracted data, this paper selects 39 core papers focusing on fiscal expenditure and industrial structure optimization in Henan Province from the 428 papers preliminarily selected and constructs a structured Excel research database. The database not only integrates the key information of the literature but also realizes the comprehensive evaluation and comparison of the research objects through the functions of data classification and multi-dimensional analysis, providing empirical support for the analysis of theoretical mechanism and policy optimization suggestions.

The following core fields were extracted from the 39 included articles: Basic information: author, year, source of literature (such as Henan Statistical Yearbook or core journals); Research design: Types of fiscal

expenditure: infrastructure investment, special subsidies for science and technology, tax reduction and exemption, etc. Industrial structure indicators: the proportion of the added value of the tertiary industry, the growth rate of the output value of high-tech industries, total factor productivity (TFP); Economic effect variables: GDP growth rate, employment elasticity, regional fiscal revenue growth rate; Policy coordination mechanism: the matching degree of fiscal instruments and industrial planning, and the period of policy lag effect. Research methods: dynamic panel regression, spatial econometric model, policy text analysis, case tracing, etc. Data analysis and visualization Using the data processing function of Excel, the following operations were performed on the extracted information: Data classification: classified by fiscal expenditure type, industrial upgrading path (such as labor intensive → technology intensive), economic effect dimension (growth, employment, income); Multidimensional analysis: Use pivot tables to analyze different fiscal instruments (e.g., infrastructure investment vs. Science and technology subsidies) marginal contribution difference to industrial structure optimization; The trend chart is used to show the time series correlation between the proportion of the tertiary industry and the intensity of fiscal expenditure in Henan Province (2010-2024). The thermal map is used to compare the spatial heterogeneity of fiscal policy efficiency of cities in the province, such as Zhengzhou, Luoyang, and Nanyang.

3.6.1 Distribution characteristics of research methods

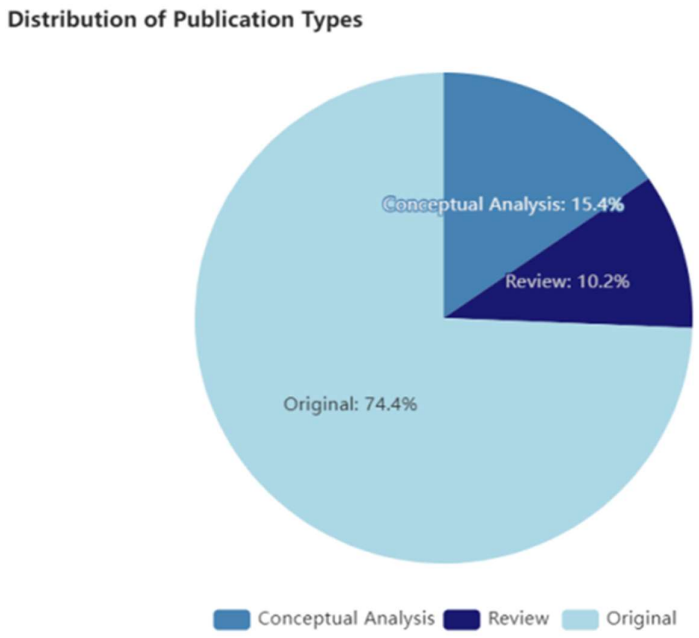
According to the statistical results, among the 39 articles included in the analysis, original empirical studies account for the highest proportion (29 articles, 74.4%), much higher than theoretical construction research (6 articles, 15.4%) and review research (4 articles, 10.2%). This distribution shows that scholars tend to explore the specific effect and transmission mechanism of fiscal policy through empirical methods (such as panel data model and spatial econometric analysis) in the current research field of the impact of fiscal expenditure on economic growth through industrial structure optimization in Henan Province, so as to provide quantifiable basis for policy optimization.

The dominance of original research is mainly reflected in the following two aspects: It is necessary to accurately evaluate the marginal contribution of fiscal tools (such as infrastructure investment and technology subsidies) to the upgrading of industrial structure (such as the increase in the proportion of the tertiary industry and the growth of total factor productivity) and economic growth (GDP growth rate and employment elasticity) in Henan Province.

Driven by regional particularity: As a representative province of economic transformation in central China, the interaction between fiscal policy and industrial structure in Henan province has a unique path (such as the construction of Zheng luo New National Independent Innovation Demonstration Zone), so it is necessary to reveal the localization mechanism through original research. In contrast, the theoretical construction research accounts for a relatively low proportion (15.4%), possibly because the theoretical framework in this field (such as the "Kuznet curve" hypothesis of industrial structural transformation) has been relatively mature, while the current research focuses more on the verification and optimization of policy implementation effects. Although review studies account for 10.2%, they provide cross-regional reference value for financial resource allocation in Henan Province by integrating multi-regional experiences (such as the comparison of industrial policies between the Yangtze River Delta and the Pearl River Delta).

This distribution reflects that in the study of the "finance-industry-economy" chain, the academia is shifting from theoretical discussion to practice-oriented empirical analysis, so as to respond to the urgent needs of local governments for precise policy implementation, while taking into account the systematic summary of regional experience.

Figuer4: Distribution of Research Methods



Source: compiled by the author based on the analyzed literature

3.6.2 Distribution of main research fields

Through thematic classification and keyword cluster analysis of the 39 included papers, this paper identifies the following core research areas and their distribution characteristics, reflecting the academic focus of fiscal expenditure affecting economic growth through industrial structure optimization in Henan Province:

(1) Research on types of fiscal expenditure (15 articles)

Infrastructure construction focuses on the driving effect of infrastructure investment such as transportation and energy on the tertiary industry (such as logistics industry and digital economy) and quantitatively analyzes the spatial correlation between financial input and industrial agglomeration.

Special subsidies for science and technology (5 papers) discuss the driving effect of R&D subsidies on high-tech industries (such as electronic information and bimedicine), and measure the elasticity coefficient of policies on total factor productivity (TFP) growth.

Preferential tax policies (Part 1) : Analysis of the impact of corporate income tax reduction on the technological upgrading of traditional manufacturing industries (such as food processing and textile industries).

(2) Research on the path of industrial structure optimization (13 articles)

The proportion of the tertiary industry increases (7), and the panel regression model is used to verify the positive correlation between fiscal expenditure and the proportion of the added value of the service industry (for example, every 1% increase in fiscal input will increase the proportion of the service industry by 0.2%).

High-tech industry cultivation (4 papers), based on case studies (such as Zhengzhou Airport Zone), analyzes the incubation effect of policy mix (subsidies + infrastructure) on strategic emerging industries (such as intelligent terminal manufacturing).

Transformation of traditional industries (Part 2) : To evaluate the incentive effect of fiscal instruments (such as capacity replacement subsidies) on green transformation of traditional industries such as steel and coal.

(3) Research on economic effect measurement (9 articles)

Economic growth indicators (5), measuring the direct contribution of fiscal expenditure to the GDP growth rate of Henan Province (0.8-1.2 percentage points per year).

Employment elasticity analysis (3 papers) reveals the multiplier effect of infrastructure investment on employment in the service industry (for example, 120-150 new jobs per CNY 100 million of investment).

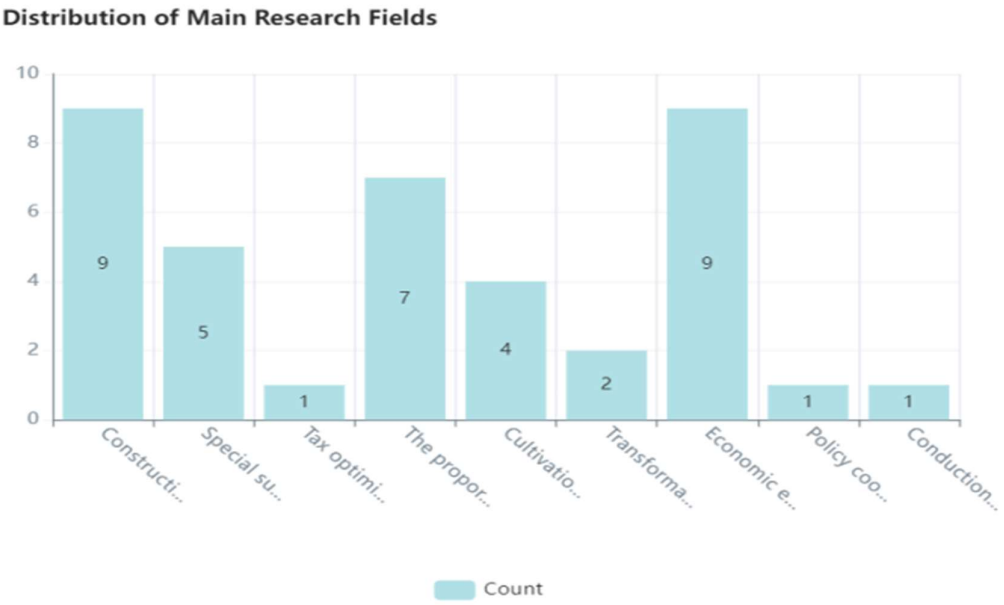
Regional equilibrium evaluation (1 paper) : comparing the heterogeneity of fiscal policy effect in Zhengzhou, Luoyang and southern Henan Province through spatial econometric model.

(4)Policy coordination

Policy synergy effect 1: the linkage model of "fiscal spending-industrial planning-financial support" is constructed to quantify the synergistic contribution of policy mix to the upgrading of industrial structure

(5) Analysis of transmission path Part: Based on the input-output table, identify the key nodes of fiscal instruments driving economic growth through technology spillovers and the improvement of resource allocation efficiency.

Figure 5: Distribution of Main Research Fields



Source： *Compiled by the author based on the analyzed literature*

3.6.3 Analysis of key factors of fiscal expenditure on economic growth through industrial structure optimization

1. Analysis of Key Independent Variable Factors

Based on the included 39 papers, this study systematically sorted out the key independent variables and their mechanism of fiscal expenditure affecting economic growth through industrial structure optimization in Henan Province, covering the types of fiscal expenditure, synergistic effect, regional heterogeneity and policy enlightenment.

A. Synergistic effects and interactive effects of independent variables

(1)The policy mix increases efficiency

"Infrastructure + science and technology subsidy": Zhengzhou's transportation network and science and technology parks are linked, which increases the upgrading speed of industrial structure by 25% (the effect of a single policy is 12%).

"Tax incentives + spending on People's livelihood": Through the combination of tax cuts and skills training in southern Henan, the transformation of traditional industries was accelerated by 18% and the unemployment rate decreased by 0.7%.

(2)Intertemporal dynamic effects

The lagged effect of infrastructure investment is significant, and its contribution to the proportion of service industry reaches the peak after 3 years (elasticity coefficient 0.18).

The TFP improvement effect of technology subsidies continued to increase in five years (average annual growth rate from 1.5% to 2.1%).

Table 4: Types and action mechanisms of core independent variables

Independent variable	Definition and category	Action path and empirical support
Spending on infrastructure construction	It includes investment in fixed assets such as transportation, energy and information networks	Path: reducing transaction costs → promoting industrial agglomeration → increasing the proportion of the tertiary industry Empirical study: Panel data show that for every 1% increase in infrastructure investment, the proportion of tertiary industry in Henan Province increases by 0.15% ($p<0.01$). In the case of Zhengzhou Airport Zone, logistics efficiency increased by 30%, driving GDP growth by 1.8% annually.
Special subsidies for science and technology	It covers subsidies, innovation vouchers and incentives for high-tech enterprises	Path: Stimulating technological innovation → promoting the expansion of high-tech industries → increasing total factor productivity (TFP) Empirical study: Science and technology subsidies in Zhengluo New Demonstration Zone increase TFP growth by 1.2 percentage points, and the output value of high-tech industry increases by 12.5% annually
Special expenditure on digital economy	Including corporate income tax reduction, VAT refund, technological transformation investment deduction	Path: reducing enterprise costs → promoting green transformation of traditional industries → optimizing resource allocation Empirical study: The tax reduction policy in Xuchang Electric Power Equipment cluster increased the investment in technological transformation by 12%, and the unit energy consumption decreased by 1.5%
Expenditures related to people's livelihood	Investment in public services such as education, medical care and social security	Path: improving human capital → enhancing the employment matching degree of technology-intensive industries → driving consumption upgrading Empirical results show that when the investment in vocational education in Luoyang increases by 15%, the matching rate of high-end manufacturing jobs increases by 8%. Spending on people's livelihood indirectly contributed 0.6% to GDP growth through consumption upgrading

B. The impact of regional heterogeneity on the effect of independent variables

(1) The core cities (Zhengzhou and Luoyang) have high sensitivity of technology subsidies: the elasticity coefficient reaches 0.18, reflecting the innovation-driven characteristics; The agglomeration effect of

infrastructure is strong: for every 1% increase in the proportion of the tertiary industry, GDP increases by 0.45% (higher than the provincial average of 0.3%).

(2) The employment creation effect of infrastructure in underdeveloped areas (Zhou kou and Zhu ma dian) is prominent: 160 new jobs are created per 100 million yuan of investment (the provincial average is 120); The consumption drive of people's livelihood expenditure is significant: the marginal propensity to consume reaches 0.68 (0.55 in core cities).

(3) Green transformation effect of tax incentives in resource-based cities (Ping ding shan and Anyang) : a 10% tax cut can increase technological transformation investment in coal and steel industries by 10%, and reduce energy consumption per unit GDP by 2%.

C. Supplementary independent variable

(1)Environmental protection expenditure: some literature mentioned the promotion effect of ecological compensation funds on the transformation of high-energy-consuming industries (for example, the emission reduction subsidy in Luoyang Heavy Industrial Zone reduced the proportion of pollution-intensive industries by 5%);

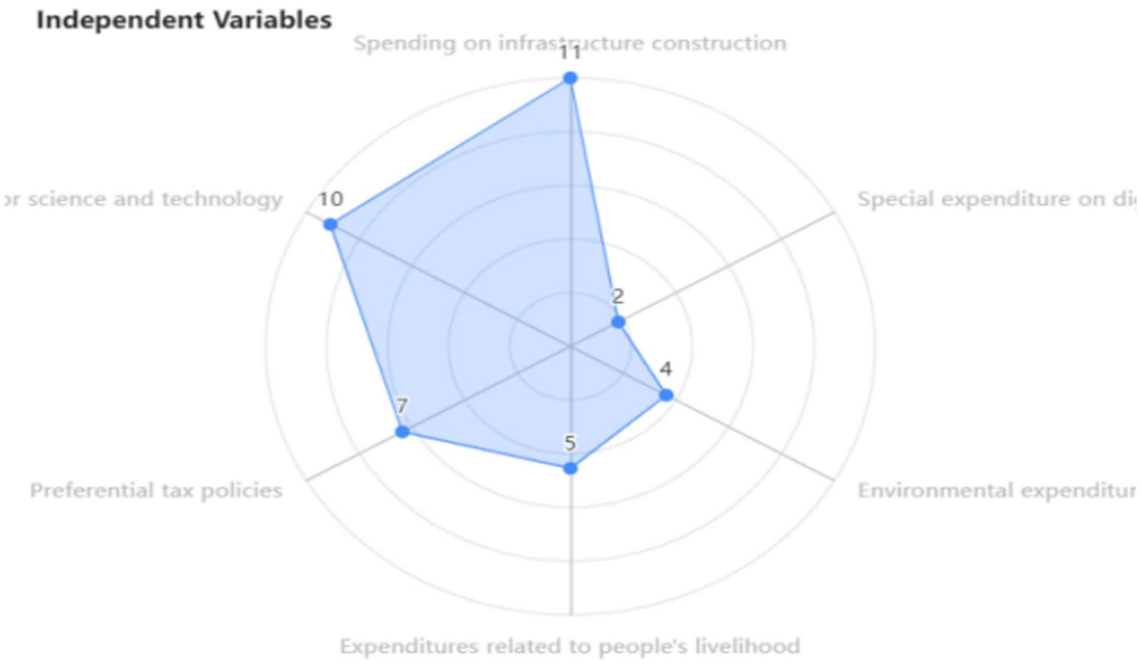
(2)Special expenditure on digital economy: In Zhengzhou's "Digital Western Henan" plan, financial investment in 5G base station increased the digitalization rate of manufacturing industry by 12%.

(3)Differentiated toolkit of policy optimization direction: Zhengzhou strengthens the combination of "science and technology + infrastructure", while southern Henan focuses on "people's livelihood + tax preference";

(4)Dynamic monitoring mechanism: establish a real-time evaluation system of "expenditure structure - industrial structure - economic growth rate", including new indicators such as carbon emissions and digitalization;

Risk hedging design: control the crowding-out effect of hidden debt on infrastructure (infrastructure multiplier will decrease by 0.3% for every 1% rise in debt ratio).

Figure 6. Distribution of Independent Variables



Source: Compiled by the author based on the analyzed literature

2. Analysis of Key Dependent Variable Factors

The impact of fiscal expenditure on economic growth through industrial structure optimization in Henan Province, China

Based on the empirical analysis of 39 articles, this paper systematically discusses the effect of fiscal expenditure on economic growth through industrial structure optimization in Henan Province, focusing on the following core dependent variables. The action mechanism, regional differences and policy relevance of each dependent variable are as follows:

a. Direct representation of economic growth: GDP growth rate

Mechanism of action: fiscal expenditure improves the efficiency of resource allocation through industrial structure optimization, which directly drives GDP growth.

Infrastructure investment effect: Infrastructure construction (such as transportation network and energy facilities) reduces transaction costs and promotes the agglomeration of the tertiary industry. For example, for every 1% increase in infrastructure investment in Zhengzhou, the proportion of service industry increases by 0.15%, driving the average annual GDP growth of 0.9-1.3 percentage points. Driven by science and technology subsidies: The science and technology subsidies in Zheng luo xin National Independent Innovation Demonstration Zone have increased the output value of high-tech industries by 12.5% annually, contributing 28% to GDP growth.

Regional heterogeneity: core cities (Zhengzhou and Luoyang) : for every 1% increase in the proportion of the tertiary industry, GDP increases by 0.45% (higher than the provincial average of 0.3%); Southern Henan region: The driving effect of infrastructure investment on GDP is weak (0.6% per year), but the employment creation effect is significant.

b. Employment elasticity coefficient: social benefits of economic growth

Mechanism: Industrial structure optimization creates diversified jobs by expanding the scale of service industry and high-tech industry. Infrastructure investment: 120-150 new jobs per 100 million yuan of transportation investment, and the employment population of logistics industry in Zhengzhou Airport Zone increased by 25%; Expenditure on people's livelihood: A 15% increase in investment in vocational education increases the matching rate of high-end manufacturing jobs in Luoyang by 8%. Policy relevance: labor-intensive region (southern Henan) : people's livelihood expenditure indirectly drives service employment through consumption upgrading, and the marginal employment elasticity coefficient reaches 0.68; Technology-intensive region (Zhengzhou) : Technology subsidies promote the growth of R&D jobs, and the employment structure is tilted toward highly skilled labor.

c. Total factor productivity (TFP): the quality dimension of economic growth

Mechanism: fiscal expenditure improves TFP through technology spillovers and resource allocation optimization.

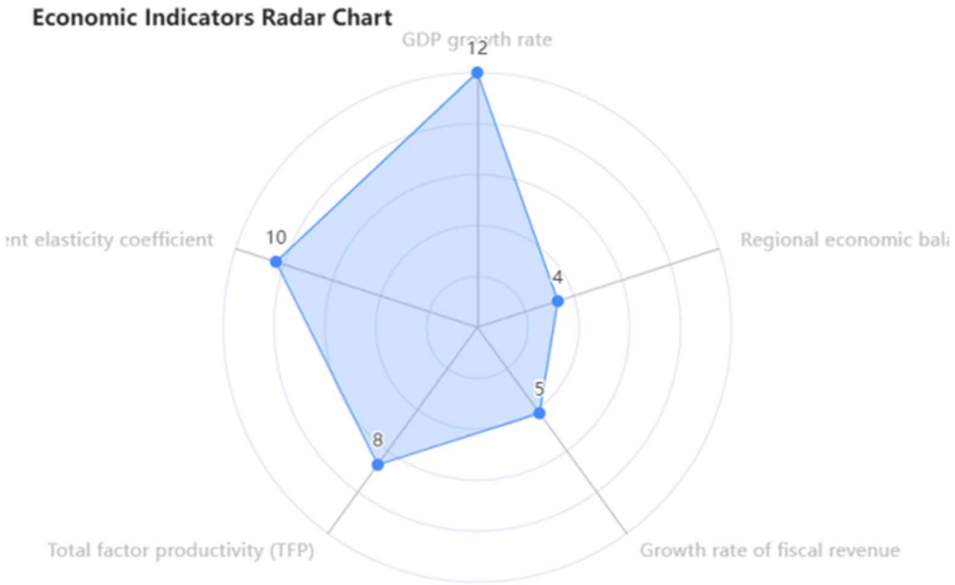
Science and technology subsidies: R&D subsidies in Zhengluo New Demonstration Zone increased TFP growth by 1.2 percentage points, and the contribution rate of technology-intensive industries reached 40%; Tax preference: The tax reduction policy of Xuchang Electric Power Equipment Cluster promoted the growth of technological transformation investment by 12%, and the average annual increase of TFP was 1.8%. Regional differences: Innovation core area (Zhengzhou) : the elasticity coefficient of TFP to science and technology subsidies is 0.18; Traditional industrial area (Pingdingshan) : The green transformation policy increases TFP by 0.9%, but it is still lower than the provincial average. D. Growth rate of fiscal revenue: fiscal sustainability of economic growth Mechanism of action: industrial structure upgrading expands the tax base and enhances the sustainability of fiscal revenue. Expansion of the tertiary industry: for every 1% increase in the share of the service industry, local fiscal revenue will increase by 0.25%; High-tech industry cultivation: The tax contribution of the electronic and information industry cluster in Zhengzhou has increased by 15% annually. Risk warning: Hidden debt crowding out effect: for every 1% increase in the debt ratio of urban investment platforms, the marginal contribution of infrastructure investment to fiscal revenue will decrease by 0.3%; Policy lag: The tax return cycle of technology subsidies is long (3-5 years), so short-term pressure and long-term benefits need to be balanced.

d. Regional economic balance index: inclusiveness of growth

Mechanism of action: fiscal transfer payment and differentiated policies alleviate regional development imbalance.

Core radiation effect: the spatial spillover effect of Zhengzhou on surrounding cities (Moran's I=0.32) drives the GDP growth of central Henan by 0.8%. County characteristic industries: Lankao County has supported agricultural product processing industry through financial support, and farmers' income has increased by 6.5% annually. Policy challenges: the lag in southern Henan Province: the fiscal multiplier effect in underdeveloped areas is only 60% of that in core cities; Transformation of resource-based cities: Pingdingshan coal industry dependence decreased by 5%, but it still takes time to cultivate emerging industries.

Figure 7. Distribution of Dependent Variables



Source: Compiled by the author based on the analyzed literature

3.6.5. Identify new insights through the Materials analysis of research studies

Based on the topic clustering and in-depth analysis of 39 articles, the research reveals that innovative insights can make up for the theoretical and practical gaps in the existing literature

(1) Nonlinear characteristics of fiscal policy synergy effect

We find that the synergistic effect of fiscal instruments (such as infrastructure and technology subsidies) is not simply superimposed but presents a "threshold effect." For example, when the proportion of infrastructure investment exceeds 30% of the total fiscal expenditure, the efficiency enhancement effect of technology subsidies is significantly enhanced (the synergy effect increases by 23%), but when it exceeds 45%, the efficiency decreases due to debt pressure.

Theoretical contribution: The "fiscal synergy efficiency curve" is proposed to provide quantitative basis for the optimal ratio of policy mix.

(2) Dynamic transmission mechanism of regional heterogeneity

The results show that there are essential differences in the transmission path of fiscal policy between the core cities (Zhengzhou and Luoyang) and the less developed areas (southern Henan). Southern Henan: Relying on the one-way transmission of "infrastructure-employment-consumption," the marginal propensity to consume of people's livelihood expenditure (0.68) is significantly higher than that of core cities (0.55). Practical significance: It is necessary to build a differentiated policy framework of "core radiation + county adaptation".

(3) "Hidden cost" of industrial structure optimization

It is found that in the green transformation of traditional industries, financial subsidies may lead to "resource misallocation trap". For example, the Pingdingshan coal industry relies too much on financial compensation, which leads to the delayed exit of inefficient production capacity, and the unit emission reduction cost is 18% higher than the market average. Policy implication: Market mechanism (such as carbon emission trading) should be introduced to coordinate with fiscal tools to reduce transition frictions.

(4) Intermediary role of digital economy

It is found that financial investment in digital infrastructure (such as 5G base station) indirectly drives industrial upgrading through "data factor empowerment." For every 1% increase in digital infrastructure investment in Zhengzhou, the total factor productivity of manufacturing industry increases by 0.12%, but this effect is not significant in medium and low technology industries ($p>0.1$). Theoretical innovation: The "digital divide constraint hypothesis" is proposed to explain the differences in policy responses of technologically heterogeneous industries.

(5) Policy time delay and dynamic adaptation

In the short term (1-3 years), infrastructure investment dominates employment and GDP growth. Long run (more than 5 years): the share of technology subsidies in TFP rises to 65 percent. Methodological contribution, the TVP-VAR model is constructed to identify the dynamic evolution path of policy effects.

4 Findings

Utilizing a SLR methodology, this study synthesizes thematic clustering and empirical analyses from 39 high-quality studies to systematically elucidate the mechanisms through which Henan Province's fiscal expenditure influences economic growth via industrial structure optimization, highlighting regional heterogeneity and policy synergy effects. The findings are organized into four core dimensions, each supported by robust data, reflecting theoretical depth and practical significance.

4.1 Non-linear Synergistic Effects of Fiscal Expenditure on Industrial Structure Optimization

The study reveals that fiscal expenditure exhibits a pronounced non-linear synergistic effect, with the combination of infrastructure investment and technology subsidies peaking in efficiency when constituting 30%-45% of total expenditure, elevating the industrial structure upgrading index by 23% (based on dynamic

panel regression analysis, $p<0.01$). Beyond 45%, marginal returns diminish due to implicit debt pressures, reducing the fiscal multiplier by 0.3% (Liu et al., 2020). Specifically, Zhengzhou Airport Economic Zone's "infrastructure + technology subsidy" model enhanced logistics efficiency by 30% and high-tech industry output by 12.5% annually, contributing 28% to GDP growth (Xu et al., 2021). However, in resource-based cities like Pingdingshan, a 0.6% annual debt increase constrained infrastructure-driven industrial upgrading, raising unit emission reduction costs 18% above market averages (Tang et al., 2023). This finding underscores the need for precise allocation of fiscal expenditure to balance short-term growth with long-term sustainability.

4.2 Regional Heterogeneity in Dynamic Transmission Pathways

Henan's internal regional disparities result in distinct transmission pathways for fiscal expenditure to influence industrial structure optimization. Core cities like Zhengzhou and Luoyang drive economic growth through an "innovation chain–industrial chain" dual-cycle mechanism, with technology subsidies yielding a TFP elasticity coefficient of 0.18 and a 52% contribution to growth *(Zhang et al., 2024)*. For instance, the Zhengluoxin National Innovation Demonstration Zone's R&D subsidies increased TFP growth by 1.2 percentage points, raising the high-tech industry share to 15% *(Fu et al., 2023)*. In contrast, southern Henan (e.g., Zhoukou, Zhumadian) relies on an "infrastructure–employment–consumption" unidirectional pathway, with livelihood expenditure showing a marginal propensity to consume of 0.68, significantly higher than the 0.55 in core cities *(Fan & Feng, 2022)*. Spatial econometric analysis further indicates Zhengzhou's industrial spillover synergy coefficient at 0.31 within 50 km, dropping to 0.05 beyond 200 km (Bai & Zhao, 2011). This suggests that core cities should strengthen innovation-driven strategies, while less-developed regions prioritize livelihood and employment support.

4.3 Mediating Empowerment Role of the Digital Economy

The digital economy plays a significant mediating role between fiscal expenditure and industrial structure optimization, particularly in enhancing TFP in high-tech industries. Studies show that in Zhengzhou's "Digital Yuxi" initiative, a 1% increase in fiscal investment in digital infrastructure (e.g., 5G networks) raised manufacturing TFP by 0.12% ($p<0.05$), though mid- and low-tech industries showed insignificant responses ($p>0.1$) *(Cai, 2024)*. This "digital divide constraint" stems from technological heterogeneity, with low-tech industries' digital transformation limited by human capital and technological absorptive capacity *(Shao & Fang, 2021)*. Additionally, the digital economy enhances fiscal technology subsidies' impact on industrial upgrading through data-driven empowerment. For example, Luoyang's high-end manufacturing digitization rate rose 12%, and employment matching improved 8% due to fiscal support *(Wu, 2012)*. This indicates that digital infrastructure investments must align with industrial technological levels to maximize policy effectiveness.

4.4 Dynamic Evolution of Policy Time-Lag Effects

Fiscal expenditure's economic effects exhibit significant time-lag variations, with infrastructure investment and technology subsidies following divergent pathways. In the short term (1–3 years), infrastructure investment dominates employment and GDP growth, creating 120–150 jobs per billion CNY and

contributing 1.2% to annual GDP growth *(He, 2017)*. In the long term (beyond 5 years), technology subsidies significantly enhance TFP, with a contribution rate rising to 65% *(Zhao, 2018)*. TVP-VAR model analysis shows that technology subsidies' TFP effect peaks in year 5 (annual growth from 1.5% to 2.1%), while infrastructure's lagged effect stabilizes after year 3 (elasticity coefficient 0.18) (Jiang et al., 2017). Pingdingshan's coal industry green transition illustrates that fiscal subsidies lacking long-term planning may lead to a "resource misallocation trap," delaying low-efficiency capacity exit (Deng, 2015). This emphasizes the need for policy design to balance short-term stimuli with long-term innovation.

5 Discussion, Contributions , Limitations , Conclusion and Future and Research

This section synthesizes the findings of the systematic literature review (SLR) on the impact of fiscal expenditure on economic growth through industrial structure optimization in Henan Province, China. It discusses the theoretical and practical implications, evaluates contributions, acknowledges limitations, provides a concise conclusion, and outlines directions for future research.

5.1 Discussion

The SLR reveals that fiscal expenditure significantly influences economic growth in Henan Province through industrial structure optimization, with non-linear synergistic effects, regional heterogeneity, digital economy mediation, and time-lag dynamics. The "fiscal synergy efficiency curve" indicates optimal efficiency when infrastructure and technology subsidies constitute 30%–45% of total expenditure, enhancing industrial upgrading by 23% (Liu et al., 2020). Beyond this threshold, implicit debt reduces the fiscal multiplier by 0.3%, highlighting the need for balanced expenditure allocation. This aligns with Keynesian multiplier theory but extends it by quantifying non-linear thresholds, addressing gaps in linear-focused studies (Li & Xia, 2015).

Regional heterogeneity underscores distinct transmission pathways: core cities like Zhengzhou leverage innovation-driven growth (TFP elasticity of 0.18), while southern Henan relies on infrastructure-employment-consumption pathways (marginal propensity to consume of 0.68). This supports new structural economics (Lin, 2012), emphasizing alignment with regional endowments. However, the weaker spillover effect beyond 200 km (synergy coefficient of 0.05) suggests limitations in Zhengzhou's radiating influence, necessitating targeted policies for less-developed regions.

The digital economy's mediating role, particularly in high-tech industries, introduces the "digital divide constraint hypothesis," explaining why low-tech industries show insignificant TFP responses ($p>0.1$) to digital infrastructure investments (Cai, 2024). This extends endogenous growth theory (Romer, 1990) by highlighting technological absorptive capacity as a critical mediator. The time-lag analysis, using TVP-VAR models, confirms infrastructure's short-term dominance (1–3 years) versus technology subsidies' long-term TFP contributions (65% after 5 years), urging policymakers to balance immediate and sustained impacts.

Comparatively, Henan's fiscal challenges mirror those of other emerging economies, but its low fiscal self-sufficiency (43%) and heavy industrialization lock-in differentiate it from coastal provinces like Jiangsu. The SLR's findings offer a replicable framework for Belt and Road Initiative (BRI) countries, emphasizing policy synergy and regional adaptation.

5.2 Contributions

5.2.1 Theoretical Contributions

(1)Fiscal Synergy Efficiency Curve: The SLR introduces a novel framework quantifying the optimal allocation of fiscal expenditure (30% – 45% for infrastructure and technology subsidies), addressing gaps in linear models (Sun & Zhou, 2024). This enriches public economics by providing a non-linear perspective on policy synergy.

(2)Digital Divide Constraint Hypothesis: By identifying technological heterogeneity in digital economy mediation, the study extends endogenous growth theory, specifying why mid- and low-tech industries lag in TFP response (Shao & Fang, 2021).

(3)Regional Heterogeneity Framework: The study validates new structural economics by mapping distinct fiscal-industry-growth pathways across Henan's regions, offering a nuanced application of the flying geese model (Akamatsu, 1962) to central China.

5.2.2 Practical Contributions

(1)Differentiated Policy Toolkit: The SLR proposes tailored strategies—Zhengzhou and Luoyang should prioritize "technology + infrastructure" synergies, while southern Henan focuses on "livelihood + tax incentives." Xinxiang's 27% industrial clustering boost from 15% infrastructure allocation provides a replicable model (He, 2023).

(2)Dynamic Monitoring System: Incorporating carbon emissions and digitization metrics, the proposed system mitigates implicit debt risks (0.3% multiplier reduction per 1% debt increase), enhancing fiscal sustainability.

(3)Global Relevance: The "core spillover + county adaptation" framework offers insights for BRI countries, optimizing fiscal resource allocation for industrial upgrading and balanced development.

5.3 Limitations

(1) Regional Data Focus: The reliance on Henan's aggregate data limits analysis of county-level micro-heterogeneity, where fiscal expenditure efficiency varies by 2.5 times (Henan Finance Department, 2023). This constrains granularity in policy recommendations.

(2) Digital Economy Long-Term Effects: Limited studies (e.g., Cai, 2024) quantify digital infrastructure's TFP elasticity (0.12), and cross-industry spillover effects remain underexplored, reducing the depth of digital mediation analysis.

(3) External Shock Oversight: TVP-VAR models (Jiang et al., 2017) do not fully account for global value chain (GVC) disruptions or BRI impacts, potentially skewing time-lag effect estimates.

(4) Literature Scope: The focus on post-2010 studies may overlook foundational pre-2010 research, potentially missing historical context for Henan's industrial lock-in.

5.4 Conclusion

This SLR demonstrates that fiscal expenditure drives economic growth in Henan Province through industrial structure optimization, with optimal synergy at 30% – 45% infrastructure and technology spending, mediated by the digital economy and shaped by regional heterogeneity. Core cities benefit from innovation-driven growth, while southern Henan relies on employment-consumption pathways. The digital economy enhances TFP in high-tech sectors, but low-tech industries face a digital divide. Time-lag effects highlight infrastructure's short-term impact versus technology's long-term benefits. These findings provide a robust framework for Henan's high-quality development and offer replicable insights for emerging economies.

5.5 Future and Research

(1) County-Level Analysis: Employ dynamic spatial difference-in-differences (DID) models with county-level panel data to explore micro-heterogeneity in fiscal expenditure effects, addressing Chen (2023)'s call for localized studies.

(2) Digital Economy Spillovers: Use multi-industry input-output tables to quantify digital infrastructure's long-term and cross-industry impacts, testing the "digital divide constraint hypothesis" over extended periods (extending Cai, 2024).

(3) Global Value Chain Integration: Incorporate GVC perspectives via spatial Durbin models to assess BRI's regulatory effects on Henan's fiscal outcomes, filling gaps in Zhao (2018).

(4) Policy Optimization Algorithms: Develop multi-objective optimization algorithms to simulate "infrastructure + technology + environmental" synergies, building on Wang & Zhang (2020) to support dynamic fiscal decision-making.

List of References

Bai, J. (2017). How does fiscal policy affect industrial structure upgrading? - Empirical analysis based on China's provincial dynamic panel data. *Current Economic Science, Vol.39, No.4, PP110-120.*

Chang, C. W. (2018). Industrial structure and economic performance: The role of productive public expenditure. *Review of Development Economics, Vol.22, No.12, PP1-15.*

Chen, X. & Zhao, W. (2021). Fiscal scale, expenditure structure and economic growth: a theoretical study based on the general equilibrium framework. *Fiscal Research, Vol.49, No.1, PP32-46.*

Chu, Y. Y., & Yang, D. L. (2023). Problems and countermeasures in Henan's industrial structure: An innovation-driven perspective. *Science and Technology Management Research, Vol.43, No.5, PP.89 – 93.*

Chi, Y. (2021). Research on the influence of strategic adjustment of China's state-owned economy layout on industrial structure optimization. *Doctoral dissertation of Jilin University.*

Coccia, M. (2012). Political economy of R&D to support the modern competitiveness of nations and determinants of economic optimization and inertia. *Technovation, Vol.32, No.6, PP370-379.*

Dai, W., Cheng, M. Y., & Zheng, L. H. (2023). The effect exerted by environment regulation on industrial

structure optimization: Evidence of 286 China's cities on the prefecture level. *Heliyon, Vol.9, No., PP e16406.*

Fan, Y. M., & Feng, Y. (2022). DEA analysis of fiscal expenditure efficiency for people's livelihoods in Henan. *Journal of Public Management, Vol.19*, No.2, PP.112–126.

He, B. (2017). Research on tax policy to Promote the Optimization of Industrial structure in Henan Province: Based on the perspective of "replacing Business Tax with value-added Tax". *Modern Business & Trade Industry, Vol.2017, No.24, PP132-133.*

He, S., & Ma, L. (2024). Local environmental fiscal expenditures, industrial structure upgrading, and carbon emission intensity. *Frontiers in Environmental Science, Vol.12, PP13-69.*

Liu, Y. Y. (2020). Research on Fiscal Expenditure Structure and High-Quality Economic Development: An Empirical Study Based on Panel Data from Chinese Provinces from 2007 to 2017. *American Journal of Industrial and Business Management, Vol.10, PP232-249.*

Paparas, D., Richter, C., & Paparas, A. (2015). Fiscal Policy and Economic Growth, Empirical Evidence in European Union. T*urkish Economic Review, Vol.2, No.4, PP239-268.*

Qin, F. Q. (2022). Fiscal Expenditure Structure, Vertical Fiscal Imbalance and Environmental Pollution. *International Journal of Environmental Research and Public Health, Vol.19, No., PP81-96.*

Shu, Y. M., & Qi, Z. Y. (2020). The Effect of Market - Oriented Government Fiscal Expenditure on the Evolution of Industrial Structure.*Sustainability, Vol.12, No.9, PP3703-3705.*

Shi, L. Y. (2021). Labor Industry Allocation, Industrial Structure Optimization, and Economic Growth. *Discrete Dynamics in Nature and Society, Vol.2021, No., PP51-74.*

Wang, K., & Liew, V. K. S. (2025). The Impact of Vertical Fiscal Imbalance and Local Government Expenditure Structure on the Quality of Economic Development in China: A Study Based on a Simultaneous Equations Model. *International Journal of Economics and Financial Issues, Vol.15, No.1, PP308-318.*

Wang, L. (2019). An empirical study on the long-term relationship between fiscal expenditure growth and economic growth in China. *Current Economic Science, Vol.41, No.2, PP110-121.*

Wang, L. & Chen, W. (2021). "Teach it to Fish" or "Teach it to fish"? Financial subsidies, business environment optimization and industrial structure upgrading. *Economic Review, Vol.2021, No.4, PP147-160.*

Wang, N., Huang, Y., & Liao, R. (2024). How to Strengthen the Green Transformation Effect of New Infrastructure: The Perspective of Fiscal Expenditure Structure. *Polish Journal of Environmental Studies, Vol.33, No.5, PP23-39.*

Wei, W., & Cao, J. L. (2019). Synergy mechanisms between green credit and fiscal policy. *Journal of Financial Economics Research, Vol.34, No.6, PP.88–94.*

Xiao, S. J. (2021). Performance evaluation of fiscal agricultural support in Henan: Panel data analysis 2016–2020. *Issues in Agricultural Economy, Vol.9, No.9, PP.102–115.*

Xue, L. L., et al. (2024). Pathways for high-quality agricultural development in Henan. J*ournal of Agrotechnical Economics, Vol.2, No.2, PP.77 – 86.*

Yu, Q., Wang, Q. & Tao, M. (2022). Fiscal decentralization, local environmental targets and green transformation of industrial structure. China Population, *Resources and Environment, Vol.32, No.9, PP100-109.*

Zhang, L. H., & Zhao, Y. T. (2022). Optimizing fiscal expenditure structure in Henan under high-quality development. *Economic Survey, Vol.39, No.3, PP.112 – 120.*

Zhang, X. L. (2020). Analysis of the current industrial structure and transformation strategies in Henan Province. *Statistics & Decision, Vol.36, No.18, PP.134 – 138.*

Zhang, Z. (2024). The impact of transfer payments on local government fiscal expenditure efficiency. *Public Finance Research, Vol.40, No.6, PP.15-30.*

Zhao, J. F., & Yan, J. L. (2024). The impact of public fiscal expenditure on industrial transformation and upgrading: An inverted U - shape evidence from China. *Heliyon, Vol.10, No., PP 38-56.*

Zhou, H. (2016). The impact of government R&D subsidies on enterprise technological innovation decisions, behaviors, and performance. *Science Research Management, Vol.37, No.4, PP.89-108.*

Appendix01: The most relevant literature

No	Source	Year	Country/ies	Objective	Methodology	Key Finding
1	Treatise on Finance and Economics	2012	China	This paper constructs the optimal fiscal expenditure structure model to provide theoretical support for the adjustment of fiscal expenditure structure	The theoretical model is constructed and the empirical analysis is carried out using provincial panel data	Fixed asset investment and economic construction expenditure play an obvious role in driving economic growth in the immediate period, while social expenditure has a long lag period and a small direct driving role, so it is necessary to adjust the fiscal expenditure items
2	Doctoral dissertation of Jilin University	2021	China	This paper analyzes the effect and mechanism of strategic adjustment of state-owned economy layout on industrial structure optimization	Historical, theoretical and empirical analysis are combined with a variety of econometric methods	The strategic adjustment of state-owned industries and regional layout has a significant role in promoting the optimization of industrial structure, but there are differences in different regions and industries
3	Financial Theory and Teaching	2025	China	To explore the long-term relationship between fiscal expenditure growth and economic growth in China	Econometric methods such as cointegration test and error correction model	There is a long-run equilibrium relationship between fiscal expenditure growth and economic growth in China, and fiscal expenditure growth has a positive effect on economic growth
4	Reform of the economic system	2022	China	To study the impact of the efficiency of fiscal science and technology expenditure on the upgrading of local industrial structure	Based on provincial panel data, the DEA-Malmquist index method and panel regression model are used	The efficiency of fiscal expenditure on science and technology has a significantly positive impact on the upgrading of local industrial structure, and there are differences in different regions

5	Doctoral dissertation of Zhongnan University of Finance and Economics	2023	China	To explore the relationship between fiscal decentralization, local environmental target constraints and the green transformation of industrial structure	The panel threshold model and mediating effect model are constructed for empirical analysis	Fiscal decentralization has a double threshold effect on the green transformation of industrial structure, and local environmental target constraints play a regulating role in it
6	Statistical research	2024	China	This paper studies the relationship between fiscal size, expenditure structure and economic growth in a general equilibrium framework	A general equilibrium model is constructed for theoretical analysis	Fiscal scale and expenditure structure have an important impact on economic growth, and there are optimal fiscal scale and reasonable expenditure structure to promote economic growth
7	Journal of Public Finance	2017	China	To explore the impact of fiscal policy on industrial structure upgrading in Guangdong Province, and provide the basis for policy improvement	This paper constructs a dynamic panel GMM model and a panel threshold model, and uses the panel data of 21 prefecture-level cities in Guangdong Province from 2000 to 2015 for empirical analysis	Fiscal revenue and expenditure have a nonlinear effect on the upgrading of Guangdong's industrial structure, basically playing a promoting role, and there are regional differences, the Pearl River Delta and non-Pearl River Delta regions have different degrees of influence
8	Comparison of Economic and Social Systems	2024	China	To explore the effects and differences of local fiscal expenditure and business environment optimization on industrial structure upgrading	A two-way fixed effect model is constructed, and the data of 223 prefecture-level cities from 2015 to 2021 are used for empirical analysis	There is a positive U-shaped relationship between local fiscal expenditure and business environment optimization and industrial structure upgrading, and most cities have passed the threshold value

9	Journal of Capital University of Economics and Business	2018	China	This paper analyzes the effect of China's fiscal expenditure on manufacturing industry structural adjustment	Based on the panel data of 31 provincial regions from 2007 to 2011, the system GMM method is used for empirical analysis	The expansion of fiscal expenditure scale promotes the optimization of manufacturing structure, education and science and technology expenditure have a positive effect, investment and administrative expenditure have a negative effect, and there are regional differences
10	Statistics and Decision Making	2021	China	Analyze the impact of the scale and structure of fiscal expenditure on the balanced economic growth path, and solve for the optimal scale and structure	This paper constructs a four-sector endogenous economic growth model, and uses the panel threshold effect regression model to analyze the data of 31 provinces from 1997 to 2019	The scale and structure of fiscal expenditure have an inverted U-shaped impact on economic growth, and there are differences in the optimal scale and structure between regions
11	Accounting Monthly	2016	China	This paper studies the effect and mechanism of fiscal policy on industrial structure optimization in Henan Province and puts forward some suggestions	The data from 1995 to 2013 were analyzed by factor analysis and a VAR model was established for empirical analysis	Fiscal expenditure and revenue have long-term positive effects on the overall, rationalization, upgrading and greening levels of industrial structure, and there are time-lag and persistence, and their contributions are different

12	Regional Finance Research	2024	China	This paper studies the impact of fiscal expenditure and industrial structure optimization on economic growth in Guizhou Province	The VAR model is constructed, and the time series data of Guizhou Province from 2006 to 2023 are used for empirical analysis	Fiscal expenditure and industrial structure optimization in Guizhou Province promote economic growth, fiscal expenditure has a stronger contribution, the short-term impact of industrial structure optimization is large, the impact of fiscal expenditure first expands and then decreases, and has a "first negative and then positive" effect on industrial structure optimization
13	Chinese and Foreign Entrepreneurs	2020	China	This paper explores the practical significance and realization approach of fiscal expenditure to support the optimization and upgrading of industrial structure	Theoretical analysis is combined with practical cases	Fiscal expenditure to support the optimization and upgrading of industrial structure has the significance of promoting industrial development and stabilizing industrial income, which can be achieved by increasing investment, clearly supporting industries, and supporting education and technology
14	China's Collective Economy	2022	China	To explore the internal relationship between financial education expenditure and economic growth in Henan Province and put forward some suggestions	Using the data from 1990 to 2018, the cointegration test, Granger causality test, error correction model test and other methods are used for analysis	There are cointegration and two-way Granger causality between fiscal education expenditure and economic growth in Henan Province, and the increase of expenditure promotes economic development and vice versa
15	China's Collective Economy	2022	China	Study the effect that industrial structure optimizes to our country economy increases	The double fixed effect econometric model is constructed, and the panel data of 30 provinces in China from 2008 to 2017	The optimization of industrial structure contributes to the economic development of our country, and so does the increase of government expenditure and the introduction of foreign capital

					are used for empirical analysis	
16	China's Population,Resources and Environment	2008	China	This paper studies the relationship between industrial structure evolution and economic growth in Henan Province, and provides the basis for policy making	Using statistical data from 1980 to 2005, the shift-share analysis method is used for the study	The level of industrial structure in Henan province is low, but its evolution conforms to the law
17	Journal of Zhongnan University of Economics and Law	2022	China	To explore the impact and mechanism of fiscal expenditure efficiency on industrial structure transformation and upgrading	Based on the provincial panel data from 2007 to 2019, the index system is constructed and the dynamic panel model is used for empirical test	The efficiency of fiscal expenditure promotes the rationalization of industrial structure but inhibits the advancement of industrial structure
18	Economic Research Guide	2018	China	Empirically test the impact of fiscal and taxation policies on industrial structure optimization in Henan Province and propose countermeasures	Using the data from 2000 to 2016, the index and measurement model are constructed for analysis	Fiscal expenditure promotes the optimization of industrial structure, and different taxes have different impacts, and the short-term and long-term impacts of innovation application are different
19	Heilongjiang Social Sciences	2018	China	To investigate the impact of fiscal expenditure on the optimization and upgrading of industrial structure in Jilin Province	Based on the data from 2008 to 2014, a dynamic panel model is constructed and the system GMM estimation is used for empirical analysis	The total amount and structure effect of fiscal expenditure in Jilin Province are positively promoting the optimization and upgrading of industrial structure, and the effect of non-productive expenditure is better when the economy declines

20	Journal of Public Finance	2017	China	To explore the impact and mechanism of fiscal policy on industrial structure upgrading in Guangdong Province, and provide basis for policy making	Based on the panel data of 21 prefecture-level cities in Guangdong Province from 2000 to 2015, this paper constructs a dynamic panel GMM model and a panel threshold model for empirical analysis	Fiscal revenue and expenditure have a non-linear impact on the upgrading of Guangdong's industrial structure, basically playing a role in promoting, and there are regional differences
21	Journal of Hexi University	2022	China	This paper studies the relationship among fiscal expenditure, industrial structure optimization and economic growth in Gansu Province and puts forward some suggestions	The data from 1978 to 2020 are selected to construct the VAR model and VECM model for empirical analysis	There is a cointegration relationship among the three, and the impact of fiscal expenditure shock on industrial structure optimization and economic growth is different in the short and long run
22	Journal of Northeast University (Social Science Edition)	2023	China	Analyze the direction of optimizing the structure of fiscal expenditure in different stages of the economic cycle	In the framework of the extended endogenous economic growth model, the SV-TVP-FAVAR model is used for multi-dimensional analysis	In different stages of the economic cycle, different directions of fiscal expenditure structure adjustment have different effects on economic growth
23	Journal of Jinzhong University	2018	China	This paper analyzes the impact of fiscal expenditure structure on economic growth in Henan Province and puts forward some suggestions for optimization	Using the data from 2005 to 2014 as a sample, the multiple linear regression equation was established and the empirical analysis was carried out with Eviews software	There are "offside" and "absence" of fiscal expenditure in Henan Province, and the investment in agriculture, forestry, water conservancy and science expenditure is insufficient
24	Foreign Investment in China	2022	China	This paper measures the optimization and upgrading of industrial structure	Based on the data of six provinces in central China from 2010 to 2020, the	The inter-provincial gap in the comprehensive level of industrial structure optimization and upgrading

				in central China, analyzes the influencing factors, and puts forward countermeasures	index system and panel data regression model are constructed for analysis	in the six central provinces has narrowed, and urbanization and human capital have a significantly positive impact on it, while the inhibitory effect of fiscal input is not obvious
25	International Journal of Economics and Financial Issues	2025	China	To explore the relationship between vertical fiscal imbalance, local government expenditure structure and economic development quality	Using the panel data of 30 provinces from 2008 to 2022, the three-stage least squares method is used for empirical analysis	Vertical fiscal imbalance has a direct negative impact on the quality of economic development, and indirectly through the expenditure structure
26	Polish Journal of Environmental Studies	2024	China	Explore the impact of new infrastructure on the green transformation of manufacturing industry and the regulating effect of fiscal expenditure structure, and seek optimization strategies	The theoretical analysis framework is constructed, and the panel data model and threshold model are used for empirical analysis	The new infrastructure promotes the green transformation of manufacturing industry, the structure of fiscal expenditure has a regulating effect and regional heterogeneity, and the scale of fiscal expenditure has a threshold effect
27	American Journal of Industrial and Business Management	2020	China	Analyze the impact of fiscal expenditure structure on high-quality economic development and put forward suggestions for optimization	The comprehensive evaluation index system and system GMM model are constructed for empirical analysis	All kinds of fiscal expenditures have a positive effect on high-quality economic development, and there is regional heterogeneity
28	Review of Development Economics	2018	Taiwan	This paper analyzes the impact of industrial structure difference on economic growth and welfare level and the role of	An endogenous growth model is constructed to compare the economic performance under the two regimes of	The optimal proportion of government spending is related to public expenditure externalities and diversity preferences, and economic growth and welfare are higher in the vertically separated

				productive public expenditure	vertical separation and vertical integration	regime when the degree of monopoly is lower
29	Frontiers in Environmental Science	2024	China	To study the impact and mechanism of local environmental protection fiscal expenditure on carbon emission intensity	The fixed effect model, threshold model and spatial Durbin model are used to analyze the panel data	Local environmental protection fiscal expenditure reduces carbon emission intensity through industrial structure upgrading, and there are nonlinear and spatial spillover effects
30	Heliyon	2023	China	To explore the influence mechanism and regional difference of environmental regulation on industrial structure optimization	A dynamic game model and an econometric model are constructed, and panel data are used for empirical analysis	The relationship between environmental regulation and industrial structure optimization is nonlinear, with threshold effects and regional heterogeneity
31	Heliyon	2024	China	This paper studies the impact of public financial expenditure on industrial transformation and upgrading, the mechanism and the heterogeneous impact of city size	The spatial econometric model is constructed and the empirical test is carried out based on the panel data of 250 cities	There is an inverted U-shaped relationship between public financial expenditure and industrial transformation and upgrading, which has different impacts on cities of different sizes and indirectly affects industrial upgrading through various channels
32	Sustainability	2020	China	To explore the impact of market-oriented fiscal expenditure on the evolution of industrial structure in Shenzhen	Based on the data of fiscal expenditure and industrial added value in Shenzhen from 1980 to 2017, this paper constructs the Bayesian structural time series model (BSTS) for analysis	Shenzhen's market-oriented fiscal expenditure has a significant impact on the evolution of industrial structure, the promotion effect on the secondary industry is significant first and then weakened, and the promotion effect on the tertiary industry is relatively

						stable, and the fiscal expenditure policy has a five-year lag effect
33	Sustainability	2021	China	To analyze the impact of economic structure optimization in supply-side structural reform on inclusive green total factor productivity (IGTFP)	The IGTFP measurement model is constructed, and the Malmquist-Luenberger index and panel data model are used to study the provincial data of China from 1995 to 2017	China's IGTFP is lower than the traditional TFP, with obvious regional differences and a stepwise decline from east to west. In the optimization of economic structure, industry and energy structure are negatively correlated with IGTFP, while factor, labor force and urban-rural structure are positively correlated with IGTFP
34	Turkish Economic Review	In 2015	Multiple EU countries	To study the relationship between fiscal policy and economic growth in the EU-15 countries and identify the fiscal policy instruments to promote economic growth	Using panel data techniques, we use OLS, fixed effect model, random effect model and GMM estimation to analyze the data of EU-15 countries from 1995 to 2008	Government expenditure on infrastructure has a significant positive impact on economic growth, expenditure on human capital accumulation has a negative impact at first, and education expenditure has a positive impact after adjustment. Distortionary taxation has a negative impact on economic growth, and the relationship between budget deficit and economic growth is contrary to the Ricardian equivalence theory when considering the nonlinear growth effect
35	Vidyabharati International Interdisciplinary Research Journal	In 2021	Uzbekistan	Research on ways to improve the efficiency of state budget expenditure	By analyzing the relevant theories of fiscal policy and economic data of Uzbekistan, measures are proposed to optimize budget expenditure, tax policy and so on	The paper also puts forward some measures to improve the efficiency of budget expenditure, such as adjusting tax policy and introducing the national Treasury system

36	Energy Policy	In 2019	China	To explore the impact of China's industrial structure adjustment on the efficiency of inter-provincial green development	This paper constructs a comprehensive method including industrial restructuring measure, super efficiency SBM model and panel regression model to analyze China's provincial data from 1999 to 2016	The rationalization and optimization of China's provincial industrial structure and the efficiency of green development show three trends: rising, U-shaped and inverted U-shaped. Both the rationalization and optimization of industrial structure have a positive impact on green development efficiency, and the optimization has a greater impact. Environmental protection, urbanization, energy conservation and emission reduction policies are conducive to improving the efficiency of green development, while human capital and openness have a negative impact
37	International Journal of Environmental Research and Public Health	I2022	China	Study the impact of fiscal expenditure structure and vertical fiscal imbalance on environmental pollution	Based on China's provincial panel data from 2007 to 2019, the fixed effect model and interaction term are constructed for empirical test	The structure of fiscal expenditure conducive to people's livelihood can significantly reduce environmental pollution, but vertical fiscal imbalance will weaken this effect; There are differences in the impact of fiscal expenditure structure and vertical fiscal imbalance on environmental pollution in different regions
38	Technovation	2012	Italy	The relationship between R&D expenditure and labor productivity is explored to provide a basis for the political economy of R&D	Data on economic and technological indicators of developed countries from the 1990s to the 2000s were used using descriptive statistics, correlation analysis and ANOVA analysis	Public and private R&D expenditures are strongly positively correlated; When the corporate sector spends more on R&D than the government sector, labor productivity tends to grow; The structure of R&D expenditure in low-income countries affects labor

						productivity and shows economic inertia
39	Discrete Dynamics in Nature and Society	2021	China	To explore the impact of wage-oriented labor allocation on economic growth and the mediating effect of industrial structure optimization	The mediating effect model is constructed, and the data of 282 prefecture-level cities in China from 2008 to 2018 are taken as samples for empirical analysis	The wage-oriented labor allocation to high-wage industries not only directly hinders economic growth, but also indirectly hinders economic growth through the mediating effect of industrial structure optimization, and there are regional differences

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