The Economic Effects of China's Domestic Demand Expansion: Evidence from a Global Value Chain Perspective

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Abstract. To explore the economic effects of expanding domestic demand in China, this study adopts the ICIO analytical framework from a global value chain perspective and constructs nine counterfactual scenarios to systematically examine the economic effects of China's domestic demand expansion under different supply pathways and demand structures. The results show that: first, the economic impact of domestic demand expansion is highly dependent on the supply pathway, with the growth effect under the domestic-dominated scenario being much stronger than under the import-dependent scenario. Second, consumption-driven and investment-driven demand affect different sectors: consumption primarily drives downstream sectors, while investment mainly benefits upstream and midstream sectors. Third, international spillover effects exhibit a gradient pattern, with small, highly dependent economies benefiting the most. This study provides new insights into the transmission mechanisms of expanding domestic demand and offers a quantitative basis for optimizing demand structures.

Keywords: Global value chains; Inter-country input–output model; Domestic demand expansion; Counterfactual analysis

1 Introduction

The global economy is currently undergoing profound changes, significantly increasing the volatility and uncertainty of external demand. As the world's second-largest economy, China is gradually transitioning to a growth model led by domestic demand. Against this backdrop, expanding domestic demand has become not only an important means of stabilizing economic growth and mitigating external risks, but its effects are also shaped by the interaction between supply routes (domestic supply versus import supply) and demand structures (consumption versus investment). These interactions not only affect the efficiency with which domestic demand drives the economy but also generate differentiated international spillover effects through global value chain linkages. Therefore, it is necessary to examine the economic effects of China's domestic demand expansion from a global value chain perspective.

Z. Ge et al. (eds.), *Proceedings of the 2026 6th International Conference on Education, Information Management and Service Science (EIMSS 2026)*, Atlantis Highlights in Computer Sciences 25,
https://doi.org/10.2991/978-94-6239-766-8_4

Academics have conducted extensive research on the above issues from three perspectives. Regarding the economic effects of expanding domestic demand, scholars have proposed the 'dual-engine growth model for large economies' and, drawing on perspectives such as the behavioral life-cycle hypothesis and endogenous growth theory, constructed System GMM dynamic panel data models to analyze the impact of consumption structure optimization and industrial chain linkages on economic growth [1-2]. In terms of global value chain (GVC) theory and measurement, Krugman (1995) first proposed the concept of the global value chain, defining it as the process within the international production network whereby different countries generate added value by participating in specific stages of product production [3]. Subsequently, scholars such as Gereffi (2001) and Antràs (2020) further enriched its connotation from the perspectives of factor flows and trade [4-5]. Early research mainly employed vertical specialization indices, trade in value-added (TiVA), and the gross export decomposition framework (KWW framework) for measurement [6-7]. To track value chain flows in greater detail, Wang et al. (2013, 2017) classified GDP production within a country's sectors based on the number and destination of cross-border transactions, decomposing it into purely domestic demand, traditional final goods trade, simple GVC activities, and complex GVC activities [8-9]. Regarding research on the interaction between GVCs and domestic demand, existing studies primarily focus on two issues: 'how embedding in GVCs affects the effects of domestic demand' and 'how domestic demand expansion generates international impacts through GVCs,' emphasizing the promotion of convergent development between global and national value chains and the upgrading of value chains both horizontally and vertically [10].

Existing research has three key gaps. First, most studies examine domestic or international impacts in isolation, lacking a systematic analysis of the interaction between dual circulations and the heterogeneous effects of different supply routes. Second, insufficient attention has been paid to the interaction between demand structure and sectoral heterogeneity, with most studies focusing on aggregate effects while neglecting the differentiated mechanisms across upstream and downstream industries and manufacturing sectors with different technology levels. Third, existing methodologies focus on single scenarios or static analyses, failing to capture the long-term dynamic evolution or stage-specific impacts of macroeconomic policies and external shocks.

To address these gaps,we adopt a three-dimensional framework of supply routes, demand structure, and value chain positioning, and employs an inter-country input-output model with nine counterfactual scenarios to systematically examine the impact of China's domestic demand expansion on both domestic and foreign economies. The contributions of this study are threefold. First, it integrates domestic and international perspectives into a unified analytical framework, providing a comprehensive understanding of the dual-circulation mechanism. Second, it introduces a scenario-based approach to identify the heterogeneous effects of supply routes and demand structures. Third, it provides detailed sectoral and cross-country evidence, elucidating China's role in global value chains and its implications for global economic dynamics.

2 Research Methods and Data

2.1 Inter-country Input-output (ICIO) Model

Without loss of generality, this paper considers an inter-country input-output (ICIO) model comprising G countries and N sectors, and subsequently constructs the global value-added decomposition matrix.

$$\begin{aligned}\hat{V}B\hat{Y} &= \hat{V}L\hat{Y}^D + \hat{V}L\hat{Y}^F + \hat{V}LA^FB\hat{Y} \\ &= \hat{V}L\hat{Y}^D + \hat{V}L\hat{Y}^F + \hat{V}LA^FL\hat{Y}^F + \hat{V}LA^F(B\hat{Y}^D) + \hat{V}LA^F(B\hat{Y}^F - L\hat{Y}^F)\end{aligned} \quad (1)$$

The elements in the $\hat{V}B\hat{Y}$-matrix represent the value added embedded in the final goods and services produced by the specified country or industry. Eq. 1 identifies five types of production activities for each country or industry:

(1)$\hat{V}L\hat{Y}^D$: The value added generated by domestic production and consumption, where the production process takes place entirely within the country; (2)$\hat{V}L\hat{Y}^F$: The value added from the export of final goods meets final demand abroad, with no intermediate goods crossing borders; (3)$\hat{V}LA^FL\hat{Y}^F$: The value added generated by the export of intermediate goods that directly meets final demand abroad; (4)$\hat{V}LA^F(B\hat{Y}^D)$: The value added from the export of intermediate goods and the satisfaction of domestic final demand; (5)$\hat{V}LA^F(B\hat{Y}^F - L\hat{Y}^F)$: The value added from the export of intermediate goods across borders contributes repeatedly to meeting growing final demand abroad.

2.2 Scenario Analysis Model

Domestic demand comprises final demand for domestic products $\boldsymbol{Y^{ss}}$ and final demand for imported goods $\boldsymbol{Y^{rs}(r \neq s)}$. Furthermore, each component of demand consists of consumption (con) and investment (inv). Assuming that the structure of production and trade remains unchanged, this study examines the transmission mechanism through which an expansion of domestic demand affects GDP, based on a hypothetical scenario in which domestic demand is increased by 1%. The specific scenario is set out in Table 1.

Table 1. Scenario Details.

Scenario abbreviation	Settings details	Scenario abbreviation	Settings details
S1-CON	The increased demand for consumption is met entirely by domestic supply	S3-INV	The increased demand for investment is met in accordance with the existing supply structure
S2-CON	The increased demand for consumption is met entirely by imports	S1-MIX	The increased total domestic demand is met entirely by domestic supply
S3-CON	The increased demand for consumption is met in accordance with the existing supply structure	S2-MIX	The increased total domestic demand is met entirely by imports

S1-INV	The increased demand for investment is met entirely by domestic supply	S3-MIX	The increased total domestic demand is met in accordance with the existing supply structure
S2-INV	The increased demand for investment is met entirely by imports		

2.3 Data Sources

The data used in the input-output tables in this paper are drawn from the International Input-Output Compilation (ICIO) published by the Organisation for Economic Co-operation and Development (OECD) in 2024. We have selected a total of 20 economies for discussion.

3 Results

3.1 The Overall Impact of Expanding Domestic Demand on China's GDP

General Level.

To investigate the combined effects of different supply routes and demand structures, we construct nine counterfactual scenarios measuring the impact of a 1% increase in China's total domestic demand on GDP. As shown in Figure 1, the S1 and S3 scenario groups (domestic supply pull) remained consistently high over the entire period, while the S2 group (import substitution) stayed persistently low. Beyond this long-term structural pattern, Figure 1 reveals three notable fluctuation phases. Figure 1 also reveals three notable fluctuation phases. First, following the 2008 global financial crisis, various stimulus policies led to a sharp increase in GDP contribution effects across all scenarios. Second, starting around 2016, the curves (especially S1 and S3) show a clear downward trend, reflecting the normal process of structural optimization. Third, during 2019-2020, the curves rose significantly again, reflecting the growing role of China's domestic supply chains in economic growth.

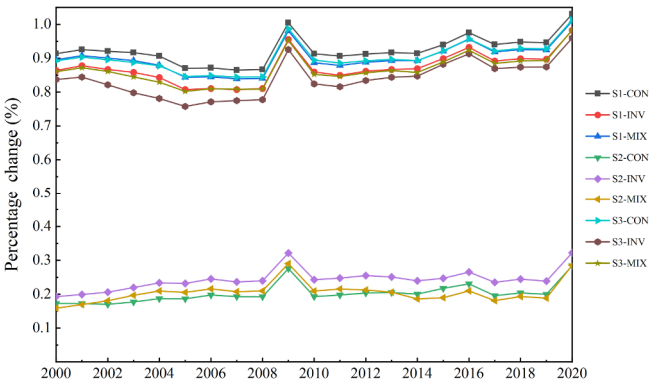

Fig. 1. China's GDP growth rate under nine scenarios, 2000–2020.

Value Chain Route Level.

To explore the mechanisms behind the GDP multiplier differences, we employ value chain decomposition (Figure. 2). First, fundamental differences between domestic supply (S1 and S3 groups) and import supply (S2 group). In S1 and S3, over 93% of GDP growth comes from Route 1 (pure domestic circulation). In contrast, in S2 group, GDP growth is primarily driven by international production routes (Routes 2–5), with Route 4 as a main driver, quantifying the source of the large gap between the S1/S3 and S2 groups. Second, the decomposition explains the heterogeneous impacts of consumption vs. investment. In S1 and S3, consumption-driven growth slightly exceeds investment-driven growth. Most notably, in the S2 group, the total effect for S2-INV is significantly higher than for S2-CON. This decisively supports the hypothesis that China's imports of investment goods rely more heavily on Chinese upstream components than imports of consumer goods, generating greater value-added through value chain reflow.

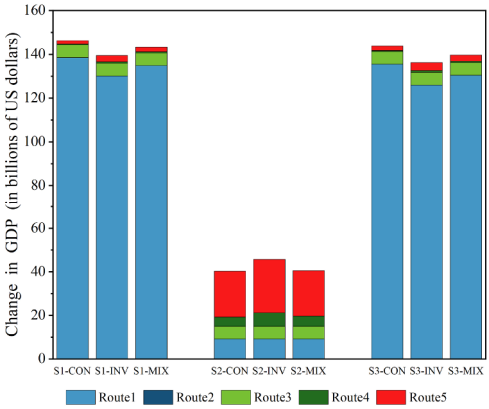

Fig. 2. Value-chain Decomposition of the GDP Multiplier Effects of Different Domestic Demand Shocks in 2020.

3.2 The Impact of China's Expansion of Domestic Demand on Value Added

General Level.

This section analyses heterogeneous impacts from two dimensions: demand structure and supply route dependence. Consumption-driven expansion exhibits inclusiveness and downstream concentration. Under S1-CON (pure domestic supply), the highest value-added growth rates are in agriculture (14.56‰), other services (12.26‰), and low-tech manufacturing (11.30‰). Investment-driven expansion shows concentration and upstream traceability. Under S1-INV, medium-tech manufacturing (18.69‰) benefits most, followed by mining (14.32‰) and high-tech manufacturing (13.97‰). Comparing supply routes reveals distinct GVC positioning. Service sectors like OSE exhibit strong domestic dependency: its growth falls from 12.26‰ under S1-CON to 0.62‰ under S2-CON (imports only), losing over 95% of momentum. In contrast, high-tech manufacturing (HTI) demonstrates deep dual-circulation embedding.

Value Chain Route Level.

Figure 3 presents the value chain route proportions for low- (LTI), medium- (MTI), and high-technology (HTI) manufacturing across nine scenarios in 2020, revealing distinct value transmission mechanisms. Quantitatively, the domestic circulation (Route 1) gradient is LTI (92.3–96.1%) > MTI (77.2–93.8%) > HTI (83.7–89.3%); international route intensity (Routes 4+5) is HTI (57.5%) > MTI (55.0%) > LTI (54.9%); demand-structure guidance shows consumption strengthens LTI's domestic circulation, investment reinforces MTI's domestic cycle, and investment also boosts HTI's international routes. Thus, LTI is the "core of livelihood-oriented domestic circulation", MTI the "benchmark for investment-driven domestic circulation", and HTI the "dual-circulation integrating link", providing quantitative evidence for optimising domestic demand and upgrading manufacturing value chains.

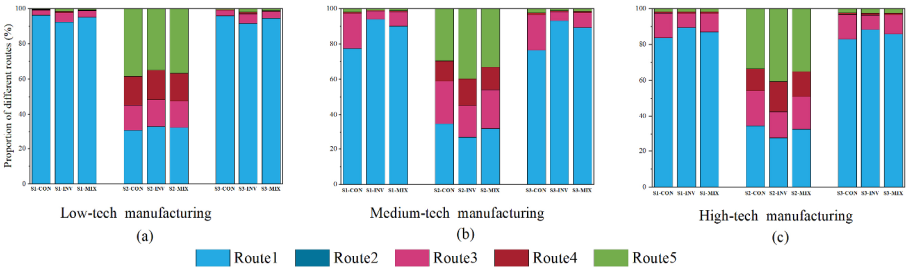

Fig. 3. Value Chain Decomposition of Value Added Across Nine Scenarios in 2020.

3.3 The Economic Implications of China's Efforts to Expand Domestic Demand

China's domestic demand expansion generates positive spillovers on other economies. Analysis of 20 representative economies in 2020 reveals a clear gradient: highly dependent small-medium economies > resource-exporters > high-end manufacturing exporters > large diversified economies. Highly dependent economies (Lithuania 3.96%, Latvia 1.77%, Estonia 1.56%) benefit most, as exports to China exceed 8% of GDP. Large diversified economies (US <0.11%, France <0.18%, India <0.25%) benefit least due to low trade dependence. Resource-exporters (Chile, Indonesia, South Africa) see 1.0–1.4% growth; high-end manufacturing exporters (South Korea 0.84%, Japan 0.54%, Germany 0.39%) see 0.5–0.9%. Supply route determines spillover intensity: S2 (pure imports) averages 1.12%, S3 (original structure) 0.65%, S1 (domestic supply) 0.58%. Demand structure directs spillovers: investment-driven scenarios benefit resource and high-end manufacturing economies; consumption-driven scenarios benefit consumer goods exporters.

The 20 representative economies can be broadly categorised into four groups: 'highly dependent small and medium-sized economies', 'resource-exporting countries', 'high-end manufacturing exporting countries' and 'large diversified economies'. The logic of benefits and characteristics vary significantly across these categories, as shown in Table 2.

Table 2. Summary of Economic Impact Characteristics for Four Typical Country Categories (based on 2020 data).

Type of country	on behalf of the country	Key benefit scenarios	Average pull rate (%)
Highly resource-dependent small and medium-sized economies	Lithuania, Latvia	S1-MIX、S2-MIX	2.85
Resource-exporting countries	Chile, Indonesia, South Africa	S1-INV、S2-CON	1.07
High-tech manufacturing exporters	South Korea, Japan, Germany	S2-INV	0.59
Large diversified economies	United States, United Kingdom, France	S2-MIX	0.08

4 Conclusions and Discussions

Based on the OECD ICIO tables, this paper constructs nine counterfactual scenarios to examine the economic effects of China's domestic demand expansion under different supply routes and demand structures. The findings are as follows: First, the impact of domestic demand expansion on GDP is highly dependent on the supply route, with the growth effect under the domestic-dominated scenario being much stronger than that under the import-dependent scenario; under import dependence, investment-driven demand generates greater indirect effects. Second, significant sectoral heterogeneity is observed: consumption mainly drives downstream sectors (e.g., agriculture), while investment primarily benefits upstream and midstream sectors (e.g., mining); low-, medium-, and high-tech manufacturing exhibit deep domestic circulation, a domestic demand benchmark, and a dual-circulation pattern, respectively. Third, international spillover effects follow a gradient pattern, with small and medium-sized economies highly dependent on Chinese demand benefiting the most; the supply route determines the intensity of spillovers, while the demand structure determines their sectoral and geographical distribution. This study reveals the transmission mechanisms of domestic demand expansion from a value chain perspective and provides a quantitative basis for optimizing demand structures and advancing the dual-circulation strategy.

This study has two main limitations. First, due to input-output data lags, the analysis ends in 2020 and does not capture post-pandemic GVC restructuring. Second, it focuses on supply sources and demand structure, with insufficient industry-level analysis of domestic demand. Future research should utilise more recent data and incorporate industry-specific structural optimisation to better assess post-pandemic effects. Additionally, environmental factors (e.g., embodied carbon) and employment impacts should be integrated into the framework to build a comprehensive "economy-employment-environment" assessment system, providing richer policy insights for a green and inclusive global recovery.

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