

Macroeconomic Effects and Micro-Transmission Mechanisms of the Digital Economy in China: Multiplier and Path Analysis Based on Social Accounting Matrices

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Currently, as China officially enters the opening year of the 15th Five-Year Plan period and deeply advances the Digital China strategy, the digital economy has emerged as a crucial strategic lever for accelerating the construction of a new development paradigm, stabilizing employment, expanding domestic demand, and optimizing income distribution. To accurately assess the macroeconomic empowerment effects of the digital economy and deeply analyze its micro-transmission mechanisms within the complex economic cycle, this paper attempts to answer: What are the recent trends in digital penetration across various sectors in China? How does digitalization affect China's macroeconomy and what are the transmission channels? Which factors of production and real sectors act as critical hubs within the circular economic transmission network?

To address these questions, this study uses China's input-output (IO) tables for 2018, 2020, and 2023 as underlying data, and based on this, it compiles the corresponding national Social Accounting Matrices (SAMs) for these three years. The methodology involves three key components: Firstly, this study scientifically defines the digital industries according to the Statistical Classification of the Digital Economy and its Core Industries (2021) issued by the National Bureau of Statistics. Secondly, it constructs IO tables capable of identifying the elements of the digital economy and uses the IO model to measure the digitalization scale, digitalization level, and IO multiplier effects across sectors. Thirdly, it comprehensively applies the SAM multiplier model and Structural Path Analysis (SPA) to establish a systematic analytical framework incorporating both macroeconomic effects and micro-transmission mechanisms.

Driven by this comprehensive analytical framework, the innovations of this paper lie in two aspects. Firstly, it extends the IO model to a SAM general equilibrium framework. Compared to traditional IO tables, the SAM framework offers a distinct methodological advantage by comprehensively mapping the entire economic cycle and, in particular, better demonstrating the structural characteristics of secondary income distribution among institutional sectors. Consequently, it quantitatively identifies the domestic demand-induced effects that are traditionally underestimated. Secondly, utilizing the compiled consecutive-year digital economy SAMs for 2018–2023, it dynamically reveals the structural transitions of the pathways through which the digital economy stimulates macroeconomic output.

Based on the aforementioned analysis, the main conclusions are as follows: (1) China's digitalization scale increased continuously from 2018 to 2023, but the digitalization process in manufacturing lagged behind the macroeconomic average, indicating that industrial policies need to tilt toward the production and manufacturing ends to break through the transformation bottlenecks of the real economy. (2) Traditional IO models underestimate the digital economy's impact on agricultural and light industrial output by capturing only inter-industry linkages and ignoring the income distribution loop. This suggests that macroeconomic resource allocation should mitigate its over-reliance on physical infrastructure. (3) Micro-transmission mechanisms exhibit supply chain extension and factor diversification, with low- and medium-skilled labor playing a core hub role in stimulating consumption. Therefore, it is urgent to improve the labor remuneration and employment security for low- and medium-skilled groups to consolidate their foundational supporting role as consumption hubs.