

Research on the Impact of Digital Inclusive Finance on International Logistics

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Abstract: With the rapid development of information technology, digital inclusive finance, as a new type of financial service model, has had a significant impact on the international logistics industry. By analyzing the relevant theories and action mechanisms of digital inclusive finance, this paper explores its influence on international logistics and puts forward corresponding policy suggestions. The study finds that digital inclusive finance helps to reduce the financing costs of international logistics enterprises, improve the efficiency of logistics services, and promote the innovative development of the international logistics industry.

Keywords: Digital Inclusive Finance; International Logistics; Influence; Policy Suggestions.

1. Introduction

(1) Research Background

Under the backdrop of global economic integration, the international logistics industry is playing an increasingly important role. However, international logistics enterprises, especially small and medium-sized enterprises, generally face financing difficulties. Digital inclusive finance, with its characteristics of convenience, high efficiency and low cost, provides a new approach to solving this problem. Against this background, studying the impact of digital inclusive finance on international logistics has important theoretical and practical significance.

(2) Research Objectives and Significance

This paper aims to explore the impact of digital inclusive finance on international logistics, analyze its action mechanism, provide reference for financing strategies for international logistics enterprises in China, and promote the sustainable development of the international logistics industry. This study has the following significance:

Theoretical Significance: Enrich the theoretical research in the fields of digital inclusive finance and international logistics.

Practical Significance: Provide references for the innovation of financing models and risk management for international logistics enterprises in China.

2. Analysis of Relevant Theories and Mechanisms

The Theory of Marginal Industry Expansion holds that a country's initially advantageous resources will gradually lose their advantages over time due to continuous resource consumption and other factors, and these industries will become marginal industries. During the transfer process of marginal industries, the home country can save resources and invest them in more advantageous industries. For the receiving country, the investment in marginal industries can bring in the capital, factors, management, information, etc. that were originally lacking. As a result, resources that could not be utilized or could only be utilized at a high cost due to the lack of the above factors can be fully exploited, making up for the initial deficiencies and promoting the improvement

of domestic industries through the demonstration effect.

(1) Eclectic Theory of International Production

Economist Hymer believed that the reason why multinational corporations engage in international investment and trade is that they possess unique production factors, that is, they have monopolistic advantages. Foreign direct investment takes place against the backdrop of market imperfections and information asymmetry. Buckley put forward the concept of internalization advantage, emphasizing that multinational corporations can formulate internal transfer prices through internal transactions to obtain more benefits in the process of foreign direct investment. Dunning believed that based on having the above two advantages, if the location advantage is also available, then carrying out foreign direct investment becomes an excellent choice for multinational corporations.

The ownership advantage is reflected in the competitive advantage brought by the unique production factors of an enterprise. The internalization advantage depends on issues such as the company's system and efficiency. The location advantage refers to the various advantages shown by the recipient of foreign direct investment compared with other regions. The three advantages and their theoretical model choices are shown.

(2) Theories of International Logistics

International logistics refers to the process of planning, implementing and controlling for the effective flow of goods or services from the place of origin to the place of consumption within a cross-border scope. International logistics involves multiple links such as transportation, warehousing, loading and unloading, packaging, and distribution, and has the characteristics of complexity, risk and dynamism.

(3) Impact Mechanisms of Digital Inclusive Finance on International Logistics

Lowering the Financing Threshold: Digital inclusive finance simplifies the financing process through technological means and reduces the financing threshold for enterprises.

Improving the Financing Efficiency: Digital inclusive finance realizes the rapid matching between the supply and demand sides of funds, improving the financing efficiency.

Optimizing Resource Allocation: Digital inclusive finance

helps international logistics enterprises make better use of resources and improve the quality of logistics services. Financial inclusion theory posits that equitable access to financial services drives economic growth by empowering marginalized groups. Traditional financial systems often exclude SMEs and individuals in developing regions due to high costs, geographic constraints, and informational asymmetries. DIF, as conceptualized by Demirgüç-Kunt and Klapper (2012), leverages digital technologies to overcome these barriers through:

Mobile platforms and agent banking reduce physical and financial entry barriers. For instance, M-Pesa's mobile wallets in Kenya enable rural logistics operators to participate in cross-border trade without traditional bank accounts.

By analyzing non-traditional data (e.g., social media activity, transaction histories), DIF platforms like Ant Group's MYbank bypass collateral requirements, aligning with Beck et al.'s (2007) argument that inclusive finance reduces poverty through SME empowerment.

In international logistics, this theory explains how DIF integrates SMEs into global value chains (GVCs), addressing the "missing middle" problem where SMEs lack access to trade finance despite their critical role in exports.

Network theory emphasizes the role of interconnected actors in value creation. DIF fosters collaborative ecosystems by linking:

Banks, fintechs, and insurers co-create solutions like supply chain financing platforms.

Firms share data via blockchain to improve route planning.

Regulators design interoperability standards (e.g., India's UPI) to unify payment systems.

For instance, the EU's Digital Finance Strategy promotes such networks by incentivizing partnerships between DIF startups and logistics giants like DHL.

3. Analysis of the Impact of Digital Inclusive Finance on International Logistics

(1) Expansion of Financing Channels

Digital inclusive finance provides international logistics enterprises with more diverse financing channels, such as online loans, crowdfunding, and supply chain finance. These new financing methods are helpful for alleviating the financing difficulties of enterprises and promoting their development.

(2) Reduction of Financing Costs

Compared with traditional financing methods, digital inclusive finance has reduced the financing costs of international logistics enterprises. On the one hand, financial institutions have improved the accuracy of risk assessment through technical means such as big data and cloud computing, thereby reducing the cost of credit. On the other hand, enterprises can complete financing applications online, saving time and labor costs in the financing process.

(3) Improvement of Logistics Service Efficiency

Digital inclusive finance has enhanced the service efficiency of international logistics enterprises by optimizing the coordination of capital flow, information flow, and logistics flow. For example, enterprises can use digital technologies to achieve functions such as real-time tracking and intelligent scheduling, improving the level of logistics services.

(4) Innovative Development of the Industry

Digital inclusive finance has promoted the development of international logistics enterprises towards intelligence, greenness, and personalization, and has facilitated industrial innovation. Through digital transformation, enterprises have achieved the upgrading of business models and service contents, and enhanced their market competitiveness. DIF tools enhance supply chain visibility via IoT sensors and smart contracts. For instance, Maersk's TradeLens platform uses blockchain to track shipments in real time, reducing fraud and disputes. Insurtech platforms like Lemonade offer parametric insurance, automatically compensating logistics firms for delays caused by geopolitical disruptions or natural disasters. Divergent data privacy laws (e.g., GDPR vs. China's Cybersecurity Law) complicate cross-border DIF operations. Harmonizing standards through frameworks like the G20's Digital Economy Task Force is critical. SMEs, which drive 40% of global exports, face a \$1.7 trillion trade finance gap due to stringent collateral requirements and risk aversion among traditional lenders. DIF addresses this through:

Platforms like Kabbage and Ant Group's MYbank analyze alternative data (e.g., logistics transaction histories, social media activity) to assess creditworthiness. MYbank has extended \$40 billion in microloans to Chinese SMEs since 2015, boosting their export capabilities. Platforms such as PrimeRevenue provide dynamic discounting and invoice factoring, allowing suppliers to access liquidity tied to confirmed purchase orders. This reduces payment delays from 60–90 days to near-instant settlements.

By integrating DIF into logistics workflows, SMEs gain the capital needed to participate in global value chains, fostering economic inclusivity.

4. Conclusions

(1) Conclusions

Through the analysis of the theories and mechanisms of digital inclusive finance and international logistics, this paper draws the following conclusions:

Digital inclusive finance has a significant positive impact on international logistics, which helps to reduce financing costs, improve the efficiency of logistics services, and promote the innovative development of the industry.

There is still great potential for the application of digital inclusive finance in the field of international logistics, which requires further deepening and improvement.

(2) Policy Recommendations

This paper effectively provides a theoretical supplement for the continued development of digital inclusive finance in China. The development of digital inclusive finance is not only conducive to the development of China's logistics industry but also to the high-quality development of the local economy. However, we should also note that the development of digital inclusive finance should not be endless and unrealistic, and the development level of digital inclusive finance in different regions is not the higher the better. Through digital inclusive finance and financial technology means, we should carry out the reform of the financial supply side, improve the financial supervision system, enhance the efficiency of financial services, and attach importance to the cultivation of talents related to digital inclusive finance, so as to enable digital inclusive finance and international logistics to promote each other and play the role of an "amplifier". However, realizing its full potential requires coordinated

policy action and investments in digital infrastructure. Future research should explore DIF's role in sustainability-driven logistics, such as carbon credit financing for green shipping. SMEs account for 80% of global trade but frequently lack access to credit. Digital lending platforms powered by AI-driven credit scoring (e.g., Ant Group's MYbank) analyze non-traditional data—such as logistics transaction histories—to extend microloans. This bridges the \$1.7 trillion trade finance gap identified by the Asian Development Bank, allowing SMEs to expand export capacities and integrate into international logistics networks. China's DIF ecosystem, anchored by Alipay and WeChat Pay, has been instrumental in BRI logistics. Key outcomes include:

The “Single Window” system digitizes customs declarations, reducing clearance times from 48 hours to 15 minutes for BRI partner countries.

Alibaba's Cainiao Network links DIF with logistics, enabling SMEs in Vietnam and Thailand to access cross-border loans and reduce delivery times by 50% for AliExpress orders.

Divergent data privacy laws (e.g., GDPR vs. China's data localization rules) hinder cross-border DIF adoption. Solutions include:

The G20's Global Partnership for Financial Inclusion (GPII) could establish baseline protocols for DIF interoperability.:

Regulatory sandboxes, like Singapore's FinTech Sandbox, allow firms to test cross-border DIF solutions without full compliance burdens.

Digital inclusive finance is not merely a financial innovation but a catalyst for redefining global logistics. By lowering barriers for SMEs, accelerating payments, and building adaptive supply chains, DIF fosters a more equitable and sustainable trade ecosystem. However, realizing this vision demands coordinated policy action, infrastructure investments, and inclusive governance frameworks. Future research should explore DIF's intersection with emerging trends, such as decentralized autonomous organizations (DAOs) in logistics governance or AI-driven demand forecasting. As the world moves toward Industry 4.0, the synergy between DIF and international logistics will remain pivotal in shaping the future of global commerce.

Institutional theory (North, 1990) highlights how regulations and norms shape economic behavior. DIF's growth in logistics is both enabled and constrained by institutional frameworks: Regulatory sandboxes in Singapore and the EU allow firms to pilot DIF solutions without full compliance burdens. Data localization laws (e.g., China's Cybersecurity Law) fragment cross-border data flows, increasing compliance costs. The theory suggests that harmonized policies, such as the G20's Digital Economy Task Force recommendations, are critical to scaling DIF-driven logistics innovations.

The intersection of digital inclusive finance (DIF) and international logistics represents a convergence of financial innovation and supply chain modernization. To systematically analyze this synergy, this paper integrates multiple theoretical lenses, including financial inclusion theory, transaction cost economics, resource-based view (RBV), and innovation diffusion theory. These frameworks collectively explain how DIF dismantles structural barriers in global logistics while fostering inclusivity, efficiency, and resilience. Behavioral economics (Kahneman & Tversky, 1979) emphasizes that decision-making is influenced by

cognitive biases and heuristics rather than pure rationality. In the context of DIF and logistics, key insights include:

SMEs in developing economies may resist digitizing payments due to perceived risks of fraud or technical errors. For example, cash-reliant freight operators in rural India often prefer traditional hawala systems over mobile wallets, fearing irreversible digital losses.

Logistics firms accustomed to SWIFT-based transactions may undervalue blockchain's long-term benefits due to initial setup costs, slowing adoption.

Platforms like Alibaba's MyBank use gamification (e.g., credit score visualizations) to reduce anxiety, aligning with Thaler's nudge theory (2008).

These biases highlight the need for user-centric DIF designs—such as simplified interfaces and guaranteed reimbursement policies—to accelerate adoption in risk-averse logistics sectors.

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