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U.S. vs. China: Digital-Trade Policies and E-commerce Infrastructures' Effects on Medium-Sized Enterprises' Export Performance

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Abstract. Digital trade governance and e-commerce infrastructure jointly shape how medium-sized enterprises (MEs) access foreign customers, manage compliance, and scale internationally. This paper compares the United States and China, showing how differences in cross-border data governance, payment systems, and logistics ecosystems produce distinct internationalization pathways for MEs. Through comparative policy and text analysis, synthesis of open empirical studies, and two firm-level vignettes, the paper identifies mechanisms by which data regulations, platform interoperability, payment settlement systems, and logistics capabilities affect export intensity, time to market, and compliance costs. The United States' open cloud orientation supports scalable digital service exports but creates administrative complexity through fragmented privacy and national-security rules. China's integrated platform and payment stack accelerates platform-led scaling for product exporters while its data-sovereignty measures raise compliance costs for cross-jurisdictional data processing. The paper concludes with policy and managerial recommendations to reduce export frictions for medium-sized firms and outlines empirical strategies for future causal work.

Keywords: Digital trade policies, E-commerce infrastructure, Export performance, Globalization, Medium-sized enterprises.

1. Introduction

The rise of cross-border e-commerce is not only qualitative but massive in scale: business e-commerce sales have expanded dramatically since 2016 (nearly +60% to $27 trillion in 2022), with an important share of digitally ordered exports concentrated in platform channels, which has changed how firms reach foreign customers. Logistics discovery, cloud services, and integrated payments reduce many of the fixed costs associated with export entry, while modern logistics improve delivery speed and reliability. Medium-sized enterprises have the managerial capacity and scale to utilize digital channels but often lack the resources of large in-house compliance teams. Consequently, national differences in digital trade rules and e-commerce infrastructure can significantly influence the export outcomes of medium-sized enterprises [1,2].

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The paper aims to examine and evaluate how differences between U.S. and Chinese digital trade policies and e-commerce infrastructures affect the export performance and internationalization pathways of medium-sized enterprises. Significance: Medium-sized enterprises play a substantial role in employment and export potential in many economies. Targeted policy and platform interventions that reduce compliance cost and operational friction can yield outsized gains for these firms and national export performance [1].

The paper links trade facilitation and platform literature to data governance debates. It provides practical guidance for policymakers, platforms, and medium-sized enterprise managers seeking to reduce export friction and enhance internationalization.

Furthermore, this study employs comparative policy and text analysis, synthesizing open empirical studies from UNCTAD and public repositories, and includes two medium-sized enterprise vignettes to illustrate key mechanisms. The analysis is theory-informed and focuses on mechanisms that are observable in publicly available evidence [2].

This paper will first review relevant literature and definitions. It then maps mechanisms linking policy and infrastructure to firm-level export outcomes. Next, the paper will present the U.S. and Chinese policy and infrastructure frameworks, along with a comparative assessment. The following section will discuss platform payments, logistics, and future-oriented recommendations. The paper will conclude with a summary of the findings, limitations, and a research agenda.

2. Literature review

2.1. Comparative advantages and trade facilitation

Classical trade theory explains trade through comparative advantages and relative costs. Modern trade facilitation research emphasizes the role of border procedures, information frictions, and transaction costs in enabling participation in international markets. Digital tools and platforms reduce search and coordination costs, but regulatory frictions can reintroduce costs that impede export expansion [1,2].

2.2. E-commerce

Literature reviews online platforms and marketplaces as multi-sided markets that aggregate demand and provide trust instruments such as escrow and ratings. Platforms that bundle discovery, payments, logistics, and seller support can dramatically lower operational burdens for medium-sized exporters and enable rapid scaling when logistics and payment settlement are integrated [3,4].

2.3. Definition of medium-size enterprises

Operational thresholds vary between US and China; a working definition for this study is firms with roughly 50–500 employees or comparable revenue bands. The key characteristic for this study is that medium-sized enterprises typically have managerial capacity to internationalize but limited compliance and legal resources compared with large firms.

2.4. Existing literature on U.S. and Chinese digital trade and e-commerce infrastructures

Open policy reports and academic studies document diverging approaches: China has invested in domestic platform champions and integrated stacks (Alibaba, JD, Alipay/WeChat Pay), while the U.S. historically emphasizes open cross-border data flows and global cloud providers (AWS, Google

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Cloud) but increasingly faces fragmented privacy rules and security controls. China's data protection laws emphasize data sovereignty and impose transfer conditions that affect cross-border processing. Whereas the United States has a growing patchwork of state privacy rules and recent national security-driven controls that increase compliance complexity for firms that export data-rich services [1,2].

3. Digital trade policies and e-commerce systems that influence export competitiveness

3.1. Mechanisms where digital-trade policies affect export performance

i) Digital trade barriers and liberalization policies: Rules on data localization, cross-border transfer permissions, cybersecurity, and platform regulation influence market access and costs to export: liberalization and mutual recognition arrangements lower compliance costs and speed market entry. Restrictive localization and opaque approval regimes increase fixed costs and time to market for medium-sized enterprises that lack large legal teams [5].

ii) Cross-border between US and China: data flows and privacy policies: Cross-border data rules determine whether a medium-sized enterprise can centralize analytics or must replicate systems locally. Predictable transfer mechanisms reduce duplication and allow centralized CRM and personalization. Strict transfer rules require assessments and local storage that raise both initial and ongoing costs, particularly for data-intensive exporters [6].

3.2. The role of e-commerce infrastructure in global market reach

i) Payment systems: Payment settlement rails, including domestic mobile wallets and global card and processor networks, determine conversion rates, settlement delays, and fees. Integrated domestic payments reduce friction for sellers using home platforms, while cross-border settlement often requires intermediaries, increasing cost and settlement time for medium-sized exporters [5,7].

ii) logistics networks: Logistics networks, including overseas warehousing, last-mile delivery, and customs digitization, determine delivery speed and return handling costs. Investments in consolidated parcel flows and overseas warehouses can reduce unit costs and improve competitiveness for medium-sized goods exporters [4].

iii) Digital marketing channels: Platform algorithms, search ranking, paid promotion, and social commerce channels shape visibility. Medium-sized enterprises that master platform optimization or can afford paid promotion capture disproportionate traffic. Integrated platform marketing toolkits reduce the learning curve and time to market for medium-sized exporters [1].

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4. US vs. China digital trade policy framework

Table 1. Comparative table of mechanisms linking policy and infrastructure to export performance [8-11]

Channel	United States	China	Mechanism for MEs	Key stats
Cross-border data rules	Open transfer orientation in trade agreements (USMCA, DEPA observer), but fragmented state-level privacy laws (e.g., CCPA, VCDPA) create compliance uncertainty.	Data Security Law and Personal information Protection Law mandate local storage, regulatory approval for transfers.	Predictable transfers reduce costs; fragmented/restrictive rules force MEs to duplicate systems → higher fixed costs.	OECD: 100+ localization measures worldwide; compliance can raise IT costs 30–60%.
Regulatory fragmentation	Multi-state patchwork: no federal privacy law → firms must navigate varying state requirements.	National laws are unified but strict, requiring audits and security reviews.	Fragmentation = uncertainty + higher legal costs; strict sovereignty = higher compliance burden, especially for SaaS.	U.S. SMEs spend $50–100k/year on privacy compliance; some withdraw from EU after GDPR.
Exports controls and national security	Expanding AI, semiconductor, and dual-use software controls since 2022 create uncertainty.	Fewer outbound restrictions, but exporters face foreign barriers (EU/US scrutiny of Temu/Shein).	Uncertainty leads MEs to self-exclusion from risky markets.	U.S. BIS export rules tightened Oct 2022, targeting AI chips & cloud services.
Payment rails	Modular system: PayPal ($1.53T in 2022), Stripe ($1T in 2023). Fees (2.9% + fixed) and settlement delays.	Integrated: Alipay & WeChat Pay control 90%+ of mobile payments; >1B users each. Bundled escrow + instant FX conversion.	Modular = flexibility but liquidity constraints; integrated = fast scaling, lower working-capital strain.	Stripe: $1T processed (2023); Alipay/WeChat each serve 1B+ users.
Logistics networks	UPS/FedEx/USPS is reliable but costly. FBA (Amazon) lowers some barriers, but international delivery costs remain high.	Cainiao (Alibaba) + JD Logistics with 300+ overseas warehouses (2023); subsidized cross-border e-commerce shipping lowers costs.	Logistics speed/cost crucial for conversion + returns. China's subsidized system boosts product exporters: U.S. firms face higher per-package costs.	2kg parcel: Shenzhen → London ≈ 2–3x cheaper than New York → London.
Platform discovery and marketing	Amazon ads dominate sponsored products = 70% of first-page listings. Sellers must pay for visibility	Alibaba/Temu offer bundled promotions, algorithmic boosts for new sellers, and discounted campaigns.	Discovery rules shape time-to-first sale. Bundled support reduces learning curve; modular systems force upfront Ad spend.	Amazon: 1.9M active sellers; Temu: 70M U.S. monthly users

In conclusion, as demonstrated in table 1, China's platform-led model lowers operational and coordination costs through bundled services, integrated logistics, and near-universal mobile payment adoption. This structure enables medium-sized goods exporters to scale quickly with limited upfront investment. By contrast, the U.S. modular model supports centralized cloud-based distribution and global interoperability, which benefits medium-sized service exporters that do not require a physical footprint. The trade-off lies in compliance and cost structures: China's integrated system offers lower-friction entry but imposes sovereignty-driven data restrictions, while the U.S. system offers openness and scalability but at the price of fragmented privacy rules and administrative

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coordination. For medium-sized firms, decisive performance differences across sectors arise from how platform support, payment rails, logistics infrastructure, and data-transfer predictability interact with their export profile [1,3].

5. US vs China’s e-commerce infrastructures

5.1. US e-commerce infrastructure

Platforms and marketplaces such as Amazon and eBay provide global reach and multi-seller discovery. Payment processors and payment service providers, such as PayPal, Stripe, and major card networks, enable global settlement. Cloud providers enable centralized service deployment. Medium-sized enterprises selling software or digital services often exploit these tools to scale internationally, while product exporters typically combine platform listing with third-party logistics providers.

Policy-relevant platform features for medium-sized exporters in the United States include marketplace onboarding toolkits, multilingual listing services, and marketplace financing or lending facilities that ease working capital constraints. Public programs that assist medium-sized enterprises to adopt international payment and logistics options reduce adoption gaps and speed export readiness [1,2].

5.2. China’s e-commerce infrastructure

Chinese platforms such as Alibaba and JD provide bundled services, including marketplace listing, buyer protection, payment settlement, and integrated logistics through partners such as Cainiao and JD Logistics. Mobile payment systems, including Alipay and WeChat Pay, provide widespread consumer payment coverage that integrates with platform settlement and financing offers. These bundled services reduce coordination tasks for medium-sized product exporters and provide fast routes to global buyers via platform cross-border channels.

Platform-enabled credit and financing services provide liquidity to medium-sized exporters, thereby accelerating inventory turnover and order scaling. Platform logistics investments and overseas warehouses shorten delivery times, which increases competitiveness for price-sensitive goods sellers [4,5].

5.3. Infrastructure differences and their impact on globalization pathways

China's bundled platform approach tends to create a short path from factory to global customer by internalizing discovery, payment, and fulfillment services. This path reduces the managerial burden of orchestrating multiple third-party providers and lowers time to market for medium-sized product exporters. The U S approach relies on interoperable but separate services that provide flexibility and global interoperability but require more coordination. As a result, product-oriented medium-sized enterprises might find faster scale within China's platform stack. In contrast, medium-sized enterprises can leverage digital services by exploiting the U.S. cloud and marketplace openness, provided cross-border data transfer conditions are favorable [12].

Medium-sized enterprises face strategic choices. Firms that prioritize speed and lower operational complexity may favor platform bundles. In contrast, firms that value multi-market resilience and control may assemble modular stacks with independent payment settlement and logistics partners.

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5.4. Future outlook of infrastructure

Key trends that will shape medium-sized enterprise pathways are the evolution of data governance and the emergence of interoperable transfer mechanisms, regional adequacy frameworks, and trusted partner schemes. Advances in automated fulfillment robotics and AI-driven localization tools will reduce the marginal costs of international expansion. Policymakers and platforms that prioritize predictable and medium-sized enterprise-friendly compliance instruments will increase the probability that medium-sized enterprises will convert digital reach into sustained export performance [1,2].

6. Conclusion

The reference list should Digital trade policy and e-commerce infrastructure jointly determine the feasibility, timing, and cost of medium-sized enterprise internationalization. China's integrated platform bundles mobile payment ubiquity and logistics investments, reducing operational friction for product-oriented medium-sized exporters, while its data sovereignty policies raise compliance costs for cross-jurisdictional data processing. The United States environment supports centralized cloud-based distribution for data and service-oriented medium-sized exporters but increasing state-level privacy rules and security-driven controls create administrative complexity. For medium-sized enterprises, the decisive factor is the complementarity between policy and infrastructure.

1: The paper relies on open access policy reports and case-based vignettes rather than firm-level causal identification. Future research needs matched panel microdata to estimate causal impacts.

2: Medium-sized enterprise definitions and thresholds vary by jurisdiction so that numerical effects may differ across contexts.

Use difference in differences or synthetic control approaches around policy changes such as PIPL implementation or customs modernization to quantify export impacts on medium-sized enterprises. Construct matched panels linking platform seller records and customs export flows to test which infrastructure bundles most strongly predict sustained export growth among medium-sized enterprises. Evaluate randomized trials of medium-sized enterprise compliance support and platform onboarding bundles to measure the return on public and private support.

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