

ACI Research Paper #19-2026

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Please cite this article as:

Nguyen, Phuong T.B., Thi Ngoc My Tran, "Vietnam's Digital Transformation: From Policy Reforms to Digitally Deliverable Services Export Competitiveness", Research Paper #19-2026, *Asia Competitiveness Institute Research Paper Series (September 2026)*.

Vietnam's Digital Transformation: From Policy Reforms to Digitally Deliverable Services Export Competitiveness

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September 7, 2026

Abstract

Vietnam's growth model is shifting from low-cost, foreign-invested manufacturing toward high-value, knowledge-intensive economic activity, and digitally deliverable services (DDS) - services supplied across borders over digital networks - are a natural test of whether that upgrading is underway. This paper asks whether Vietnam's DDS exports strengthened relative to a credible counterfactual over the period in which its national digital transformation agenda intensified and consolidated after 2020. Using the OECD-WTO Balanced Trade in Services database for 2010-2024, we estimate a triple-difference model that compares Vietnam with nine other ASEAN economies, DDS with non-DDS sectors, and the pre- with the post-2020 period, by Poisson pseudo-maximum likelihood with exporter-importer, sector-year, exporter-year and importer-year fixed effects. Vietnam's DDS exports rose by approximately 55 per cent relative to the comparison groups within ASEAN, and by about 36 per cent against all trading partners. The estimates are stable when Singapore is excluded, when 2020 is dropped, and when pandemic controls are added, and an event study shows no differential pre-trend. We read these magnitudes as a comparative post-2020 improvement in export performance and composition, not as attained competitiveness, and not as the effect of any single measure since 2020 marks a broad and still-unfolding reform environment rather than a discrete policy shock.

Keywords: digitally deliverable services; digital trade; services trade; digital transformation; triple-difference; Vietnam; ASEAN.

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1 Introduction

Vietnam’s growth model is entering a critical transition. For more than three decades, the country’s rapid development has been driven by a combination of low-cost labour, export-oriented manufacturing, foreign direct investment, and integration into global value chains. Yet the same growth model now faces structural limits. Labour-cost advantages are gradually eroding, export competitiveness remains highly dependent on foreign-invested manufacturing, and technology-intensive exports are still closely tied to imported inputs and multinational production networks. As Vietnam has officially been reclassified as an upper-middle-income economy by the World Bank in July 2026, the government has announced its next ambition to become a developed, high-income country by 2045 ¹. Hence, challenge for the government is no longer simply how to sustain growth, but how to upgrade the sources of growth.

Digital transformation has become central to this next phase of development. For Vietnam, avoiding the middle-income trap is not only a matter of maintaining high GDP growth. It also requires stronger productivity gains, deeper domestic technological capabilities and more competitive participation in knowledge-intensive sectors. This challenge is sharpened by demographic and geopolitical shifts. Vietnam still benefits from a relatively young and connected population, but its demographic dividend is narrowing as fertility declines and population ageing accelerates. At the same time, US-China strategic competition and “China+1” supply-chain restructuring have increased Vietnam’s opportunity to attract higher-value investment, including in electronics, semiconductors, cloud services and digital infrastructure. Whether Vietnam captures these opportunities will depend not only on openness to investment, but also on the quality of digital infrastructure, skills, data governance and regulatory predictability.

The Vietnamese state has recognised this transition. In June 2020, the Prime Minister issued Decision No. 749/QĐ-TTg approving the National Digital Transformation Programme to 2025, with orientations to 2030. The programme set out the dual goal of developing digital government, the digital economy and digital society while fostering Vietnamese digital-technology enterprises capable of competing globally. This policy shift marked an important turning point: digital transformation moved from being a sectoral technology agenda to becoming a national development strategy. Since then, Vietnam has introduced or strengthened policy frameworks on digital infrastructure, e-government, e-commerce, data governance, cybersecurity, digital skills, artificial intelligence and digital technology firms.

Vietnam’s digital progress has become increasingly visible. The National Statistics Office reported that in 2025 the digital economy accounted for around 14.02 per cent of GDP. In addition, the digital technology industry generated approximately US\$198 billion in revenue (up nearly 26 per cent from 2024) and e-commerce emerged as one of the fastest-growing segments of the digital economy, with revenue estimated at US\$36 billion in 2025, three times the level recorded in 2020 ([Ministry of Science and Technology, 2026](#)). According to the [e-Conomy SEA report](#) by Google, Temasek, and Bain & Company, which has tracked Southeast Asia’s digital transformation in the past decade, Vietnam has been described as one of Southeast Asia’s fastest-growing digital economies, with strong momentum in e-commerce, digital platforms and internet-based services, as well as a regional leader in consumer AI adoption and trust. These achievements indicate that digitalisation is no longer peripheral to Vietnam’s growth model. It is increasingly embedded in trade, manufacturing, services, public administration and daily economic activity.

However, the meaning of this progress remains analytically contested. First, Vietnam’s post-2020 digital

¹The World Bank classifies country according to Atlas Gross National Income (GNI) per capita. As of 1 July 2026, the income thresholds for each category are as follow: Low income (US\$ $\leq$ 1,175), Low-middle income (US\$ 1,176 – 4,635), Upper-middle income (US\$ 4,636 – 14,375), and High income (US\$ $\geq$ 14,376). Source: [World Bank \(2026\)](#)

expansion coincided with the COVID-19 pandemic, which accelerated digital adoption globally and makes it difficult to separate policy effects from broader global shocks. Second, the growth of technology-intensive exports may reflect Vietnam’s deeper integration into FDI-led electronics production rather than domestic technological upgrading. Third, the expansion of digital platforms and digitally deliverable services depends heavily on regulatory conditions, especially cross-border data flows, cloud infrastructure, digital payments, cybersecurity, taxation and platform governance. Fourth, Vietnam’s digital policy framework has become more comprehensive but also more complex, particularly with the emergence of stronger rules on data, personal information protection, cross-border transfers, platform registration and digital-market oversight. These developments create a central tension: Vietnam seeks to promote digital openness, innovation and international integration while simultaneously strengthening regulatory oversight of data, platforms and cross-border digital activity.

This paper focuses on digitally deliverable services trade as a key indicator of whether Vietnam’s digital transformation is translating into internationally competitive services. Digitally deliverable services, or DDS, comprise services that can be traded across borders through digital networks. DDS is one of the fastest-growing segments of global trade. Global digitally deliverable services exports reached US\$4.95 trillion in 2024, up 10 per cent year-on-year and more than 50 per cent above pre-pandemic levels. For Vietnam, DDS represents a potential pathway from digital adoption to knowledge-intensive export upgrading.

Against this background, the paper asks: As Vietnam seeks to move into higher-value activity, is the national digital transformation agenda a breakout opportunity to expand its DDS trade and create new sources of growth? More specifically, it examines whether Vietnam’s DDS exports increased more strongly during 2020-2024 than Vietnam’s non-DDS services exports and DDS exports from other ASEAN economies.

To answer this question, the paper uses the OECD-WTO Balanced Trade in Services database and estimates a triple-difference model on intra-ASEAN bilateral services exports over 2010-2024. The model compares Vietnam with other ASEAN exporters before and after 2020 across digitally deliverable and non-digitally deliverable service sectors. This approach allows the analysis to distinguish Vietnam-specific DDS export improvement from broader regional trends, general services export changes and sector-specific shocks. We also confirm the pattern extends beyond ASEAN.

This paper makes three contributions. First, it shifts attention from Vietnam’s digital economy as a domestic adoption story to digital trade as an indicator of export upgrading. Much of the discussion on Vietnam’s digital transformation focuses on e-commerce, digital government, digital payments and start-ups; less attention has been paid to whether digitalisation has improved Vietnam’s ability to export knowledge-intensive services. Second, the paper contributes to the literature on digital development in emerging economies by introducing the concept of regulated digital openness, highlighting the interaction between international integration and state regulatory control. Third, it provides empirical evidence on Vietnam’s post-2020 DDS export performance relative to ASEAN peers, linking policy change, digital services trade and regional competitiveness. The research adds to the discussion about the power of digital transformation in capturing high-value, knowledge-intensive economic activities and achieving sustainable development in developing countries, as is the case of Vietnam.

The paper proceeds as follows. Section 2 reviews the literature on digital transformation and development, as well as the connection between digital policy and service trade competitiveness. Section 3 provides an overview of Vietnam’s digital policy framework since 2020. This section also identifies a policy-period turning point for our empirical analysis: the approval of the National Digital Transformation Programme under Decision 749/QĐ-TTg on 3 June 2020. Section 4 assesses post-2020 trends of digital deliverable services

(DDS) exports of Vietnam. Section 5 focuses on our main empirical specification and findings of Vietnam’s DDS exports following the National Digital Transformation Programme. Section 6 presents the event study and robustness check to support our main findings. Section 7 discusses the challenges and regulatory tensions that constrain the next phase of development, and develops policy priorities for strengthening Vietnam’s next phase of digital development. Section 8 concludes.

2 Literature Review

In recent decades, digital transformation has attracted considerable scholarly and policy attention in emerging economies due to its potential to stimulate innovation, strengthen competitiveness, and accelerate socio-economic development (David et al. (2025); Leão et al. (2023); Vial (2019)). On whether digital technologies indeed translate into development gains, the World Bank’s World Development Report 2016: Digital Dividends (World Bank, 2016) offered the canonical caution: the internet spreads faster than its “dividends”, and the growth, jobs and service-delivery benefits accrue only where countries also invest in “analogue complements” such as competition, skills and accountable institutions. This framing is directly relevant to Vietnam. Provincial-panel work finds that Information and Communications Technology (ICT) development raises the productivity of capital and labour, and amplifies the returns to foreign direct investment (FDI) and governance (Huynh et al., 2025). This encourages us to treat digital transformation not as an end in itself but as an enabling environment whose pay-off must be measured in outcomes such as export capability.

A number of studies have linked digital capability directly to services-export performance in developing economies. Cross-country work finds that internet access promotes services-export diversification, with effects concentrated in lower-income exporters (Gnangnon, 2020). Li et al. (2023) construct a Digital Economy Development Index for 75 economies and find that digitalisation improves services export competitiveness along the quantity, price and category margins, and that the effect is larger for low- and middle-income economies. Herman and Oliver (2023) formalise how digital economy policy interacts with development in shaping trade. The common finding that gains are real but conditional on infrastructure, skills and regulations motivates our hypothesis and warns against attributing Vietnam’s post-2020 improvement to any single instrument.

There is also a strand of literature quantifying how digital regulation shapes services trade. The OECD Digital Services Trade Restrictiveness Index (Ferencz (2019); Ferencz and Gonzales (2019)) catalogues cross-cutting barriers, including infrastructure, electronic transactions, e-payments, IP and data measures, and documents a tightening global environment, with local-presence and data-localisation requirements spreading over the past decade. Marel and Ferracane (2021) find that restrictions on the cross-border movement of data significantly reduce imports of data-intensive services, whereas domestic-use rules bear more on productivity than on trade (Ferracane et al., 2020). On the other hand, sharing an open data-transfer model is positively associated with bilateral digital-services trade (Ferracane and Marel, 2021). Henceforth, the same instruments that build trust can, if broad or fragmented, raise the trade costs of the very DDS exports the strategy seeks to grow.

3 Policy Background

Vietnam’s digital-economy agenda is built from interacting layers that differ in function and legal character, and it is marked by an identifiable turning point: the Prime Minister’s approval of the National Digital Transformation Programme to 2025, with orientation to 2030, under Decision No. 749/QĐ-TTg on 3 June 2020. We treat 2020 not as an isolated shock but as a marker for the intensification and consolidation of an agenda that predates it in strategic intent (notably Politburo Resolution 52-NQ/TW in 2019) and extends well beyond it in regulatory detail, through a dense wave of legislation enacted over 2023-2026. The 2020 break also coincides with several external policy shocks that any credible identification strategy must confront. This section first sets out the imperative behind Vietnam’s digital push, then documents the policy architecture, and sets up the identification challenge that the empirical strategies later address.

3.1 The Digital Imperative: Why Vietnam Prioritises Digital Transformation

Vietnam’s turn to digital transformation is best understood as a response to the exhaustion of the growth model that carried it to lower-middle-income status. For three decades, growth rested on low-cost labour, export-oriented and largely foreign-invested manufacturing, and integration into global value chains. Each of these pillars is now under strain: unit-labour-cost advantages are eroding, high-technology exports remain tethered to imported inputs and multinational production networks, and further gains from factor accumulation are diminishing. This is the classic setting for the “middle income trap” first articulated by [Kharas and Gill \(2007\)](#) - the point at which the cost advantages that drive early catch-up fade before innovation-based advantages have been built. The binding constraint on sustained growth has shifted from mobilising more labour and capital to raising productivity and capturing higher-value economic activity, precisely the domain in which digital capability operates. Vietnam is seeking the “digital dividends” that materialise only alongside investment in skills, competition and institutions ([World Bank, 2016](#)).

A second driver is demographic. Vietnam still enjoys a relatively young, highly connected population. However, the demographic dividend is narrowing as fertility falls and ageing accelerates. Vietnam became an “ageing society” in 2015 and is projected to become “aged” by around 2035, making it one of the fastest-ageing countries in the world and leaving it far less time to adjust than most advanced economies had ([World Bank, 2021](#)). A shrinking supply of prime-age workers raises the premium on productivity-enhancing technologies and on moving workers into higher-value, knowledge-intensive roles before the dependency ratio rises. Recent evidence shows that population ageing is itself a systematic driver of automation and digital-technology adoption across countries, because it creates scarcity in the manual and mid-skill tasks most amenable to substitution ([Abeliansky et al. \(2020\)](#); [Acemoglu and Restrepo \(2022\)](#)). For Vietnam, digitalisation is one of the few levers capable of lifting output per worker quickly and economy-wide, which is why the National Digital Transformation Programme is framed as a whole-of-economy agenda rather than a sectoral technology policy.

A third driver is geopolitical and external. US-China strategic competition and “China Plus One” supply-chain restructuring have enhanced Vietnam’s opportunity to attract higher-value investment in electronics, semiconductors, cloud services and digital infrastructure. That this is a genuine opportunity, not merely a convenient narrative, is now well documented: [Fajgelbaum et al. \(2024\)](#) show that the trade war created a net export opportunities for “bystander” economies - Vietnam prominent among them - in the tariff-exposed products reallocated away from China, while [Freund et al. \(2024\)](#) document a broader reshaping of supply chains toward lower-wage connector economies. Yet this window is contingent: whether Vietnam captures

rather than merely hosts such investment depends on the quality of its digital infrastructure, data governance, skills and regulatory predictability. Digital transformation is thus partly a competitiveness insurance policy: an attempt to convert a moment of favourable relocation into durable domestic capability.

A fourth driver is regional competition and integration. Vietnam is competing for the same DDS demand as Singapore, Malaysia, Thailand and the Philippines, and is negotiating within the emerging ASEAN Digital Economy Framework Agreement (DEFA). Falling behind regional peers on digital rules and infrastructure would translate directly into lost service-export share. Finally, digital government carries an internal-modernisation logic of its own. Evidence from comparable developing economies suggests that digital identity, e-invoicing, online public services and digital tax administration lower transaction costs across the economy and strengthen state capacity (Bellon et al. (2022); Muralidharan et al. (2016); Okunogbe and Pouliquen (2022)). These are the institutional complements that the digital-dividends literature identifies as decisive for whether technology delivers development gains (World Bank, 2016), benefiting the state values independently of their trade effects.

These imperatives jointly explain why digital transformation was elevated to a national strategy in 2020 and reaffirmed as a "strategic breakthrough" in 2024. They also frame the tension that the rest of the paper examines: the same drivers that push Vietnam towards openness and international integration also push it towards stronger regulatory control over data, platforms and cross-border digital activity. The policy architecture set out below is the institutional expression of that dual mandate.

3.2 The Policy Architecture

Vietnam's approach to digital transformation is organised across interacting layers of governance that differ in function and in legal character. Party political direction - Politburo resolutions - sets long horizon strategic priorities. The legislation, including laws and resolutions of the Nation Assembly, establishes the binding statutory framework. The executive implementation - Government decrees and Prime Ministerial decisions - translates Party direction and statutory obligations into programs and detailed rules. This structure allows the ruling party to set direction while delegating statutory design and implementation detail to the National Assembly and the executive, a pattern consistent with policy formulation in Vietnam's single-party system.

- **Politburo Resolutions** set strategic directions for the entire state. For digital development, the foundational strategic document is Resolution 52-NQ/TW (signed and promulgated on 27 September 2019), providing a number of guidelines and policies for Vietnam's proactive participation in the Fourth Industrial Revolution. Five years later, the Politburo issued Resolution 57-NQ/TW (22 December 2024), elevating digital transformation, science, technology, and innovation to the status of "strategic breakthroughs" for national development. This resolution reaffirms the digital-GDP targets of at least 30% by 2030 and 50% by 2045, as well as the country's ambition of reaching upper middle income status by 2030 and high income status by 2045.
- **Legislation** such as laws and resolutions of the National Assembly builds the regulatory framework. The legislative layer establishes the binding legal obligations under which digital economic activity, and in particular cross-border digital trade, takes place. The Law on Electronic Transactions (No. 20/2023/QH15) modernised the transactional and infrastructure base in 2023, extending coverage to digital platforms, digital signatures, and electronic contracts. The Telecommunications Law (No. 24/2023/QH15) brings data centres, cloud computing and Over-The-Top (OTT) services within the legal framework, while easing market entry for foreign investors. A dense 2025–2026 wave followed:

the Personal Data Protection Law (PDPL, No. 91/2025/QH15, passed 26 June 2025, effective 1 January 2026), implemented through Decree 356/2025/ND-CP (effective 1 January 2026, replacing Decree 13/2023/ND-CP); the Law on Data (No. 60/2025/QH15); the Law on Cybersecurity (No. 116/2025/QH15, passed 10 December 2025, effective 1 July 2026), which consolidates the 2015 Cyber-Information Security Law and the 2018 Cybersecurity Law and retains data-localisation requirements; and the Law on Artificial Intelligence (No. 134/2025/QH15, passed 10 December 2025, effective 1 March 2026), which is Southeast Asia’s first stand-alone, risk-based AI statute. This recent wave of laws signals a critical shift in Vietnam’s digital transformation approach, from building digital infrastructure to governing a digital economy.

- **Executive implementation** translates the Politburo’s direction into implementation programmes and detailed rules. These include government decrees and Prime-Ministerial decisions. Decision 749/QD-TTg (signed 2020) approved the National Digital Transformation Programme through 2025, with orientations toward 2030. Afterward came Decision 942/QD-TTg (signed 2021, the e-Government Development Strategy for 2021–2025), Decision 411/QD-TTg (2022, the Digital Economy and Digital Society Development Strategy to 2025 with a vision to 2030), and Decision 840/QD-TTg (2026, the Digital Technology Industry Development Programme for 2026–2030 with a vision to 2045). These strategies set out concrete targets in terms of infrastructure expansion, digital government, digital adoption and development plan for digital technology industry.

Table 1 summaries the architecture. The grouping is an analytical device for organising a large body of instruments, not a description of Vietnam’s formal legal ranking.

3.3 The National Digital Transformation Programme (Decision 749)

Decision 749/QD-TTg pursues a dual goal: to develop a digital government, digital economy, and digital society; and to build Vietnamese digital-technology enterprises capable of competing regionally and globally. It is organised around three pillars, namely digital government, digital economy, and digital society, and prioritises eight sectors for early transformation (health, education, finance–banking, agriculture, transport–logistics, energy, natural resources and environment, and industrial production). Its headline quantitative commitments include a digital economy contributing 20% of GDP by 2025 (rising toward 30% by 2030), a top-50 placement in the United Nations E-Government Development Index (EGDI) by 2030, universal broadband and 5G coverage, and a digital identity and electronic-payment account for every citizen.

Decision 749 is used in this paper as the marker of the post-2020 policy period, since it is the first comprehensive, economy-wide programme to target digital economic activity as such rather than a specific sector or institution. It is a marker, not a self-contained treatment. Two features of the design follow. First, because the Decision was issued in mid-2020 and it bundles infrastructure, e-government, and data-governance measures rolled out over 2020–2024 alongside several other treatments, the estimated triple-difference coefficient should be read as the combined, relative change associated with this broader agenda, not the marginal effect of any single decree. Second, 2019 is the last pre-policy year and the base period for the event study; the specification that excludes 2020 guards against reading the result of the partial, disrupted first year. Accordingly, the analysis is a comparative post-2020 assessment of Vietnam’s DDS export performance relative to ASEAN peers, not an estimate of the trade impact of Decision 749.

Table 1: Vietnam’s digital policy architecture

Type	Instrument	Year/Effect	Function
Politburo Resolution	Resolution 52-NQ/TW	2019	Proactive participation in Fourth Industrial Revolution
	Resolution 57-NQ/TW	2024	Science, Technology, Innovation and Digital Transformation as strategic breakthroughs
Legislations (incl. laws and National Assembly resolutions)	Law on Electronic Transactions (20/2023/QH15)	2023	Legal basis for electronic transactions
	Law on Telecommunications (24/2023/QH15)	2023	Governs data centres, cloud, OTT; eases market entry
	Law on Data (60/2024/QH15)	2024/eff.2025	Framework for data as an economic resources
	Personal Data Protection Law (91/2025/QH15)	2025/eff.2026	Statutory data-protection regime; implemented via Decree 356/2025/ND-CP
	Law on Digital Technology Industry (71/2025/QH15)	2025/eff.2026	First standalone law on the digital-technology industry (semiconductors, AI, digital assets)
	Law on Artificial Intelligence (134/2025/QH15)	2025/eff.2026	First standalone risk-based AI law in Southeast Asia
	New Cybersecurity Law (116/2025/QH15)	2025/eff.2026	Consolidates cybersecurity regime; retains data localisation
	Law on Digital Transformation (148/2025/QH15)	2025/eff.2026	Cross-cutting digital economy/society framework; institutionalises Resolution 57
	Law on E-Commerce (122/2025/QH15)	2025/eff. 2026	Comprehensive legal framework for digital trade, livestream sales, and platform accountability
Executive implementation (incl. Government decrees and Prime-Ministerial decisions)	Resolution 193/2025/QH15	2025	Pilot special mechanisms for STI & national digital transformation
	Decision 749/QD-TTg	2020	National Digital Transformation Programme to 2025, vision to 2030
	Decision 942/QD-TTg	2021	E-Government Development Strategy 2021-2025
	Decision 411/QD-TTg	2022	Digital Economy & Digital Society Strategy to 2025, vision to 2030
	Decree 356/2025/ND-CP	2026	Implements the Personal Data Protection Law
	Decree 353/2025/ND-CP	2026	Implements the Law on Digital Technology Industry
	Decision 840/QD-TTg	2026	Digital Technology Industry Development Program 2026 - 2030, vision to 2045

Notes: The grouping above is functional, not a ranking. Effective dates shown for laws that take effect after passage (E.g., Personal Data Protection Law and Law on Digital Technology Industry take effect on 1 Jan 2026, AI Law 1 Mar 2026, Cybersecurity Law 1 Jul 2026). Source: Vietnam Government Gazette.

3.4 Targets versus Realised Outcomes

Two honest caveats frame the results that follow. First, ambition has outpaced realisation on the headline metric: the digital economy is estimated at roughly 14% of GDP as of 2025, against the Programme’s 20%-by-2025 target. This is a visible shortfall that tempers any triumphalist reading of the trade findings. Second, on the specific margin this paper studies, Vietnam remains a net importer of digitally delivered services, and its DDS trade deficit has widened since 2020. The post-2020 acceleration we document is therefore an improvement in export performance and composition, not evidence that Vietnam has become a net digital-services exporter. Preserving both caveats is deliberate: they mark the boundary of what the econometrics can support.

4 Current Trends of Vietnam’s Digitally Deliverable Services (DDS) Trade

Digitally deliverable services trade comprises international transactions that can be delivered remotely over computer networks. DDS sectors include insurance and pension services, financial services, charges for the use of intellectual property, telecommunications, computer and information services, other business services, personal, cultural and recreational services, and government goods and services (OECD (2025); IMF, OECD, UN, and WTO (2023)). Several of these categories are further disaggregated into more specific activities, such as computer services, research and development, professional and management consulting, technical services, and audiovisual services.

The global pattern shows that digitally deliverable services expanded steadily over 2010-2024, with a clear acceleration after the 2020 pandemic. Global DDS exports rose from around US\$2 trillion in 2010 to nearly US\$5 trillion in 2024, suggesting that digital delivery became an increasingly important channel for cross-border services trade (Figure 1). Europe remained the largest exporting region, followed by Asia, while Africa, the Americas and Oceania accounted for smaller shares. Within Asia, the expansion was broad-based but uneven (Figure 2). Eastern Asia remained the largest DDS-exporting subregion, while South-eastern Asia and Western Asia recorded strong growth after 2020. For emerging economies such as Vietnam, these trends create both an opportunity and a competitive challenge. Particularly, the market for digitally deliverable services is expanding rapidly, but so is competition to capture higher-value segments. Against this background, the remainder of this section examines whether Vietnam has strengthened its position in services that can be delivered digitally across borders.

Vietnam’s digitally deliverable services trade expanded steadily over 2010-2024, but the increase was stronger on the import side than on the export side (Figure 3). DDS exports rose gradually from below US\$2 billion in 2010 to slightly above US\$5 billion in 2024, with a visible acceleration after 2020. However, DDS imports grew much faster, reaching around US\$12 billion by 2024. As a result, Vietnam remained a persistent net importer of DDS throughout the period, and the trade deficit widened markedly after 2020. This pattern suggests that although Vietnam’s DDS export capacity has improved, domestic firms and consumers continue to rely heavily on foreign digital, professional and technology-related services.

DDS has become more important in Vietnam’s services export basket, especially after the pandemic (Figure 4). Before 2020, DDS accounted for a relatively modest share of total services exports, generally around the low-teen range. The share increased sharply during 2020-2021, reflecting the resilience of digitally deliverable services when traditional services, particularly travel-related activities, were severely disrupted.

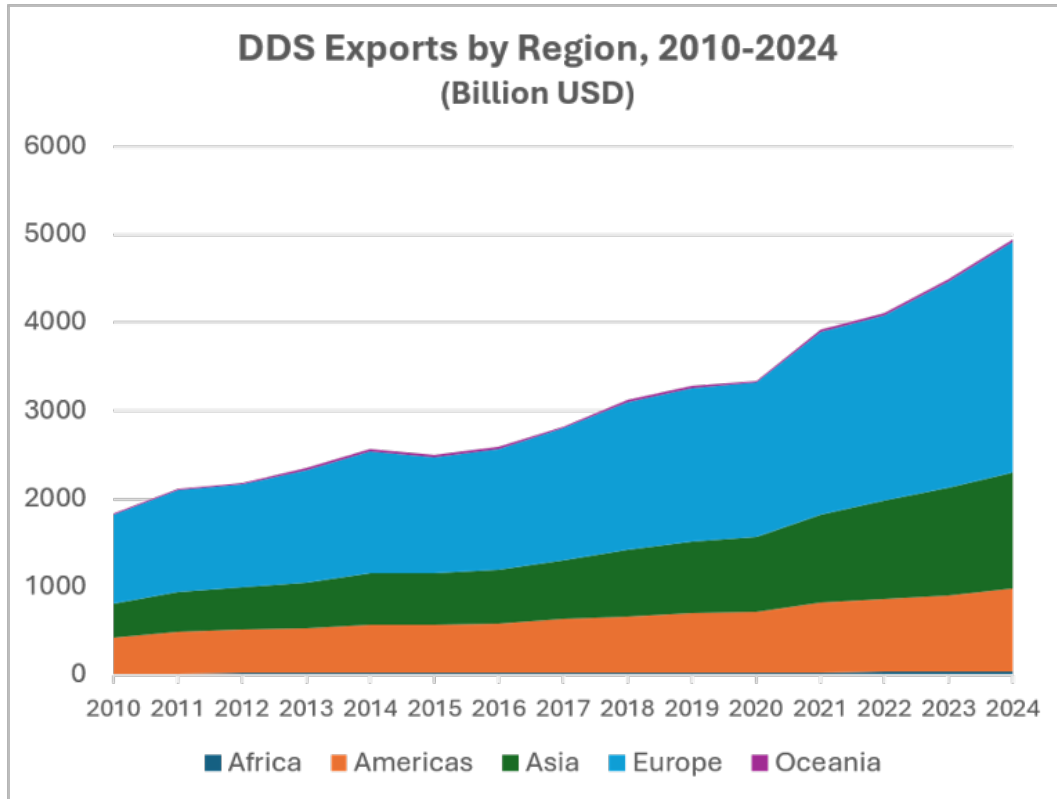


Figure 1: Global DDS exports by region, 2010-2024

Although the DDS share moderated after 2021 as non-DDS services recovered, it remained higher than most pre-pandemic levels during 2022-2024. This indicates that Vietnam’s services export structure has shifted toward more digitally deliverable activities, even as traditional services rebounded.

Vietnam’s DDS exports are concentrated in a small group of advanced and regionally connected markets (Figure 5). Japan, the United States and Singapore were the three largest destinations during 2020-2024, followed by the United Kingdom, China, Malaysia, India, Germany, Switzerland and Ireland. The dominance of Japan, the United States and Singapore suggests that Vietnam’s DDS exports are closely linked to markets with strong demand for ICT services, business services, outsourcing, consulting and technology-related activities. The presence of both advanced economies and ASEAN partners also indicates that Vietnam’s DDS export growth is driven by a mix of global demand and regional digital integration.

Vietnam’s DDS exports are heavily concentrated in two knowledge-intensive sectors: other business services and telecommunications, computer and information services (Figure 6). Together, these sectors account for the vast majority of DDS exports throughout 2010-2024, with other business services consistently forming the largest share and telecom, computer and information services becoming increasingly important after 2020. Financial services, charges for intellectual property use, personal and cultural services, insurance and government services remain relatively small. This sectoral pattern suggests that Vietnam’s DDS export strength is emerging mainly in business, technical and ICT-related services, rather than being broadly diversified across all digitally deliverable sectors.

Compared with ASEAN peers, Vietnam recorded one of the strongest DDS export growth trajectories after 2019 (Figure 7). Using 2019 as the base year, Vietnam’s DDS export index rose sharply in 2020 and

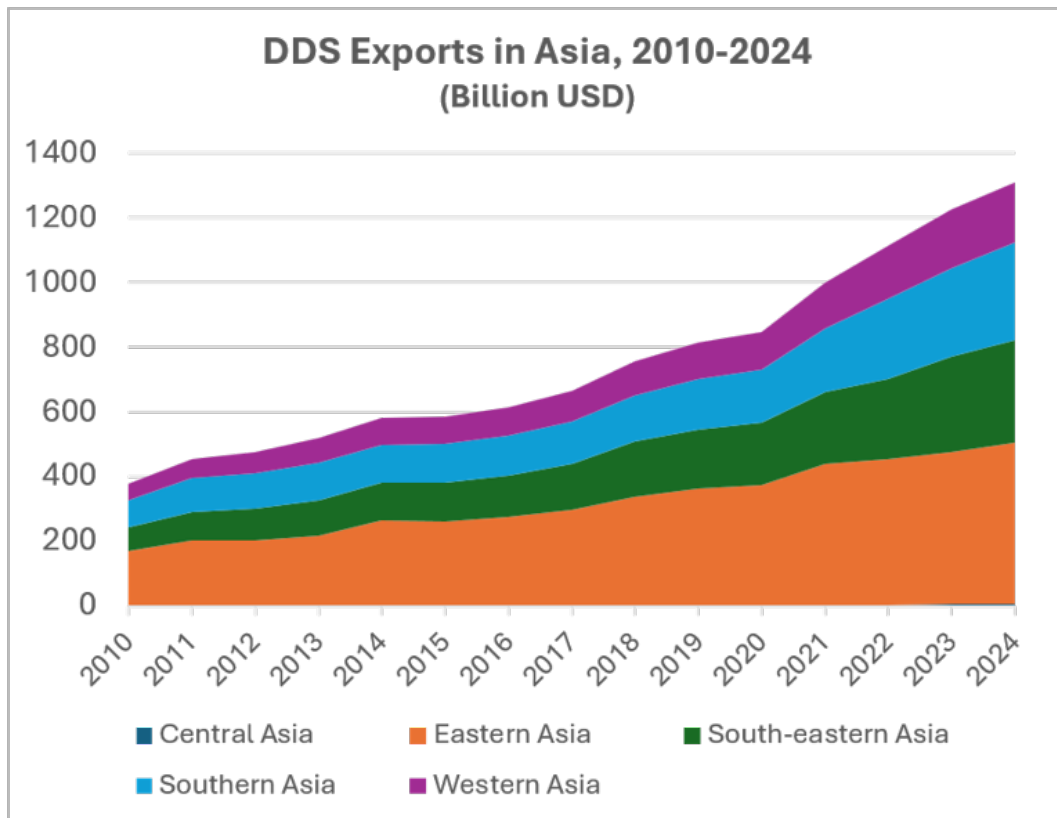


Figure 2: DDS exports in Asia, 2010-2024

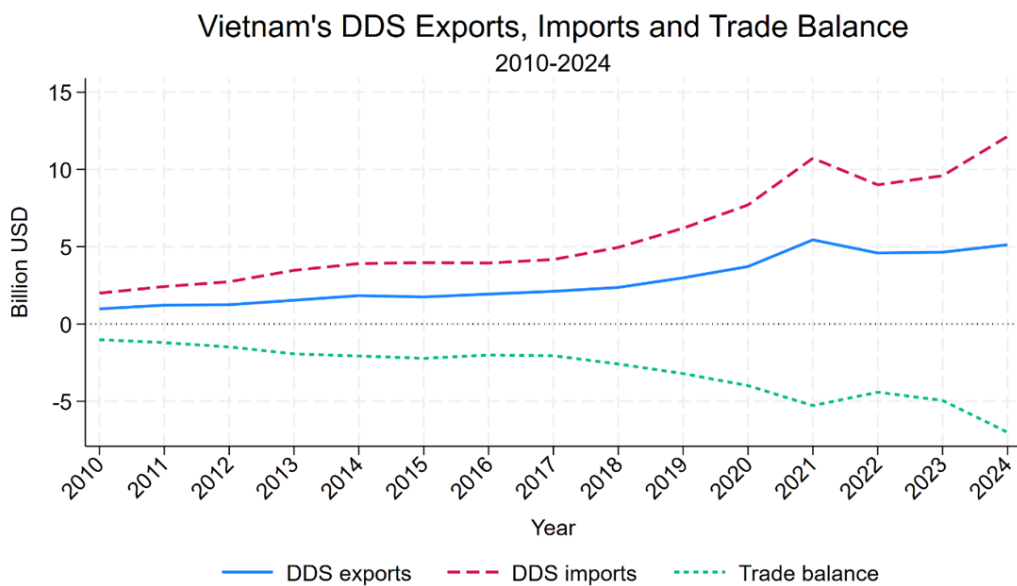


Figure 3: Vietnam's DDS exports, imports and trade balance, 2010-2024

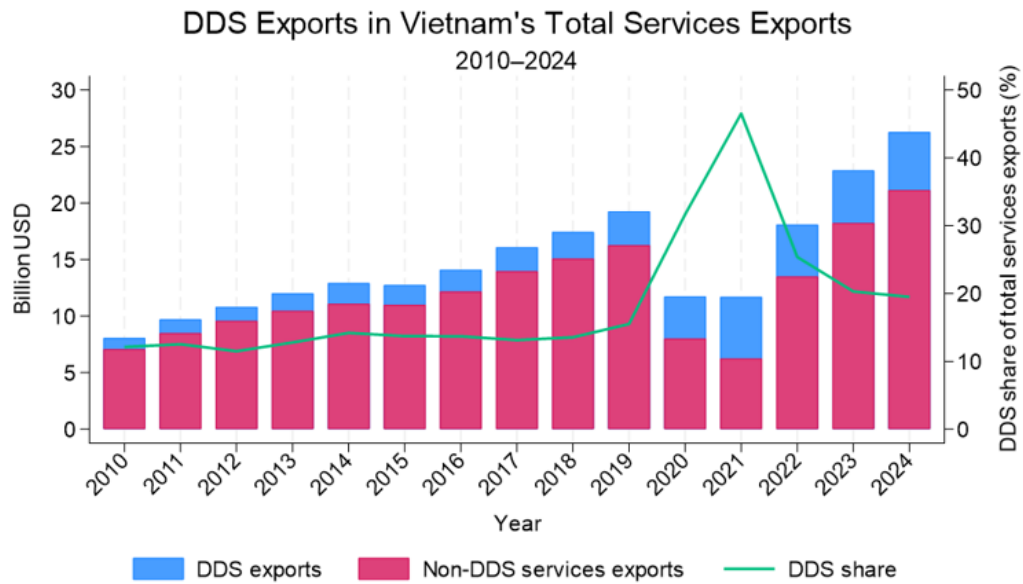


Figure 4: DDS share of Vietnam's total services exports, 2010-2024

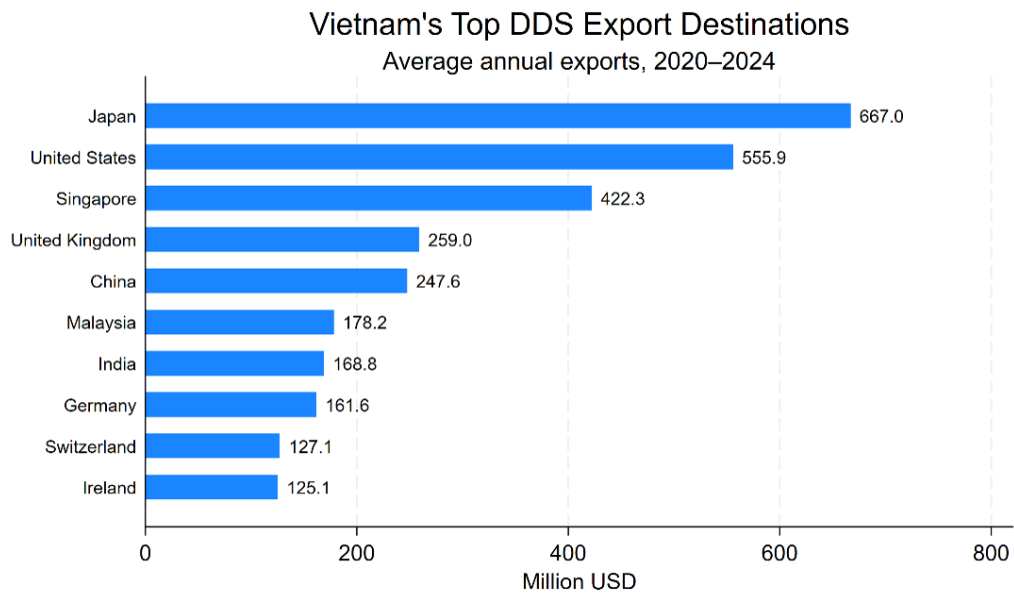


Figure 5: Vietnam's top DDS export destinations, by average annual exports, 2020-2024

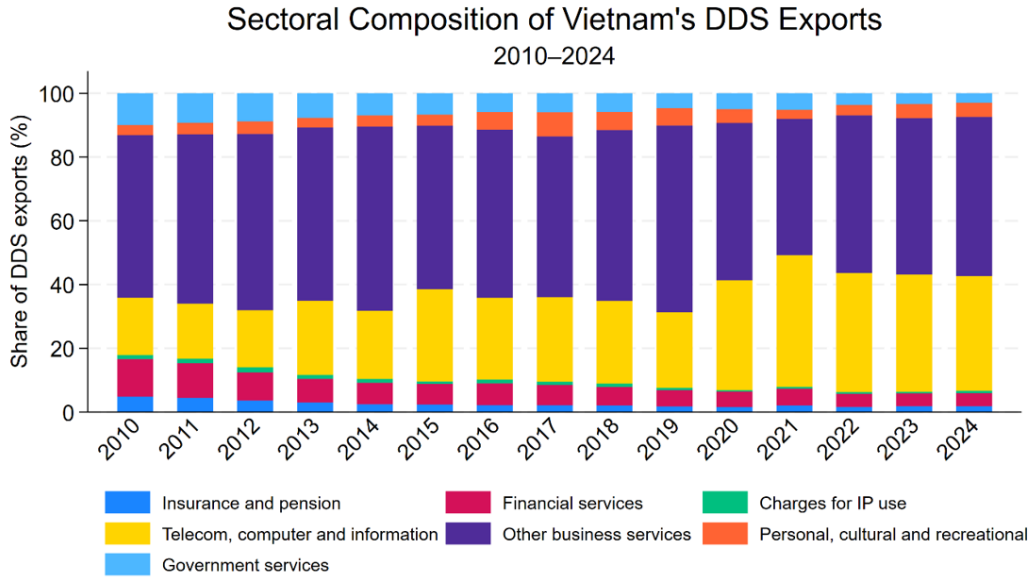


Figure 6: Composition of Vietnam's DDS export sectors, 2010-2024

peaked in 2021, outpacing Singapore, Malaysia, Thailand, Indonesia and the Philippines during the early post-pandemic period. Although Vietnam's index moderated after 2021, it remained substantially above its 2019 level and broadly comparable to, or higher than, most ASEAN peers by 2024. This suggests that Vietnam's post-2020 DDS expansion was not merely part of a general regional recovery, but reflected a relatively strong improvement in Vietnam's digital services export performance.

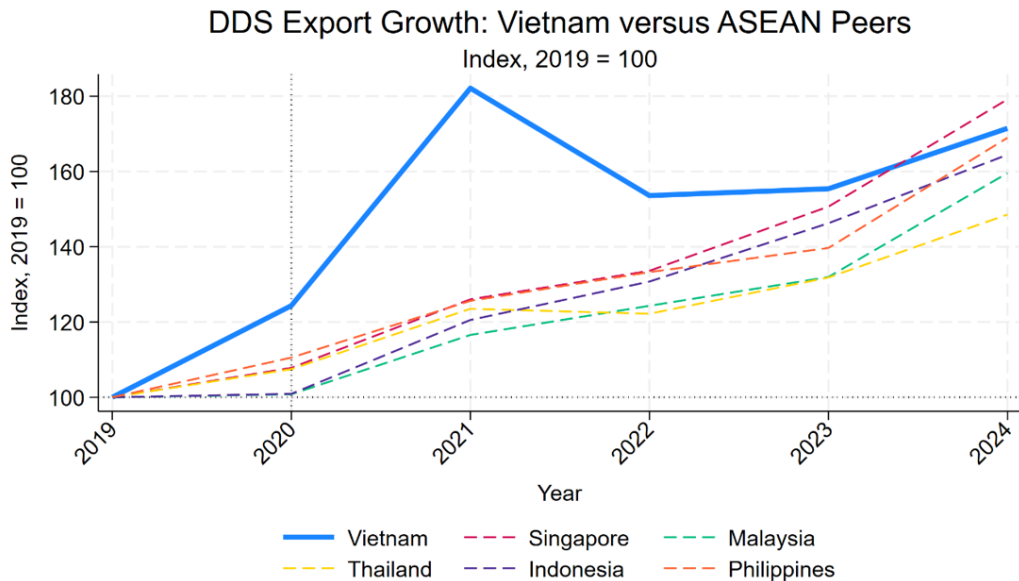


Figure 7: Vietnam versus ASEAN peers: DDS export growth, 2019-2024 (2019 = 100)

Vietnam's DDS exports to ASEAN member destinations increased sharply after 2019 (Figure 8), indicating that regional markets became more important channels for Vietnam's digital services trade.

Exports rose from a relatively low base before the pandemic to more than US\$1 billion in 2021, before moderating in 2022-2024 but remaining well above pre-2020 levels. Singapore was the dominant ASEAN destination throughout the period, reflecting its role as a regional hub for digital and business services demand. Malaysia and Thailand also became increasingly important, particularly after 2020, while exports to Indonesia and the Philippines remained smaller but positive. Overall, the pattern suggests that Vietnam's DDS export growth is not only linked to global markets, but also increasingly embedded in ASEAN's digital services economy.

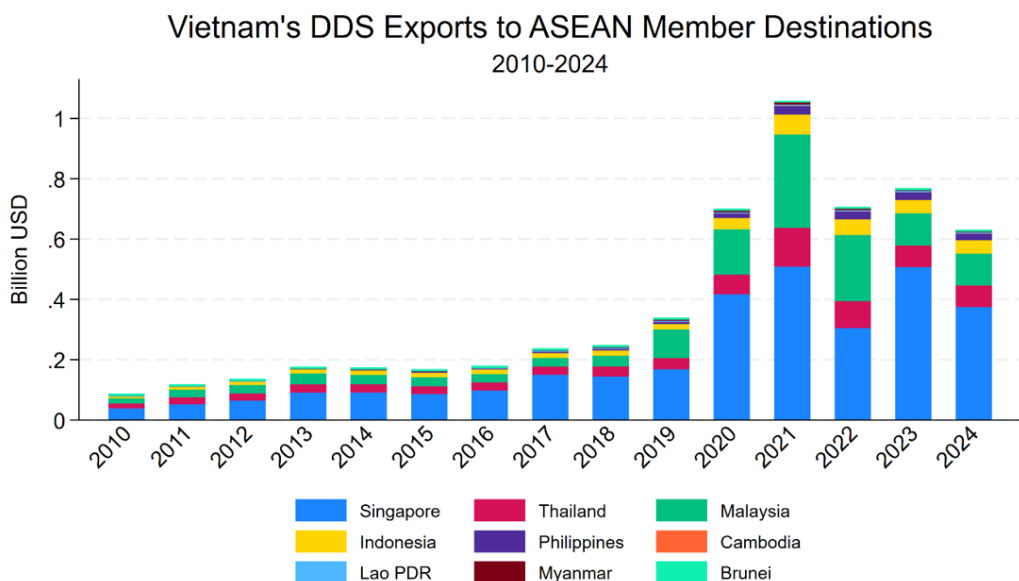


Figure 8: Vietnam's DDS export to ASEAN members, 2010-2024

The descriptive evidence points to a clear shift in Vietnam's digitally deliverable services trade from 2020 onward. DDS exports increased, their share of Vietnam's total services exports rose, export growth outpaced that of several ASEAN peers, and ASEAN markets became increasingly important destinations. At the same time, Vietnam remained a net importer of DDS. These patterns motivate a formal empirical assessment of whether Vietnam experienced a distinctive improvement in DDS exports after 2020. The central research question is therefore: Did Vietnam's DDS export growth reflect a broader regional trend, or did Vietnam outperform its ASEAN peers following the launch of the National Digital Transformation Programme in 2020? To address this question, the next section estimates a triple-difference model using ASEAN bilateral trade flows from 2010 to 2024.

5 Vietnam's Digital Transformation Programme: Trade Impacts on Digitally Deliverable Services

The descriptive evidence suggests that Vietnam's digitally deliverable services exports strengthened after 2020, both in absolute terms and relative to several ASEAN peers. To formally test whether this pattern reflects a distinctive post-2020 improvement in Vietnam's DDS export performance, this section estimates a triple-difference model using bilateral intra-ASEAN services trade data from the OECD-WTO BaTiS

database.

5.1 Data and Model

The main hypothesis is as follows:

H1: During 2020-2024, Vietnam’s DDS exports increased more strongly relative to its non-DDS services exports than the corresponding increase in other ASEAN economies, compared with the pre-2020 period.

The empirical specification compares changes across three dimensions: exporter identity, time period, and service-sector digital deliverability. The key treatment variable interacts a Vietnam-exporter dummy, a post-2020 dummy, and a DDS-sector dummy. The coefficient on this triple interaction captures whether, relative to the pre-2020 period, Vietnam’s DDS exports increased more strongly relative to its non-DDS services exports than the corresponding increase in other ASEAN economies.

Identification rests on a triple-difference analogue of the parallel-trends assumption: in the absence of Vietnam’s digital transformation environment from 2020 onward, the gap between Vietnam’s DDS and non-DDS services exports would have evolved in parallel with the corresponding DDS-non-DDS gap among the control ASEAN economies. The event study in Section 6.1 provides direct evidence on this assumption by testing for differential pre-trends before 2020.

Because services flows contain zeros and heteroscedasticity, Santos Silva and Tenreyro (2006) show that log-OLS is biased and recommend Poisson pseudo-maximum likelihood (PPML). Accordingly, we estimate the model using PPML with high-dimensional fixed effects (PPMLHDFE) (Correia et al., 2020):

$$\text{Export}_{ijst} = \exp [\beta (\text{Vietnam}_i \times \text{Post}_t \times \text{DDS}_s) + \mu_{ij} + \delta_{st} + \gamma_{it} + \alpha_{jt}] + \varepsilon_{ijst}. \quad (1)$$

where Export_{ijst} denotes bilateral services exports from exporter i to importer j in service sector s and year t . The dependent variable is measured in millions of US dollars. Vietnam_i equals 1 when the exporter is Vietnam and 0 otherwise. Post_t equals 1 for 2020-2024 and 0 for the pre-2020 period. DDS_s equals 1 for digitally deliverable service sectors and 0 for non-DDS service sectors.

The model includes exporter-importer pair fixed effects, μ_{ij} , which control for time-invariant bilateral trade determinants, such as geographical distance, historical relationships, and persistent trade links. Sector-year fixed effects, δ_{st} , control for shocks affecting each service sector in a given year, including global changes in demand for digital and non-digital services. Exporter-year fixed effects, γ_{it} , absorb exporter-specific annual shocks, such as macroeconomic conditions, national policy changes, and export capacity. Importer-year fixed effects, α_{jt} , control for importer-specific annual demand and policy shocks. Standard errors are clustered at the exporter-importer pair level.

The sample covers intra-ASEAN bilateral services exports over the period 2010-2024 and includes only 12 main Extended Balance of Payments Services (EBOPS) service sectors to avoid double counting between broad service categories and their sub-sectors.

5.2 Empirical Results

Table 2 reports the triple-difference estimates of the relative performance of Vietnam’s digitally deliverable services exports from 2020 onward, coinciding with the launch of Vietnam’s National Digital Transformation Programme. Across all four specifications, the coefficient on the interaction term $\text{Vietnam} \times \text{Post} \times \text{DDS}$ is positive and statistically significant at the 1 percent level. The consistency of the estimates across alternative samples and model specifications indicates that Vietnam’s digitally deliverable services exports performed

more strongly after 2020 than both its non-digitally deliverable services exports and the corresponding digitally deliverable services exports of other ASEAN economies.

Table 2: Triple-difference estimates of Vietnam’s digitally deliverable services exports

	(1) Main 2020 onward	(2) 2020 onward excl. Singapore	(3) 2020 onward excl. 2020	(4) 2020 onward with COVID controls
Vietnam $\times$ Post $\times$ DDS	0.4398***	0.4625***	0.4153***	0.4288***
Percent effect	(55.25%)	(58.80%)	(51.49%)	(53.54%)
Observations	16,200	14,580	15,120	16,200
Pair fixed effects	Yes	Yes	Yes	Yes
Sector-year fixed effects	Yes	Yes	Yes	No
Exporter-year fixed effects	Yes	Yes	Yes	Yes
Importer-year fixed effects	Yes	Yes	Yes	Yes
COVID controls	No	No	No	Yes

Notes: The dependent variable is bilateral services exports measured in millions of US dollars. Percentage effects, reported in parentheses, are calculated as $100 \times [\exp(\hat{\beta}) - 1]$. All models include exporter–importer pair, exporter–year, and importer–year fixed effects. Sector–year fixed effects are included in Columns (1)–(3) but excluded from Column (4), as COVID–19 controls vary at the sector–year level. Standard errors are clustered at the exporter–importer pair level. The sample covers intra-ASEAN exports and includes only parent EBOPS service sectors.

* $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Column (1) presents the main specification. The estimated coefficient on the triple-interaction term is 0.4398, corresponding to an increase of approximately 55.25 percent, calculated as $100 \times [\exp(\hat{\beta}) - 1]$. The estimate indicates that, after accounting for time-invariant bilateral trade relationships, sector-specific annual shocks, and exporter- and importer-specific annual conditions, Vietnam’s exports of digitally deliverable services increased substantially relative to the comparison groups during 2020–2024. The result is both economically sizeable and statistically significant, suggesting a marked improvement in Vietnam’s relative DDS export performance since 2020.

Because Singapore is ASEAN’s most advanced services-exporting economy and a major regional hub for digital services trade, we exclude it from the comparison group to assess whether its inclusion materially influences the estimated relative performance of Vietnam’s DDS exports. As reported in column (2), the estimated coefficient increases slightly to 0.4625, equivalent to an increase of 58.80 percent, and remains statistically significant. This increase is consistent with Singapore’s strong performance in regional DDS exports: excluding Singapore raises Vietnam’s estimated performance relative to the remaining ASEAN comparators. Nevertheless, the relatively small change in magnitude indicates that the main result is not sensitive to Singapore’s inclusion in the comparison group.

The COVID-19 pandemic in 2020–2021 caused major disruptions to international trade, particularly in services trade. We address the potential influence of this common shock in two ways. First, we exclude observations from 2020 to assess whether the main result is sensitive to the immediate disruption associated with the onset of the pandemic. The coefficient in column (3) remains positive and statistically significant at 0.4153, corresponding to an increase of approximately 51.49 percent. Although this estimate is somewhat smaller than the baseline result, its magnitude remains substantial. This finding indicates that Vietnam’s relative improvement in digitally deliverable services exports continued beyond the initial pandemic year and was not solely the result of temporary demand shifts, mobility restrictions, or emergency digitalisation during 2020.

Second, we introduce additional controls for COVID-19-related conditions while retaining 2020 in the sample. Specifically, we create year-specific dummy variables for 2020 and 2021 and interact each with the DDS indicator. These interactions allow DDS and non-DDS services to experience different trade effects during the main pandemic years, thereby absorbing the common pandemic-related shift towards digitally deliverable services. In column (4), the estimated coefficient is 0.4288, corresponding to an increase of approximately 53.54 percent. The estimate remains close to the baseline result and is statistically significant at the 1 percent level. The similarity between the baseline and COVID-adjusted estimates suggests that the estimated relative improvement in Vietnam’s DDS exports is not primarily driven by common pandemic-related shifts towards digitally deliverable services during the pandemic years.

Taken together, the estimates are broadly stable, ranging from 0.4153 to 0.4625, with implied effects between approximately 51 and 59 percent. This narrow range across specifications strengthens confidence in the robustness of the main finding. The results should nevertheless be interpreted as evidence of a relative improvement in Vietnam’s DDS export performance from 2020 onward rather than as the effect of a single policy measure. The beginning of this period coincides with the launch of Vietnam’s National Digital Transformation Programme, but also with substantial changes in global demand for remotely supplied services, accelerated firm-level digital adoption, and pandemic-related adjustments in international trade. The fixed-effects structure and robustness tests substantially reduce the likelihood that the estimates are driven by these common shocks, but they cannot fully disentangle the contribution of Vietnam’s digital transformation policies from other contemporaneous developments.

Overall, the findings support the hypothesis that Vietnam experienced a significant strengthening of its DDS export performance from 2020 onward. The estimated effect remains economically sizeable and statistically significant when Singapore is excluded, when the pandemic year is omitted, and when COVID-related controls are introduced. Although the analysis does not establish a direct causal effect of individual policies, the results are consistent with the view that Vietnam’s digital transformation strategy strengthened the enabling environment for digitally deliverable services through investments in digital infrastructure, digital government, and digital governance reforms. The improvement in relative export performance therefore appears to reflect not only growing domestic digital capabilities but also a stronger competitive position in cross-border digitally deliverable services within ASEAN.

6 Robustness Checks

6.1 Event study

To assess whether the main DDD results are driven by pre-existing trends, the analysis estimates an event-study specification using 2019 as the base year. The year 2019 is the final year before the launch of Vietnam’s Digital Transformation Programme in 2020, which also coincided with the onset of the COVID-19 pandemic. The specification allows the coefficient for each year to be interpreted relative to 2019 while preserving the same fixed-effect used in the main model.

Figure 9 reports the event-study coefficients capturing changes in Vietnam’s DDS exports relative to its non-DDS services exports and the corresponding difference in other ASEAN economies. The pre-2019 coefficients are small and statistically insignificant, providing no clear evidence that Vietnam’s DDS exports were already following a differential trend before 2020. This pattern supports the parallel-trends assumption underlying the triple-difference design and reduces concerns that the main estimates merely reflect pre-

existing differences in export trends.

In contrast, the post-2019 coefficients are positive and statistically significant. They increase sharply in 2020 and 2021, indicating a substantial improvement in Vietnam’s relative DDS export performance compared with the 2019 baseline. Although their magnitude moderates during 2022–2024, the coefficients remain positive, suggesting that the improvement persisted beyond the initial pandemic period.

Overall, the event-study evidence reinforces the main regression finding that, from 2020 onward, Vietnam experienced a distinct expansion in DDS exports relative to the comparison groups. It is important to reiterate, however, that this pattern should be interpreted as an association with Vietnam’s digital transformation period since 2020 rather than as the isolated causal effect of any single policy.

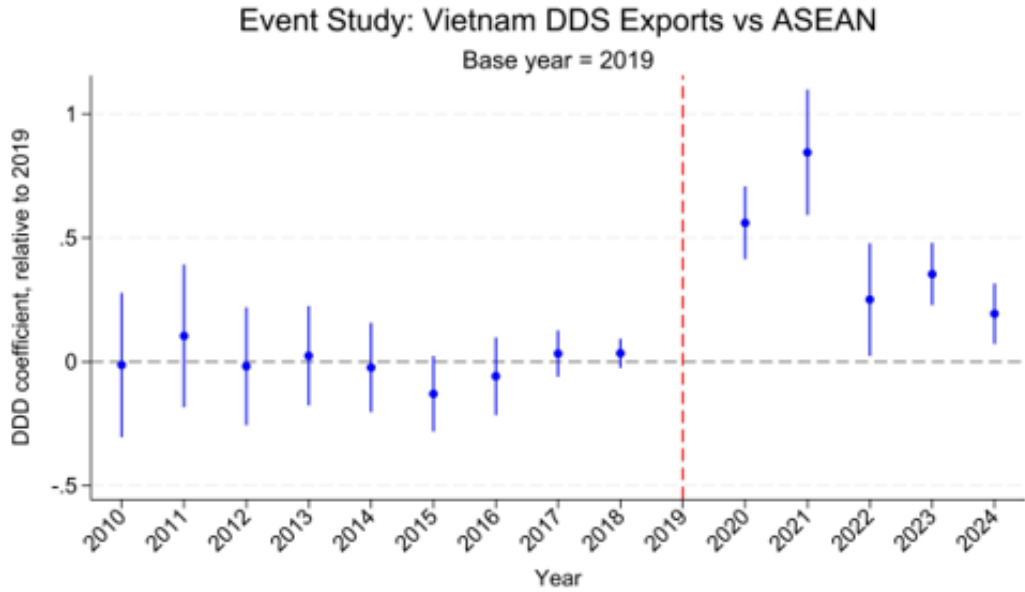


Figure 9: Event-study coefficients for Vietnam’s DDS exports vs ASEAN, 2010-2024

6.2 Triple-difference Model: ASEAN Exports to All Trading Partners

The baseline analysis focuses on intra-ASEAN bilateral services trade, reflecting Vietnam’s regional economic integration and its direct competition with other ASEAN exporters. To examine whether the main findings extend beyond the regional market, we re-estimate the triple-difference model using a broader sample covering services exports from ASEAN economies to all trading partners. This robustness check evaluates whether Vietnam’s relative improvement in DDS exports from 2020 onward is concentrated within intra-ASEAN trade or is also evident across its wider export markets.

Table 3 presents the results. Across all four specifications, the coefficient on $\text{Vietnam} \times \text{Post} \times \text{DDS}$ remains positive and statistically significant at the 1 percent level. In the main specification reported in column (1), the estimated coefficient is 0.3099. In percentage terms, this corresponds to an increase of approximately 36.33 percent, calculated as $100 \times [\exp(\hat{\beta}) - 1]$. The result indicates a significant improvement in Vietnam’s DDS export performance from 2020 onward relative to its non-DDS services and the corresponding DDS-non-DDS differential among other ASEAN exporters.

The estimated effect is smaller than the baseline intra-ASEAN estimate of 55.25 percent, suggesting

that Vietnam’s relative improvement in DDS export performance has been more pronounced within ASEAN but remained evident across the broader set of trading partners. The positive and economically meaningful estimate for the all-partners sample therefore indicates that the main finding is not confined to intra-ASEAN trade.

Table 3: Triple-difference estimates: Vietnam versus ASEAN exporters to all partners

	(1)	(2)	(3)	(4)
	Main	2020 onward	2020 onward	2020 onward
	2020 onward	excl. Singapore	excl. 2020	with COVID controls
Vietnam $\times$ Post $\times$ DDS	0.3099***	0.2587***	0.3020***	0.2970***
Percent effect	(36.33%)	(29.52%)	(35.25%)	(34.58%)
Observations	356,280	320,652	332,520	356,280
Pair fixed effects	Yes	Yes	Yes	Yes
Sector–year fixed effects	Yes	Yes	Yes	No
Exporter–year fixed effects	Yes	Yes	Yes	Yes
Importer–year fixed effects	Yes	Yes	Yes	Yes
COVID controls	No	No	No	Yes

Notes: The dependent variable is bilateral services exports measured in millions of US dollars. Percentage effects, reported in parentheses, are calculated as $100 \times [\exp(\hat{\beta}) - 1]$. All models include exporter–importer pair, exporter–year, and importer–year fixed effects. Sector–year fixed effects are included in Columns (1)–(3) but excluded from Column (4), as COVID–19 controls vary at the sector–year level. Standard errors are clustered at the exporter–importer pair level. The sample covers exports from ASEAN economies to all trading partners and includes only parent EBOPS service sectors.

* $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

When Singapore is excluded from the comparison group, the coefficient remains positive and highly significant at 0.2587, corresponding to an estimated effect of 29.52 percent, as reported in column (2). Although the magnitude declines relative to the main all-partners specification, Vietnam continues to exhibit stronger 2020-onward DDS export performance relative to the remaining ASEAN exporters.

Column (3) excludes observations from 2020 to account for the possibility that the findings are disproportionately influenced by the initial COVID-19 shock and the abrupt global shift toward remotely supplied services. The coefficient is 0.3020, implying an increase of approximately 35.25 percent. This estimate is close to the main result, suggesting that the improvement persisted during 2021–2024 and was not merely a temporary response to the exceptional trade and mobility conditions prevailing in 2020.

After controlling for the differential effect of the COVID-19 shock on DDS trade, the estimated coefficient remains positive and statistically significant at 0.2970, equivalent to an increase of approximately 34.58 percent, as reported in column (4). Its similarity to the main all-partners estimate suggests that the result is not driven by pandemic-related shifts in DDS trade.

Overall, the coefficients across the all-partners specifications range from 0.2587 to 0.3099, corresponding to estimated increases of approximately 29.52–36.33 percent. Their stability across alternative samples and controls provides further support for the main findings. These results indicate that Vietnam experienced a broad-based improvement in DDS export performance from 2020 onward. Although the estimated effect is stronger within ASEAN, its persistence in the global sample suggests that Vietnam’s relative gains were not confined to regional trade relationships but were consistent with a broader strengthening of its

competitiveness in cross-border digitally deliverable services.

7 Policy Discussion

The empirical results indicate that, from 2020 onward, Vietnam’s digitally deliverable services exports improved significantly relative to its non-DDS exports and the corresponding difference in other ASEAN economies. The estimated effect remains economically sizeable and statistically significant across alternative specifications, including the exclusion of Singapore, the omission of observations from 2020, the inclusion of COVID-related controls, and the expansion of the sample to cover ASEAN exports to all trading partners. Although the empirical design does not identify the causal effect of individual policy measures, the timing and persistence of the estimated gains are consistent with the possibility that Vietnam’s broader digital transformation agenda helped strengthen the enabling environment for DDS exports.

7.1 How Digital Policies May Have Supported Vietnam’s DDS Exports

Vietnam’s digital transformation policies may have supported the observed improvement in digitally deliverable services exports through four main channels.

The first channel is investment in digital infrastructure. Vietnam’s National Digital Transformation Programme prioritised nationwide broadband connectivity, cloud-computing infrastructure, digital platforms and electronic payment systems as foundations of the digital economy. More reliable connectivity and payment infrastructure can reduce the costs and uncertainty associated with supplying software, information, professional and other business services across borders. These improvements can enable more firms to serve foreign clients while enhancing the quality, reliability and scalability of their services.

The second channel is the development of digital government. Reforms involving digital identification, electronic invoicing, online public services, digital tax administration, and integrated government databases simplify administrative procedures and reduce the transaction costs faced by firms. These measures may be especially valuable for service exporters, whose activities often require repeated interaction with tax, licensing, customs, banking, and business-registration systems. By reducing paperwork, processing time, and information asymmetries, digital government is able to improve the broader business environment and allow firms to allocate more resources to innovation, workforce development, and market expansion.

The third channel operates through data governance, cybersecurity, and trust. Cross-border digital trade depends not only on connectivity but also on confidence that data, payments, contracts, and intellectual property will be handled securely. Clearer legal frameworks for electronic transactions, personal-data protection, cybersecurity, and digital platforms reduce uncertainty and strengthen trust among firms, consumers, and foreign clients. However, the contribution of regulation depends on its design and implementation. Rules that are unclear, overlapping, or excessively restrictive may increase compliance costs and offset some of the benefits generated by stronger governance. The policy objective should therefore be to provide credible protection while preserving openness, proportionality, and interoperability with international digital markets.

The fourth channel is the promotion of digital adoption among firms and households. Policies encouraging the use of cloud services, e-commerce platforms, digital payments, business-management software, and advanced technologies can strengthen the domestic digital ecosystem from which internationally competitive service firms emerge. Wider adoption also creates domestic demand for

software, consulting, telecommunications, and other digital services, allowing firms to build capabilities and achieve scale before entering foreign markets. Over time, this process supports the accumulation of technical skills, managerial experience, and business networks that are necessary for export upgrading.

Taken together, these channels provide a plausible explanation for the empirical improvement observed from 2020 onward. Better infrastructure, more efficient public administration, stronger institutional trust, and wider technology adoption jointly reduce trade costs, improve firm capabilities, and expand the pool of businesses able to supply services internationally. The results should nevertheless be interpreted as evidence of a broad policy-compatible change rather than as proof that any single reform directly caused the increase in exports.

7.2 Structural Challenges to Sustaining DDS Export Growth

Despite the positive empirical results, several structural constraints could limit Vietnam’s ability to sustain and deepen its digitally deliverable services export growth. The first is regulatory uncertainty. Vietnam’s recent digital legislation reflects a clear commitment to strengthening governance in areas such as data, cybersecurity, electronic transactions, telecommunications, and artificial intelligence. However, overlaps among laws, implementing regulations, regulatory authorities, and legal definitions may create uncertainty for firms. Businesses may face duplicated reporting requirements, inconsistent interpretations, or difficulty determining which authority is responsible for a particular issue. Such complexity can be especially burdensome for both domestic firms and foreign investors operating across multiple jurisdictions.

The second challenge is the tension between data localisation and open cross-border data flows. Requirements relating to local data storage, domestic presence, or regulatory access may support legitimate national-security, law-enforcement, and consumer-protection objectives. At the same time, digitally deliverable services frequently rely on globally distributed cloud infrastructure and the continuous movement of data across borders. Requirements that are broad, costly, or inconsistent with international practices can fragment digital operations, raise compliance expenses, and reduce Vietnam’s attractiveness as a location for digital platforms, regional service centres, and cloud-based investment. The challenge is therefore to protect national interests without unnecessarily restricting the data flows on which digital trade depends.

The third challenge is the uneven adoption of digital technologies among small and medium-sized enterprises. Although a growing share of firms report undertaking some form of digital transformation, adoption remains concentrated among larger and more capable enterprises. Small and Medium Enterprises (SMEs) account for the overwhelming majority of businesses in Vietnam but often face limited access to finance, shortages of digitally skilled staff, weak management capacity, and difficulty identifying technologies suited to their needs. Many available digital products are designed for larger firms or require levels of technical knowledge and upfront investment that smaller enterprises cannot easily provide. Without more inclusive adoption, the benefits of digital transformation may remain concentrated, and the domestic base of potential service exporters may remain narrow.

The fourth challenge is the digital skills and human-capital gap. Vietnam has developed a strong foundation in software engineering and information-technology services, but shortages remain in advanced areas such as artificial intelligence, data analytics, cybersecurity, cloud computing, semiconductor design, and digital management. These shortages may constrain firms’ ability to move from relatively routine outsourcing activities toward higher-value services based on innovation, specialised knowledge, and proprietary technology. Education and vocational-training systems have not yet fully adjusted to the speed

of technological change, while weak links between training institutions and industry can result in a mismatch between qualifications and employer needs. Rural populations, older workers, and workers in traditional sectors also face a greater risk of exclusion as digitalisation accelerates.

The fifth challenge concerns cybersecurity and consumer protection. Rapid growth in digital payments, online commerce, platform services, and data-intensive business models has increased exposure to online fraud, data breaches, identity theft, and payment-related scams. These risks can weaken confidence in digital transactions and discourage both consumers and firms from adopting new services. They can also damage Vietnam's reputation among foreign clients if exporters are perceived as operating in an environment with weak security or limited redress. Cybersecurity and consumer protection should therefore be viewed not only as social or regulatory concerns but also as essential components of export competitiveness.

These challenges help qualify the positive empirical findings. The results show that Vietnam has improved its relative performance, but they do not imply that the foundations of digitally deliverable services exports are already secure. Continued growth will depend on whether Vietnam can reduce regulatory fragmentation, preserve trusted cross-border data flows, broaden SME participation, upgrade advanced skills, and strengthen confidence in digital markets.

7.3 Policy Priorities for the Next Phase of Digital Development

Based on these constraints, five policy priorities are particularly important for converting the recent improvement in export performance into sustainable and domestically anchored digital competitiveness.

First, Vietnam should improve regulatory coherence across its digital legal framework. Definitions, reporting obligations, licensing requirements, and compliance procedures should be aligned across laws governing data, cybersecurity, telecommunications, electronic transactions, artificial intelligence, and digital platforms. Duplicated requirements should be removed, and the responsibilities of different regulatory authorities should be clearly defined. New obligations should be accompanied by detailed implementation guidance, consultation with affected industries, and adequate transition periods for both domestic and foreign firms. Greater coherence would reduce uncertainty without weakening legitimate regulatory objectives.

Second, Vietnam should promote open and trusted cross-border digital trade. Existing commitments under the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, the Regional Comprehensive Economic Partnership, and the emerging ASEAN Digital Economy Framework Agreement can be used to reduce digital trade costs, strengthen regulatory interoperability, and improve protection for intellectual property in software and digital content. Vietnam should also clarify procedures for transfer impact assessments, develop standard contractual safeguards for international data transfers, and ensure that restrictions are targeted, transparent, and proportionate. This would support security and privacy while maintaining access to international cloud infrastructure and global digital markets.

Third, Vietnam should strengthen SME digital inclusion. The SME Digital Transformation Programme should be implemented through a dedicated and predictable co-financing mechanism rather than relying primarily on information campaigns. Support should include subsidised access to approved software and cloud services, tax incentives for digital investment, advisory services, cybersecurity assistance, and localised onboarding by platform providers. Special attention should be given to manufacturing and agricultural SMEs, where digital tools can improve productivity, supply-chain coordination, product traceability, and access to foreign buyers. Policy support should be linked to measurable improvements in business processes and export readiness rather than the simple purchase of technology.

Fourth, Vietnam should build a stronger and more responsive digital skills pipeline. Universities, vocational institutions, and firms should jointly design curricula in areas such as artificial intelligence, data science, cybersecurity, cloud computing, digital product management, and semiconductor technologies. Work-based learning, professional certification, short-cycle training, and industry-led reskilling should complement conventional degree programmes. At the same time, digital literacy initiatives should be expanded in rural areas and among workers in sectors vulnerable to technological displacement. A stronger skills base would enable Vietnam to move beyond cost-based outsourcing and compete increasingly in higher-value and knowledge-intensive services.

Finally, Vietnam should strengthen cybersecurity and consumer trust. Implementation of the National Cybersecurity Strategy should be accelerated, with clearer institutional responsibility for digital consumer protection and more effective coordination between regulators, law-enforcement agencies, banks, telecommunications providers, and digital platforms. Multi-factor authentication should be required for high-risk payment activities, fraud detection and information-sharing systems should be strengthened, and victims should have access to faster and more transparent dispute-resolution procedures. These measures would reduce the social costs of digitalisation while increasing confidence among households, firms, and international clients.

Together, these priorities would help Vietnam consolidate the export gains identified in the empirical analysis. The central policy challenge is no longer simply to expand digital adoption, but to convert adoption into productive capability, domestic value creation, and sustained international competitiveness. Achieving this objective will require a policy framework that combines regulatory clarity, openness to cross-border digital trade, broad-based firm participation, advanced human capital, and trusted digital institutions.

8 Conclusion

Vietnam has established one of ASEAN’s most comprehensive digital transformation frameworks. Recent regulatory and legislative reforms confirm that digitalisation is no longer treated as a narrow technology policy, but as a central component of the country’s economic development strategy. Since 2020, domestic indicators have improved substantially, including the expansion of the digital economy, the growth of digital technology industries, and the wider adoption of digital tools across government, firms, and households.

The empirical results reinforce this broader policy narrative. Vietnam’s digitally deliverable services exports performed significantly better from 2020 onward relative to its non-digitally deliverable services exports and the corresponding digitally deliverable services exports of other ASEAN economies. The estimated effect remains large and statistically significant across alternative specifications, including the exclusion of Singapore, the omission of 2020, the inclusion of COVID-related controls, and the expansion of the sample to ASEAN exports to all trading partners. Although the analysis does not establish the causal effect of individual policies, the findings are consistent with the view that Vietnam’s digital transformation agenda strengthened the enabling environment for digitally deliverable services.

At the same time, the results also highlight important limitations. Vietnam remains a net importer of digitally deliverable services, while its export strengths are concentrated in a relatively narrow set of sectors and destination markets. This suggests that the country’s recent gains have not yet translated into broad-based digital export diversification or consistently higher domestic value creation.

Vietnam therefore has both the policy ambition and the underlying potential to become one of Asia’s leading digital economies. Realising this potential will depend on whether it can improve regulatory

coherence, preserve trusted cross-border data flows, build advanced digital skills, expand SME participation, and strengthen cybersecurity and consumer confidence. The next phase of reform should focus not only on accelerating digital adoption, but also on converting that adoption into sustainable, domestically anchored, and internationally competitive digital export capabilities.

References

- Abeliansky, A. L., Algur, E., Bloom, D. E., and Prettnner, K. (2020). The future of work: Meeting the global challenges of demographic change and automation. *International Labour Review*, 159(3):285–306.
- Acemoglu, K. D. and Restrepo, P. (2022). Demographics and automation. *Review of Economic Studies*, 89(1):1–44.
- Bellon, M., Dabla-Norris, E., Khalid, S., and Lima, F. (2022). Digitalization to improve tax compliance: Evidence from vat e-invoicing in peru. *Journal of Public Economics*, 210.
- Correia, S., Guimarães, P., and Zylkin, T. (2020). Fast Poisson estimation with high-dimensional fixed effects. *The Stata Journal*, 20(1):95–115.
- David, L. K., Wang, J., Brooks, W., and Angel, V. (2025). Digital transformation and socio-economic development in emerging economies: A multinational analysis. *Technology in Society*, 81.
- Fajgelbaum, P., Goldberg, P., Kennedy, P., Khandelwal, A., and Taglioni, D. (2024). The US-China trade war and global reallocations. *American Economic Review: Insights*, 6(2):295–312.
- Ferencz, J. (2019). The OECD Digital Services Trade Restrictiveness Index. OECD Trade Policy Papers 221, OECD Publishing, Paris.
- Ferencz, J. and Gonzales, F. (2019). Barriers to trade in digitally enabled services in the G20. OECD Trade Policy Papers 232, OECD Publishing, Paris.
- Ferracane, M. F., Kren, J., and Marel, E. (2020). Do data policy restrictions impact the productivity performance of firms and industries? *Review of International Economics*, 28(3):676–722.
- Ferracane, M. F. and Marel, E. (2021). Regulating personal data: Data models and digital services trade. Policy Research Working Paper 9596, World Bank.
- Freund, C., Mattoo, A., Mulabdic, A., and Ruta, M. (2024). Is US trade policy reshaping global supply chains? *Journal of International Economics*, 152.
- Gnangnon, S. K. (2020). Effect of the internet on services export diversification. *The Journal of Economic Integration*, 35(3):519–558.
- Herman, P. R. and Oliver, S. (2023). Trade, policy, and economic development in the digital economy. *Journal of Development Economics*, 164.
- Huynh, Q. V., Nguyen, H. M. T., and Le, T. T. (2025). Digital transformation and economic growth: empirical evidence from vietnam. *Post-Communist Economies*, 37(7):910–932.
- IMF, OECD, UN, and WTO (2023). *Handbook on Measuring Digital Trade, Second Edition*. OECD Publishing, Paris/IMF, Washington D.C./UNCTAD, Geneva 10/WTO, Geneva.
- Kharas, H. and Gill, I. (2007). An East Asian renaissance: Ideas for economic growth. Washington, DC: World Bank.

- Leão, P., Guinlle, G., Rocha, T. N., Azevedo-Rezende, L., and Fleury, M. T. L. (2023). The digitalization phenomenon and digital strategies in emerging countries: A semi-systematic review. *Revista de Administração Mackenzie*, 24(3).
- Li, H., Han, J., and Xu, Y. (2023). The effect of the digital economy on services exports competitiveness and ternary margins. *Telecommunications Policy*, 47(7).
- Marel, E. and Ferracane, M. (2021). Do data flow restrictions inhibit trade in services? *Review of World Economics*, 157:727–776.
- Ministry of Science and Technology (2026). Digital technology industry surpasses 2025 targets. <https://english.mst.gov.vn/digital-technology-industry-surpasses-2025-targets-197260103215443111.htm>. Accessed: 2026-08-21.
- Muralidharan, K., Niehaus, P., and Sukhtankar, S. (2016). Building state capacity: Evidence from biometric smartcards in India. *American Economic Review*, 106(10):2895–2929.
- OECD (2025). The OECD-WTO balanced trade in services database (BaTIS). OECD Publishing, Paris.
- Okunogbe, O. and Pouliquen, V. (2022). Technology, taxation, and corruption: Evidence from the introduction of electronic tax filing. *American Economic Journal: Economic Policy*, 14(1):341–372.
- Santos Silva, J. M. and Tenreyro, S. (2006). The log of gravity. *The Review of Economics and Statistics*, 88(4):641–658.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2):118–144.
- World Bank (2016). World development report 2016: Digital dividends. Washington, DC: World Bank.
- World Bank (2021). Vietnam: Adapting to an aging society. Washington, DC: World Bank.
- World Bank (2026). FY27 updated country income classification for analytical purposes (English). Washington, D.C. : World Bank Group.