

Article

The Business Innovation of Consumer Choices and Challenges for Economic Sustainability Practices and Law

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Abstract

The intersection of digitalization and innovation has emerged as the most vital strategy to spur economic development and shape consumer choice. The study examines sustainable development, digital economic governance, and sustainable consumption, emphasizing the role of consumer awareness, tariff policy, and managerial practice in aligning business strategy with sustainable goals. Amidst global environmental challenges, a suitable tariff policy is of utmost significance to propel the digital economy and encourage sustainable development. This paper investigates how emerging tariff policies can advance trade competitiveness and environmental impacts and draws on a literature review and data collection for the period between 2000 and 2025. The article examines the disruptive function of digital technologies, AI, and big data in driving sustainable business practices and digitalization. It also discusses how such technologies can simplify tariff implementation, compliance, and stakeholder trust through behavioral insights drawn from secondary data analysis on a cross-country basis and official reports. The study identifies best practices in the coordination of tariff policy with international governance institutions. Empirical observation shows that innovative tariff approaches in digital economic governance can support long-term growth, increase international coordination, and guide global governance efforts in environmental sustainability and SDGs. The implications of the findings are relevant to policymakers, business leaders, and legal experts working on fast-paced global changes.



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Keywords: sustainable business strategies; digital economy; consumer behavior; business management; law; digital transformation; tariff; artificial intelligence

1. Introduction

This study examines global consumer behavior and sustainability businesses, which have become a cornerstone of modern business management, digital economic growth, and the competitiveness of sustainable development goals (SDGs). Trade law governs the importation and exportation, providing free competition and adhering to global agreements. Economists argue that the costs are transferred primarily to consumers. Countries have used them to protect domestic industries, agriculture, alternative energy trade practices, and legal problems [1]. The increasing emphasis on environmental and social responsibility has altered corporate strategy and sustainable consumption, and the role of consumer awareness in traditional business models has been reconsidered. At the same time, shifting tariff policies and global trade flows significantly influence market access, supply chains, and profitability. Green marketing strategies and their impact on consumer choices [2]. This research explores how digital economic development, digital transformation, and

sustainable strategy fit into business management, notably in altering tariff policies and global developments. The study highlights some of the main gaps, such as weak analysis of the role of technology in regulating trade and sparse evidence on post-pandemic tariff adjustments. By analyzing these processes' behavioral insights, the study aims to show how companies can attain profitability and long-term sustainability while coping with a dynamic digital economic environment [3]. Behavioral insights into pro-environmental decision-making by consumers and tariffs have been a central source of conflict in global trade in recent years, heavily influencing digital economic development and business processes worldwide. Management practices align business operations with sustainability goals, and governments use tariffs to protect domestic industries, resulting in additional expenses, supply chain uncertainty, and retaliatory trade wars, affecting global digital economic growth and stakeholder trust. Tariffs are a type of tax on imported goods from foreign countries [4].

President Donald Trump broke from this digital economic orthodoxy in his first term [5]. Imposed tariffs on hundreds of billions of dollars' worth of goods imported from China and other countries to combat alleged unfair trade practices, reduce the United States (US) trade deficit, and boost domestic production in the national security and US digital economic competitiveness interests [6]. Countries worldwide have used tariffs as import taxes to aid local industries by forcing people to buy domestically produced goods [7]. However, tariffs largely went out of style in advanced economies because they often led to less trade, higher consumer prices, and retaliation abroad [8]. The United States of America (USA) proposed trade policies that could include expanding tariffs beyond the global level, including China, and targeting imports from Europe, Mexico, India, and other leading trading partners [9]. President Donald Trump has proposed a blanket tariff on all imports, even more for some industries, such as Chinese and European autos, potentially 20–30%, Mexican steel and aluminum, and Indian pharma and electronics [10]. In addition, he has suggested punitive tariffs on currency-manipulating or unjust trade-practicing nations, which would potentially target Vietnam for sidestepping China tariffs, Germany for exports of automobiles, and Canada for lumber and dairy, and in the international legal context [11]. They would defend American industries but risk triggering global trade wars, retaliatory tariffs, and increasing consumer prices. Tariffs from his initial term, such as the EU steel and Canadian aluminum tariffs, could be revived or intensified [12]. Those actions are meant to boost US manufacturing production and ease trade deficits. Still, they carry economists' cautions that they can initiate counter-tariff supply chain disruptions [13].

A vast framework of global trade law governs the WTO to ensure fair competition and reduce trade barriers. The most critical agreements are the General Agreement on Tariffs and Trade, which addresses international trade in merchandise, and the Agreement on Trade-Related Aspects of Intellectual Property Rights, which addresses intellectual property [14]. The WTO possesses over 60 agreements that address all aspects of global trade, tariffs, services, and settling conflicts in trade. Tariffs are of two forms: ad valorem tariffs, which are based on the product's value, and specific tariffs, which are quantity-based amounts [15]. In addition, the arrival of AI in business processes has promise, but there are challenges in tariff adjustment. AI makes it possible to enhance supply chains, enhance compliance with evolving regulations, and innovate based on tariff-induced market change [16]. As businesses navigate such intricacies, knowledge of legal principles that inform tariffs becomes relevant in enabling digital economic transformation and sustainable development. This coming together of technology, economics, and law results in the supremacy of tariffs in determining the fate of international business activity and foreign trade, as shown in Figure 1. There is a foundation for sustainable growth, which converges economic and business development with technology and artificial intelligence.

It aims to leverage these advancements to support world social development and enhance the general quality of life [17].

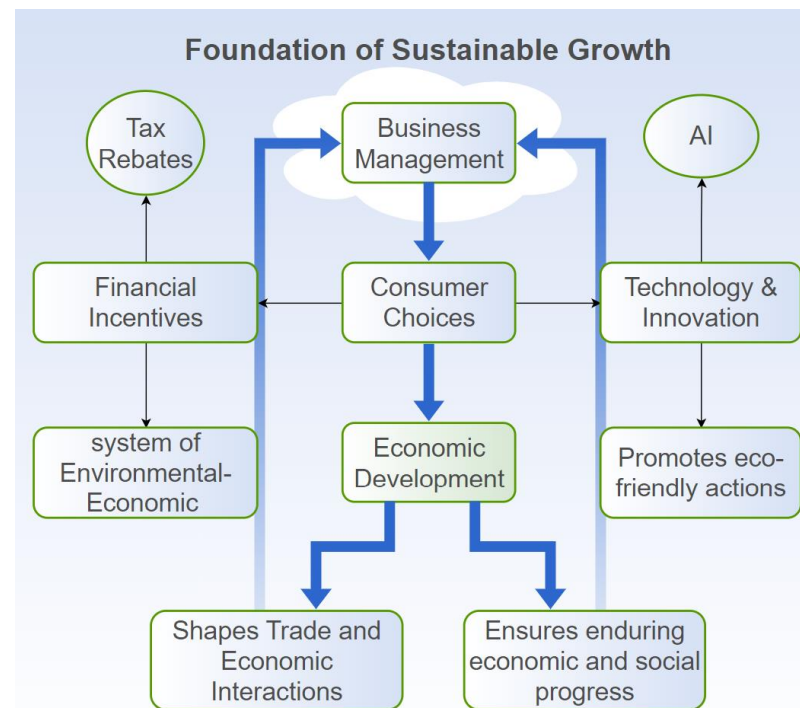


Figure 1. A flowchart explaining the definition of the fundamental digital economy and business advances. This chart depicts AI and sustainable business propelling economic prosperity, environmental sustainability, and social advancement. It includes consumer-environmental alignment, tax credits, and tech innovation. It displays how these related impacts drive long-term prosperity through measurable ESG indicators and competitive differentiators and help business and economic growth.

Tariffs are government taxes on exported or imported goods, and tariffs are valuable for trade policy and legal perspectives. Tariffs primarily protect home-based industries, generate revenue, and manage foreign trade. Tariffs increase the cost of foreign products and encourage consumers to buy domestically produced products, benefiting home-based businesses [18]. Tariffs result in higher consumer costs and even trade wars if other countries retaliate with their tariffs. Harmonized tariff systems categorize goods, providing uniform taxation across global borders. There are different types of tariffs, such as ad valorem, a percentage of the product value, specific, a fixed amount per product, and compound [19]. Governments use these tariffs to limit industries from foreign countries, raise revenue to help cater to government spending, and stabilize current accounts. They might favor producers but induce combat across the sector through export penalties, increasing consumer prices. Examples include the US imposing trade war tariffs on world protective duties on farm imports. Despite the political and digital economic undertones, tariffs remain a traditionally practiced instrument in international trade regulation [20].

The remaining part of the paper is structured as follows: Section 2 is a literature review of the main key issues of our research and discusses the academic context. Section 3 gives the research methodology and material for research, describing the preprocessing of the results and analysis. Section 4 presents the results. Section 5 analyzes and discusses the research task and issues and provides the research outcomes. Section 6 presents the conclusions and practical implications of this study and proposes future research directions.

2. Literature Review

2.1. Consumer Behavior and Digital Economic Transformation

Global trade barriers like tariffs have affected digital economic transformation substantially, reshaping supply chains, technology competition, and investment dynamics. The United States trade war persisted, as many countries charged high tariffs for key industries like semiconductors and green technologies [21]. Everything accelerated regionalization as companies dispersed production in Southeast Asia, China, Mexico, and Vietnam to evade taxes. Meanwhile, the EU imposed carbon border charges, marrying trade policy with climate objectives but increasing importers' costs from rising economies [22]. Advanced technologies like AI became the focal point of trade tensions, with countries restricting exports of advanced chips, like American restrictions on NVIDIA AI GPUs, and slowing down technological advancement by geopolitical rivals [23]. China struck back through export curbs on rare earth and gallium, materials critical to AI hardware, and added supply chain segmentation. Tariffs that protected indigenous industries also suffocated innovation by increasing the input cost of startups. The bans accelerated China's push for semiconductor independence. Huawei's breakthrough with its 7 nm Kirin 9000 s Mate 60 Pro chip in 2023 showed progress despite US sanctions [24].

The legal structure for tariffs is complex, comprising an amalgamation of international agreements, national laws, and executive directives. The law is crucial in ensuring fair trade practices, generating revenues, and financial stability. Some of the fundamental components of this system are the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO), which provide a multilateral basis for tariff regulations and national laws that regulate specific sectors. Indonesia's Law No. 9 of 2018 accommodated non-tax revenue tariffs. The tariff policy was mainly established under the General Agreement on Tariffs and Trade of 1947, which in 1995 was replaced by the WTO. The WTO facilitates international trade by establishing agreed-upon policies and tariff cuts. The GATT and WTO were implemented post-World War II, and the two agreements aimed to reduce trade barriers and promote free trade between member states [25]. Their embedded liberalism is the compromise between free trade and government intervention, with tariffs used for digital economic and social purposes, as shown in Figure 2. The EU's trade defense instruments under Article 207 TFEU do not address the legal regime of tariffs as such. They address anti-dumping and anti-subsidy measures in the EU's trade legislation framework. The regulatory regime of tariffs in the Chinese–ASEAN Free Trade Area (ACFTA) consists of Rules of Origin provisions that set forth preferential tariff terms and Operational Certification Procedures that regulate the filing of Certificates of Origin for tariff privilege [26].

2.2. Sustainable Business Strategies and Supply Chains

The current literature recognizes heightened tension between protectionist tariffs and the sustainable supply chain in relation to the Singapore Standards Council's goals, suggesting that tariffs disrupt circular economy flows because they encourage cost-driven rather than sustainability-driven sourcing, often moving production to countries where environmental legislation is weak [27]. However, firms leverage tariffs to "green-shore" operations, combining nearshoring with low-carbon transport. The Carbon Border Adjustment Mechanism of the EU is a prime example of policy attempts at tariff–sustainability alignment [28]. However, critics point to trade-offs between decarbonization and fair development [29]. New solutions involve blockchain-based transparency and supplier collaborations to ensure sustainability in the face of trade barriers. The impact of tariffs on business expansion is multifaceted, influencing digital economic growth, market planning, and profitability across various industries. Tariffs can serve as shields for domestic sectors, possibly opening

up opportunities for expansion in emerging markets while posing challenges to incumbent companies [30]. Digital economic growth tariffs can help digital economic growth by protecting new industries from international competition, as in Nigeria, where tariffs positively affected digital economic growth between 2000 and 2020 [31,32].

Top Global Importers: Trade Volume Comparison (2000–2022)

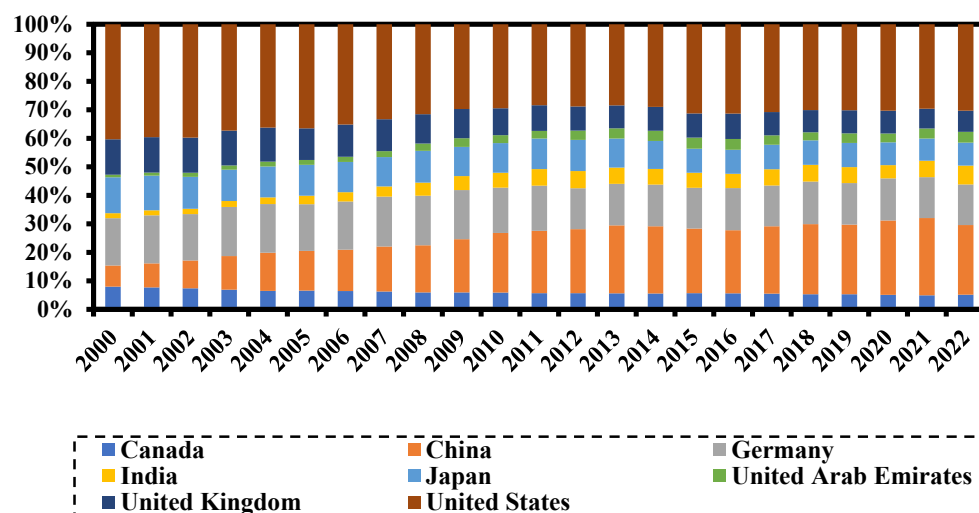


Figure 2. Import growth according to the World Integrated Trade Solution. Source: Data collected by the World Integrated Trade Solution.

The current tariff impacts on business growth were highlighted in 2024, highlighting the complex reality of the times when protectionist policies in the US, EU, China, and other regions continue redefining global trade realities [33]. Recent studies indicate that while tariffs have helped domestic industries like US steel and clean energy firms, they have also increased production expenses, disrupted supply chains, and triggered retaliations, including China's export limits on strategic minerals [34]. Businesses react by taking steps like nearshoring (Apple's relocation to Vietnam) and applying for exemptions [35]. However, reduced competitiveness and profit margins significantly impact SMEs and export-based industries. Effects vary by sector, with the automotive and technology industries experiencing more volatility from EV and semiconductor tariffs.

In contrast, agricultural industries face difficulties with changes in the market, as shown in Figure 3. The literature highlights tariffs as a two-edged sword, driving industrial policy goals using the price tag of global trade efficiency, and calls for ongoing research about longer-term schemes of adaptation, particularly in emerging economies and trade hurdles in the information age [36]. The argument on e-commerce regulations in the WTO's legal forum is far from sufficient. E-commerce is evolving at a speedy rate, but current WTO regulations are finding it difficult to match the complexity of new technologies and cross-border data flows. Data privacy, cybersecurity, and the digital divide are some significant issues that have been met with limited discussion. This silence of discourse and a lack of comprehensive, holistic legal frameworks handicap member states' ability to meaningfully respond to the challenge digital trade poses to them. There is a need, therefore, for increased dialogue and new legislation that reflects the realities of a digital economy [37].

2.3. The Role of Technology-Enabled Sustainability

The presentation of artificial intelligence (AI) in digital economic systems is a key element in mitigating the impact of tariffs by enhancing tax compliance, enhancing trade efficiency, and stimulating digital economic growth. AI technologies can make tax admin-

istration more effective, reduce evasion, and improve transparency, resulting in a more stable digital economic system [38]. Enhancing AI tax compliance enhances tax collection by identifying unusual patterns and predicting potential evasion, allowing the authorities to act ahead of time [39]. Adding AI to tax systems can lead to a greater revenue return, which is critical for countries facing tariff impacts. Improving AI trade efficiency facilitates more effective international trade through optimizing supply chains and reducing transaction costs, which can counteract the effects of tariffs [40]. This technology is also likely to increase world trade by approximately 2% annually until 2030, implying its ability to counteract the effects of tariffs [41]. AI's role in enhancing institutional quality and economic development in promoting digital economic growth is evident because it promotes a productive tax system that can induce digital economic activity [42].

Country Rankings Comparison: 2023 vs 2024

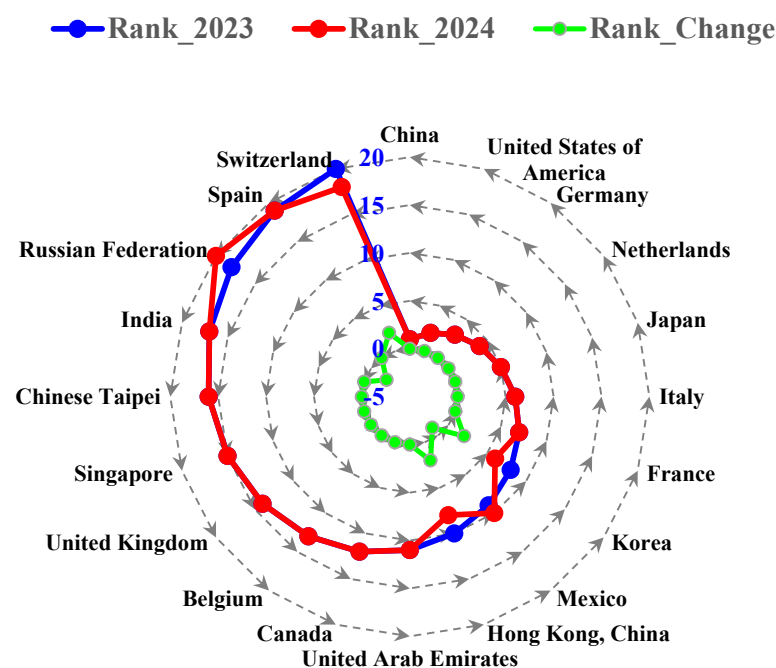


Figure 3. World merchandise change trade exports. Source: “World Trade Statistics”.

The World Trade Organization has had difficulty governing global tariff policy amidst rising protectionism, geopolitical tensions, and supply chain disruptions, pointing to its dual function as both a forum for mediating trade conflict and as an institution limited in its ability to modernize trade rules [43]. The WTO's 12th Ministerial Conference in 2022 achieved a partial waiver of COVID-19 vaccine patents but failed to bridle surging agricultural and industrial tariffs, reflecting a dwindling accord among major economies [44]. The organization also addresses broader issues, such as intellectual property and agriculture, which indirectly influence tariff policies. The WTO dispute settlement system, weakened by US obstruction of Appellate Body appointments since 2019, has limited jurisdiction over unilateral tariffs like the US trade war measures [45]. The WTO remains, however, a focal platform for negotiation on tariff transparency, like the 2024 Agreement on fisheries subsidies, indirectly influencing trade-related environmental tariffs [46]. Emerging criticisms argue that the WTO's “single undertaking” approach is poorly suited to address 21st-century issues like digital trade and climate tariffs [37]. Yet, proposals for plurilateral agreements, such as the Joint Statement Initiative on E-Commerce, offer adaptive responses for tariff governance [47].

3. Materials and Methods

This research is based primarily on secondary data sourced from reputable databases, applying a systematic analysis approach, with sources grounded on global trade databases such as the World Bank, WTO, and UN databases and legal frameworks of major economies globally, as well as China's high GDP, strong digital economic development, and foreign trade in all world and emerging economies [48]. The research analyzes the impact of tariffs on world economic and business development from a legal perspective, considering international trade law, domestic tariff policy, and border effects. A review was conducted based on world trade statistics and high-impact journals of MDPI, Oxford University Press, Springer, Elsevier, IEEE, Frontiers, Wiley, and Taylor & Francis, concentrating on WTO agreements, regional trade laws, USMCA, RCEP, and dispute settlement mechanisms [49]. The review identified fundamental research gaps in how tariffs play a role in AI-based trade, green supply chains, and digital economic transformation. Statistical data were collected in comparative tables, analyzing tariff patterns, patterns of trade, and legal issues across jurisdictions. Also, the primary question is as follows: How do tariffs imposed by the World Trade Organization affect global digital economic change and business expansion, especially regarding sustainable supply chains and integrating artificial intelligence on a legal basis? This is shown in Table 1. A flowchart was developed to map the legal digital economic paths of tariff impacts [50] with a focus on where legislation and international trade among different countries with global effects. We compared how different law structures cover international trade using tariff policy and how they affect digital economic growth among nations across the globe. Cross-country comparison depicts the differences in countries and works towards identifying what works best [51].

Table 1. The role of consumer awareness and regulations for sustainable business.

Innovation of Global Trade Through Strategic Policies	
Advantages and Disadvantages of Sustainability in Business and Consumer Choices	
Economic Transformation	• The Role of Tariffs in Driving Digital Economic Challenges and Growth. • Shifts Markets Unpredictably, Risking Long-Term Instability.
Business Development	• The Impact of Tariffs on Business Growth and Innovation. • Raises Costs, Limits Growth, and Discourages Foreign Investment.
Consumer Choices	• Encourage Consumers to Support Local Businesses and Farmers. • Promote Programs That Encourage Consumers to Recycle.
Legal Framework	• The Legal Structure Governs Tariff Implementation–Enforcement. • Triggers Lawsuits, Violates Treaties, and Complicates Compliance.
World Trade Organization Role	• The Influence of the WTO on Global Tariff Policies. • Undermines Global Trade Rules, Inviting Sanctions.
AI Mitigation	• The Use of AI to Minimize Negative Tariff Effects. • Hinders Tech Collaboration and Slows AI Innovation.
Supply Chain Disruptions	• Disruptions Accelerate Localization, Reducing Future Vulnerability. • Delays Production, Increases Shortages, and Raises Prices.

Consumer awareness drives demand for eco-friendly conduct, but legislation ensures compliance, fostering ethical business practice and environmental defense.

4. Results

This research paper addresses the consequences and investigation and explains the results obtained from secondary data acquired during the study. This section includes statistical analysis, tables, and graphs to indicate principal trends, connections, and voids consistent with our principal research objectives [52]. Interpretation of the outcomes is conducted to elicit major patterns, correlations, and discrepancies significant to the research subject both locally and globally. Further, the section examines the implications of the findings in light of current theories and literature. Finally, it seeks to establish a deepened understanding of the significance of the data for the broader study field and to address the essential issues of the study [53].

4.1. Growth of China's Imports vs. East Asia and Pacific Region

Between 1992 and 2022, growth in China's imports overwhelmingly dwarfed the larger East Asia and Pacific area as a reflection of its industrialization and consumer buying surge. World Bank and UN Comtrade statistics showed China's imports increased from 80.6 billion (1992) to 2.7 trillion (2022), an increase of 33 times and an average of 11.3% annually [54]. In comparison, the balance of the EAP region increased imports from 500 billion to 4.8 trillion, an 8.6-fold increase (7.2% average growth, perhaps more today, but we have just accessed data up to 2022). The WTO entry (2001) of tariff reduction increased machinery, energy, and consumer goods imports, as shown in Figure 2. Production increased due to heavy dependence on raw materials (iron ore, oil) and semiconductor imports [55]. The growing middle-class consumption of luxury goods, automobiles, and food imports rose sharply from 2010 onwards. While EAP comparator economies like Japan and South Korea had a steady growth in imports (4–6% annually), China's leadership reshaped regional trade patterns with over 40% of the total imports of EAP in 2022 (versus 8% in 1992) [56]. This growth underscores China's transition from an export-driven economy to a world consumption hub. Understanding the dynamics of import growth provides valuable insights into digital economic trends, trade relationships, and the overall competitiveness of nations in the global market [57].

4.2. The Share of the Top Economies in World Merchandise Exports

The top 10 merchandise-exporting economies accounted for 50.0% of merchandise exports in 2024, or the same proportion as a year earlier. Combined, the top three exporting merchants of the United States (8.5%), China (14.6%), and Germany (6.9%) accounted for 30% of merchandise exports. On the importing side, the top country was the US (13.6%), followed by China (10.5%) and Germany (5.8%) [58]. The EU was the runner-up exporter with 13.9%, intra-EU excluded, as shown in Figure 3. This affirms the ongoing dominance of global trade flows by a few of the largest economies, whereby China, the US, and Germany rank highest in terms of exports as well as imports. The solidity of their joint proportion suggests the persistence of dominance over global trade streams [59].

4.3. Export of Selected Product Groups and Subgroups

The top four exporters of the subject product categories were on record with outstanding performance, where the cumulative export values were outstanding in billions of US dollars. The front was led by China, where dominance was witnessed in most categories, led by electronics, machinery, and textiles, generating over USD 1 trillion of foreign trade [60]. The USA followed closely, most notably in agricultural commodities, with about USD 180 billion in exports [59,61]. The combined European Union dominated as a bloc, controlling many industries, such as machinery, pharmaceuticals, and luxury goods, with over USD 1.2 trillion in combined exports. Some other standouts included Germany, whose motor industry globally was the most well-known, and Japan, whose technology and machine products continued to be the strongest, as shown in Figures 4–7. The Netherlands and South Korea also stood out, with electronics and farm commodities leading most of their contributions [62]. The UK and France were still ahead in drugs and luxury, while Italy was also leading in design and fashion. These details, compiled cumulatively by UNCTAD and WTO, reflect cross-border trade's volatile nature and economies [63].

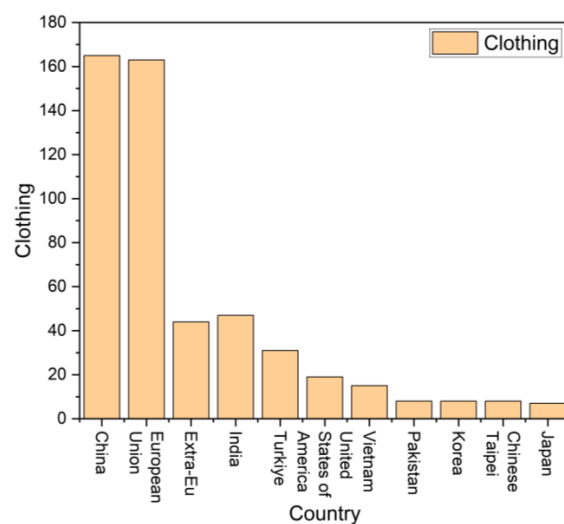


Figure 4. The trade of clothes is increasing in these countries. Source: WTO and trade estimates produced jointly with UNCTAD.

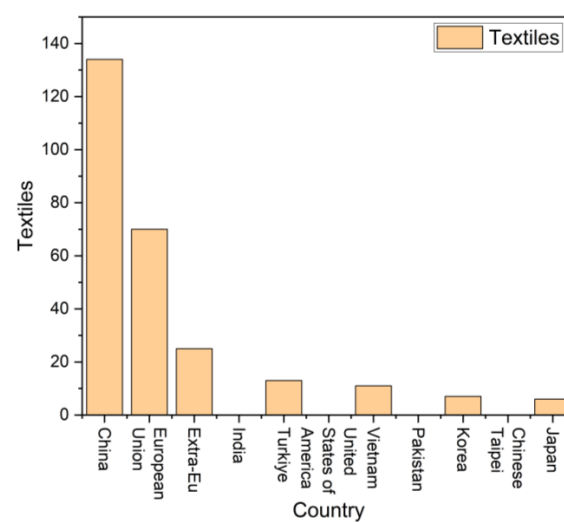


Figure 5. The trade of textiles is increasing in these countries.. Source: WTO and trade estimates produced jointly with UNCTAD.

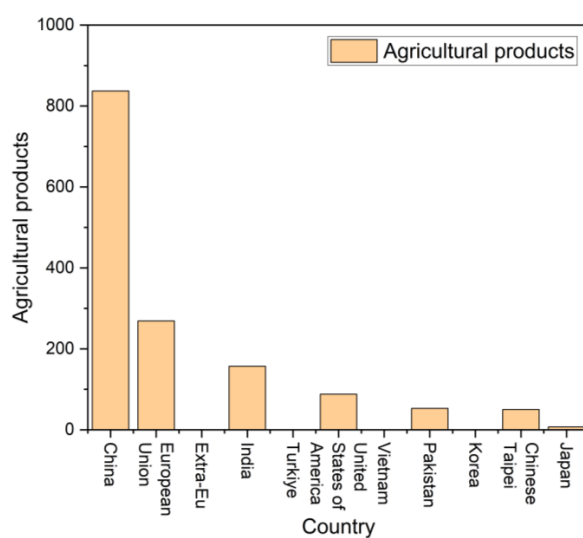


Figure 6. The trade of agricultural products is increasing in these countries. Source: WTO and trade estimates produced jointly with UNCTAD.

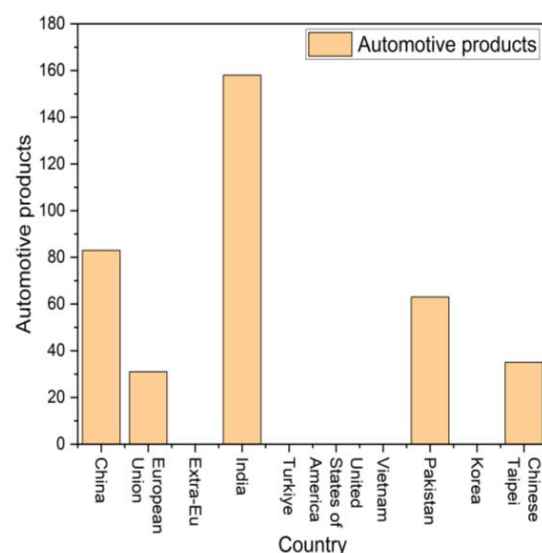


Figure 7. The trade of automotive products is increasing in these countries. Source: WTO and trade estimates produced jointly with UNCTAD.

4.4. The US Tariff Policies

The United States has implemented aggressive global tariffs under the Trump presidency, which elicited international outrage. A comprehensive tariff of 10% across all imports took effect on 2 April 2025, and individual country tariffs on 5 April, targeting trade-deficit allies like the EU (20%), China (54%), and Japan (24%) [64]. By 12 April 2025, tariffs by the US on Chinese imports were at 145%, with retaliations by Beijing pushing rates on US exports to 125%, killing industries like agriculture and manufacturing [65,66]. The policies, the administration claims, stimulate the domestic sector, backed by manufacturers like Walker Forge and Franco-Chino Mould. Business communities issued warnings of catastrophic outcomes (Table 2). The U.S.–China Business Council approximated that 2024 exports to China fell by 2.8%, endangering 860,000 American jobs, with further declines expected due to 2025 tariffs [67]. The states of Michigan and Hawaii are, in turn, being sued federally for resisting fossil fuel corporations, the DOJ charging them with undermining Trump’s “energy dominance” agenda. Economically, the tariffs caused Q1 2025’s 0.3% GDP slowdown, which was attributed to import binges ahead of tariff lines and air freight fees increasing by 37% as companies rushed to get ahead of duties [68,69]. ASEAN nations with USD 352 billion in US-led exports are haggling for exemptions, but retaliation threats loom [70].

4.5. Global Trade and Tariff-Related Legal Developments

This section focuses on structured lists of laws, regulations, and legal regimes that control international trade, tariffs, digital economic transformation, and business development, focusing on integrating WTO rules, AI governance, and green supply chains. Table 3 depicts how tariffs, AI regulations, and green trade rules reshape international business [71].

4.6. Impacts of Tariffs

Tariffs have far-reaching implications across AI innovation, digital economic growth, commercial strategy, and sustainable development. Legally, trade barriers disrupt WTO compliance, supply chain stability, and technological competitiveness, triggering retaliatory measures and redefining global business with a systematic analysis of key indicators and summarization. Tariffs are redefining worldwide economics and business through legal fragmentation and technological disruption. The US–China trade war is an example, with 145% tariffs on Chinese imports triggering measures (China’s 34% tariff on US imports) [72]. Tariffs, although meant to protect domestic industries (US steel/aluminum

tariffs), inadvertently pressure AI development by raising prices for essential components like semiconductors [73]. Businesses are under twin pressures, adapting to green supply chain regulation (EU CBAM) and dealing with tariff-induced price volatility (Table 4). The WTO's decreasing relevance exacerbates instability, such as in the digital tariff moratorium suspension. Meanwhile, labor markets become upset due to the replacement of work via AI and off-boarding recruitment by tariffs. Legally speaking, tariffs intimidate international trade infrastructure, and corporations must maximize the agility of compliance and determination of geopolitical risks. The Sustainable Development Goals are compromised, as tariffs redirect resources away from climate to trade defense [74].

Table 2. US stakeholder trust in consumer behavior and business strategies.

Date	US Action	Targeted Countries	Tariff Details	China's Retaliation
2 April 2025	Trump announces reciprocal tariffs under IEEPA/NEA authority	Global	10% baseline tariff on all imports (effective 5 April 2025). Higher rates for trade-deficit partners (e.g., China: 34%, Vietnam: 46%, EU: 20% from 9 April 2025)	China had already imposed 15% tariffs on US farm goods (effective 10 March 2025)
5 April 2025	The baseline 10% tariff takes effect	All except China	A 10% tariff applies to non-exempt goods. Excludes Canada/Mexico (25% under USMCA rules)	China raises tariffs on US goods from 84% to 125% (effective 12 April 2025)
9 April 2025	Country-specific tariffs begin	China, EU, Vietnam	China: A tariff of 145% (125% new + 20% existing). Vietnam: 46%, India: 26%, EU: 20%	China adds 34% tariffs on US imports (effective 10 April 2025)
10 April 2025	Auto tariffs take effect	Global automakers	25% tariff on imported cars and auto parts (phased from 3 April 2025 to 3 May 2025)	China suspends imports of US lumber and disqualifies US soybean firms
12 April 2025	China's retaliatory tariffs escalate	United States	-	125% tariffs on all US goods (effective 12 April 2025). Export controls on critical minerals

Source: US International Trade Commission, Harmonised Tariff Schedule, <https://hts.usitc.gov/> (accessed on 13 April 2025).

Table 3. Sustainable consumption, global trade, and legal developments.

Year	Laws	Tags	Impact
2018	US Section 232 Tariffs (Steel and Aluminum)	Trade Protectionism, National Security, WTO Dispute	Imposed 25% on steel and 10% on aluminum imports; challenged in the WTO by EU, China, and others
2018	EU's Retaliatory Tariffs (WTO-Compliant Countermeasures)	WTO Compliance, Trade War, Retaliation	The EU imposed tariffs on US goods (bourbon, motorcycles) in response to Section 232
2019	USMCA (US–Mexico–Canada Agreement)	Digital Trade, Labor Standards, Supply Chains	Replaced NAFTA and introduced stricter labor/environmental rules and digital trade provisions
2020	EU Carbon Border Adjustment Mechanism, Proposal	Climate Law, Carbon Tariffs, WTO Compliance	Imposes carbon costs on imports to align with EU climate goals; WTO compatibility debated
2021	China's Anti-Foreign Sanctions Law	Digital Economic Sovereignty, Retaliatory Measures	Allows China to counter foreign sanctions (US tariffs, tech bans)
2022	Semiconductor Supply Chains, Export Controls	Subsidizes Domestic Chip Production and Restricts Tech Exports to China	US Congress
2023	WTO Moratorium on Digital Tariffs (Extended)	Digital Trade, E-Commerce, AI Governance	Extended ban on customs duties on electronic transmissions (e.g., software, AI models)

Table 3. Cont.

Year	Laws	Tags	Impact
2024	EU AI Act (World's First Comprehensive AI Law)	Artificial Intelligence, Ethical AI, Compliance	Classifies AI risks, bans specific uses (social scoring), and impacts global AI trade
2025	Trump's 145% Tariffs on Chinese Goods (Updated Trade Policy)	Trade War, Supply Chain Shifts, Retaliation	Expanded tariffs on EVs, batteries, and semiconductors; China retaliates with export curbs
2025	ASEAN Digital Economy Framework Agreement	Digital Trade, Cross-Border Data Flows, AI Integration	It aims to harmonize digital trade rules among ASEAN members, which affects AI-driven businesses

Green consumption centers on the responsible use of resources, while global trade and the rule of law evolve to enable environmentally aware practices and regulations.

Table 4. Impact of digital transformation on business and corporate sustainability.

Category	Indicators	Impact	Legal Context
AI and Technology	Chip shortages Nvidia's AI processors. Rising R&D costs due to import taxes.	Tariffs inflate costs for AI infrastructure, delaying innovation. Firms like OpenAI face pricier hardware.	WTO disputes over semiconductor tariffs; the US CHIPS Act incentivizes domestic production.
Digital Economic Growth	0.3% Q1 2025 GDP contraction (US). Trade deficit shifts (ASEAN exemptions sought).	Higher consumer prices and reduced trade volumes strain economies. Recession risks escalate.	America First policies clash with WTO non-discrimination principles.
Business Adaptation	Price hikes (e.g., Shein +51%). Nearshoring (Apple to India).	Companies relocate supply chains or absorb costs, squeezing margins. SMEs face existential threats.	The Foreign Pollution Fee Act (FPFA) penalizes carbon-intensive imports, altering sourcing.
Sustainable Supply Chains	EU CBAM vs. US FPFA. Plastic vs. metal packaging shifts.	Tariffs accelerate green transitions (beverage firms adopting plastic bottles) but raise compliance costs.	Climate laws intersect with trade rules, creating legal ambiguities.
Labor Markets	25% hiring slowdown (tariff uncertainty). AI-driven job displacement (PayPal's chatbot)	Automation surges as firms cut labor costs, exacerbating unemployment in vulnerable sectors.	Trade-linked labor policies (immigration raids) worsen shortages.

Digitalization improves operational efficiency and innovation, enabling companies to adopt sustainable practices and improve their bottom line for the environment.

5. Analysis and Discussion

Tariffs not only hurt traditional industries but also determine the direction of new technologies, such as artificial intelligence and renewable energy. For example, placing high tariffs on semiconductors can impede AI development by increasing foreign parts' costs for technology firms. Conversely, strategically placed tariffs on foreign AI-driven services can protect domestic startups, as has happened with EU policies of digital sovereignty [75]. In addition, green tariffs on carbon-intensive imports induce a shift towards sustainable economies by compelling businesses to adopt cleaner technologies. However, excessive use of trade barriers has the potential to disintegrate international networks of innovation, hindering the diffusion of cutting-edge developments. Tariffs can protect domestic industries, but they disrupt international supply chains, increase production costs, and inhibit digital economic growth. The US–China trade war, for instance, shaved off 0.5% of global GDP in 2020, with companies paying extra in input prices and losing competitiveness. SMEs are particularly vulnerable as they cannot absorb unexpected tariff hikes, forcing other players out of the global markets. On the other hand, strategically imposed tariffs have benefited developing countries, such as South Korea's automotive sector, which thrived during a brief protectionist era before it became competitive globally [76].

Tariff imposition has profound implications for business development and digital economic growth, as it is against a complex framework of global trading laws. As a business trend, tariffs directly affect operating costs, supply chains, and business competitiveness. Although protective tariffs can shield domestic industries in the short term, they increase production costs, with companies paying premiums on foreign materials and

components brought into the economy [77]. For instance, the United States–China trade war showed how tit-for-tat tariffs unhinged global value chains at the expense of American manufacturers, which lost 15–25% of Chinese component prices, leading to reduced global competitiveness. International law imposing conditions on tariffs emerges primarily through the World Trade Organization’s bilateral and multilateral treaties. The General Agreement on Tariffs and Trade forms the basis of the system; of particular relevance are Article II, in which members bind themselves to tariff commitments, and Article XXVIII, dealing with changes in concessions. However, exceptions under specified circumstances, e.g., safeguard measures (Article XIX) or anti-dumping duties (Article VI) [78], which countries increasingly utilize as a protectionism tool, are allowed under the system. This judicial elasticity has increased tensions, such as recent disputes over steel and aluminum tariffs justified on national security grounds [79].

Our study focuses on advanced research, which is based on a literature review and the second dataset about our research themes and direction, which are business innovation and challenges for economic sustainability and a focus on law. Research advances sustainable business strategies by analyzing how digital transformation and AI influence consumer choices, offering legal and managerial insights for economic sustainability. We have clarified the managerial implications. The impact is positive, with a greater focus towards the end on the implications for policymakers, firms, and consumers of our findings, suggesting avenues towards greater economic sustainability through innovation and legal reform.

Economically, tariffs have disproportionate impacts on countries. Developed countries utilize tariff policy as a tool for protecting key sectors. In contrast, developing countries are bound by the capacity to institute protectionist measures through WTO commitments and pressures from global finance institutions. The Special and Differential Treatment (SDT) system under WTO conventions attempts to counterbalance this, but a lack of implementation and resistance from developed nations hampers its effect. Moreover, bilateral free trade arrangements like USMCA and CPTPP are developing parallel juridical regimes that sometimes conflict with multilateral WTO laws, leading to a distracted international trade regime. Legal concerns related to tariffs also include mechanisms for resolving disputes. Although the WTO Dispute Settlement Body (DSB) has historically settled tariff-based disputes, the Appellate Body crisis has undermined enforcement capabilities. This institutional shortcoming and increased geopolitical tensions have led to more unilateral tariff measures pushing the boundaries of international trade law [3]. While businesses weather these trying times, they must contend with the short-term economic impacts of tariffs and the legal ramifications of shifting trade regulations and possible conflicts. The resultant uncertainty deters long-term investment and facilitates strategic planning in multinational companies conducting business across multiple jurisdictions [80].

The WTO is crucial in regulating world tariff policy, serving as a base for international trade law and digital economic development. The WTO has encouraged significant tariff reductions by creating multilateral accords such as the General Agreement on Tariffs and Trade (GATT) and the Information Technology Agreement, raising world GDP by some USD 190 billion annually. These agreements promote free trade, reduce barriers, and enhance market access, stimulating business growth across industries [81]. The intersection of tariffs and sustainability law is reconfiguring global supply chains. The European Union’s Carbon Border Adjustment Mechanism imposes tariffs on imports based on their carbon content, compelling overseas manufacturers to shape up or be competitively edged out. Similarly, US duties on Chinese solar panels will attempt to protect domestic renewable energy sectors while imposing environmental requirements [82]. Such efforts raise legality issues regarding conformity with the WTO, as these would qualify as disguised discriminatory trade barriers under Article XX of the GATT. Companies nowadays face

twin challenges: compliance with sustainability regulations and changing tariff regimes, increasing business costs, and catalyzing innovation in green supply chain management.

The WTO is increasingly finding it difficult to legitimize its existence, particularly with rising unilateral tariff measures, such as the US reciprocal tariffs, which other nations and China argue are in breach of the WTO level playing field and non-discrimination tenets. Such actions disrupt the rules-based trading system, unfairly discriminating against emerging economies by restricting their use of special and differential treatment privileges. Further, while essential in managing trade disputes, the WTO dispute settlement process is eroded by geopolitical tensions and non-cooperation by dominant economies. Improving WTO governance and compliance with international trade law is necessary to help sustain balanced digital economic growth and business expansion in a more divided global trading system [83]. The relevant departments of the Guangzhou Commerce Bureau responded that, as a worldwide enterprise that grew out of Guangzhou, Xinyin has continued to increase its layout and investment in the core domestic supply chain in Guangzhou. The export value in Guangzhou continued to grow in the first quarter of this year, undoubtedly breaking the rumor of a supply chain transfer. According to public information, Shiyin is a cross-border e-commerce platform that mainly sells fashion items such as apparel, footwear, bags, and other goods. The platform serves consumers in more than 150 countries and regions worldwide [84].

6. Conclusions and Future Research Directions

This study experimentally tested the impact of tariffs on the global economy legally, with specific emphasis on their implications for business competitiveness, digital economic restructuring, and environmental supply chains. There are indications that despite protectionist tariffs in WTO legislation for local industries, recent US tariff measures, particularly against China, the EU, Canada, the UK, and other trading nations, have hurt global value chains, increased the risk of inflation, and stressed international trade relationships. These policy measures threaten to fragment the global economy, diluting long-run growth. Conversely, China's low-tariff policy has created greater access to inexpensive commodities, benefited developing economies, and established it as the second-largest contributor to the world's GDP. China's emphasis on global cooperation, through such innovations as the Belt and Road Initiative, represents a win-win development promise, on the one hand, encouraging infrastructure investment and people-to-people exchange. Challenges exist, however, such as greater openness in trade practices and identifying the digital economic scale weighed against equitable benefits.

This paper provides a positive view of the particular issues that firms and consumers face when developing sustainable practices, such as legal obstacles and market forces. The impact is positive, with a greater focus towards the end on the implications for policymakers, firms, and consumers of our findings, suggesting avenues towards greater economic sustainability through innovation and legal reform: (1) the long-term ultimate impact on WTO legitimacy of the US tariff war, (2) the viability of AI-facilitated automating of tariff compliance and minimization of trade cost, and (3) structures of the law for green supply chains with increasing geopolitical tensions. A subsequent study would need to account for post-pandemic tariff rebalancing. Lastly, research fosters collaborative world policies whereby nations align tariffs with collective development goals. China's open trade and multilateralism give direction to stabilize the world economy, but retaliatory tariffs risk dividing markets.

6.1. Implications

The findings of this research have significant policy and practical implications. From a legal standpoint, the study demands WTO reforms to cater to tariff treatment and dispute settlement disparities, particularly to balance national protectionism and global trade equity. Economically, policymakers must reconsider retaliatory tariffs and recent US actions that risk supply chain fragmentation rather than supporting regional cooperation frameworks like China's BRI, which is centered on infrastructure-led growth.

6.2. Future Research Directions

Applying AI-based tools can lower tariff-driven trade costs for businesses, allowing resilient and sustainable supply chains [85]. Future research should investigate (1) the geopolitical dynamics of case studies of the impact on smaller economies, especially Global South economies, and US–China tariff negotiations; (2) the technology integration of empirical analyses of AI and blockchain applications in reducing tariff abuse and promoting cross-border trade; (3) legal innovations of analysis of proposals for a “Digital WTO” regime regulating e-commerce and digital service tariffs; and (4) sustainability linkages of how tariff policy can be leveraged to encourage green supply chains, advancing COP28 climate action. Although China's people-centered global development strategy provides one possible cooperation model, more empirical work must be conducted to determine long-term sustainability under varying digital economic conditions.

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Abbreviations

The following abbreviations are used in this manuscript:

CBAM	Carbon Border Adjustment Mechanism
WTO	World Trade Organization
ACFTA	Chinese–ASEAN Free Trade Area
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
EU	European Union
DSB	Dispute Settlement Body
DOJ	Department of Justice
ASEAN	Association of Southeast Asian Nations

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