



Digital Trade for Development



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Executive summary

This report explores the opportunities and challenges for developing economies arising from digital trade and discusses the role of international cooperation in tackling these opportunities and challenges. The report considers policy actions in the areas of digital infrastructure, skills, international support for capacity development, and the regulatory and policy environment. Specific policy issues include the WTO e-commerce moratorium, regulation of cross-border data flows, competition policies and consumer protection.

The digital transformation is having profound effects.

Digitalization of the economy is radically transforming the way we communicate, produce, govern and trade with one another. Digital technologies are engines of growth, increase productivity by reducing production costs, foster economies of scale and more efficient financing, promote innovation by fostering exchange of ideas and expand and diversify export baskets by reducing international trade costs. Digitalization can also promote resilience to shocks, a wider services-led growth model and more inclusive growth. At the same time, by transforming existing processes and business models, digitalization creates opportunities and risks, with winners and losers both across and within economies.

Cross-border digitally delivered services are the fastest growing segment of international trade, with new players emerging.

Digital trade refers to all international trade digitally ordered and/or digitally delivered. According to WTO estimates, digitally delivered services have recorded an almost fourfold increase in value since 2005, rising 8.1 per cent on average per year over the period 2005-22, outpacing goods (5.6 per cent) and other services exports (4.2 per cent) to account for 54 per cent of total services exports. With new ways of obtaining comparative advantage, opportunities arise for new players to engage in global markets, including for farmers to connect to markets and for small business to trade via parcels. While developed economies are responsible for the majority of digitally delivered services exports, they have also grown in most developing economies, including in Africa, where Ghana, Morocco and South Africa have seen the largest growth. That said, growth in least developed countries (LDCs) continues to lag behind and Africa contributed less than 1 per cent of digitally delivered services exports globally in 2022. During the COVID-19 pandemic, the gap between the most and the least advanced economies in terms of exports of such services widened further.

Some economies are more prepared to seize opportunities and take on challenges associated with digital trade, highlighting the importance of digital infrastructure and skills.

In general, to engage in and benefit from digital trade, consumers and businesses must have access to fast, affordable and reliable digital infrastructure as well as the skills and capabilities to use digital technologies for productive activities. Today, an estimated 5.4 billion people, or 67 per cent of the world's population, are able to connect to the internet, doubling the number of people connected only 10 years ago. Yet, 2.6 billion people, or one-third of the global population remains offline, most of them in low- and lower-middle income economies. High tariffs on imports of information and communication technology (ICT) equipment, restrictions on imports of enabling services and limited competition in telecommunications services can reduce affordability and slow down the adoption of these technologies.

Governments need to put in place a regulatory and policy environment that not only facilitates trade in a digital world but also generates inclusive and sustainable outcomes.

Policies and regulations should enable remote transactions, enhance trust in digital markets, promote affordable access and support cross-border deliveries. A predictable and interoperable environment that provides appropriate safeguards related to online transactions (such as data privacy, consumer protection and cybersecurity) is essential for the digital trade ecosystem to thrive. Laws and regulations that ensure easy entry and exit of firms, effective competition and an open trade regime promote healthy competition. Estimates suggest that improved digital connectivity is twice as effective at lowering trade costs in middle- and low-income economies with an enabling regulatory environment for digitally delivered services.

Bridging the digital divide and strengthening the readiness of developing economies to benefit from digital trade requires both domestic and international mobilization.

More international financial and technical support is needed to build the capacity of developing economies to improve connectivity and skills and to regulate in areas relevant to digital trade. Initiatives like the WTO-led Aid for Trade, the UNCTAD-led eTrade for all and the World Bank-led Digital Advisory and Trade Assistance (DATA) Fund can help. Digital connectivity is one of the three priority areas in the WTO Aid for Trade work programme for 2023-24, and recent Aid for Trade commitments to the ICT sector stand at US\$ 2.16 billion in 2021-22.

International cooperation increasingly covers rules on digital trade.

To date, progress on governance of digital trade-related issues has largely taken place in the context of bilateral and regional trade agreements (RTAs). By the end of 2022, there were 116 agreements with digital trade provisions, representing 33 per cent of all existing RTAs. Overall, since 2001, 44 per cent of agreements signed contain at least one

digital trade or e-commerce provision. However, only few LDCs are party to RTAs with provisions on digital trade. The African Continental Free Trade Area (AfCFTA) is, for many countries, the first experience negotiating provisions on digital trade.

Since 1998, the WTO Work Programme on E-commerce has considered how WTO rules apply to e-commerce.

E-commerce is widely seen as within the scope of existing WTO agreements. At the same time, a majority of WTO members consider that, to respond to the changing nature of trade and to facilitate e-commerce related activities, existing WTO rules related to digital trade need to be updated and complemented by new ones. Under the Joint Statement Initiative (JSI) on E-commerce, 90 WTO members, including many developing economies and five LDCs, are negotiating specific rules on digital-trade-related issues.

The WTO moratorium on the imposition of customs duties on electronic transmissions is attracting attention in the run-up to the WTO's 13th Ministerial Conference (MC13). It is the only WTO provision that applies explicitly to e-commerce and has been in place since 1998. Additional commitments not to impose customs duties on electronic transmissions have also been included in 88 RTAs involving a total of 87 economies, of which 33 are developing economies. In June 2022 at MC12 members agreed to further extend the moratorium "until the 13th Ministerial Conference or 31 March 2024, whichever is earlier". At this meeting, members also agreed to "intensify discussions [...] including on the "scope, definition and impact" of the moratorium".

WTO members' views about the renewal of the moratorium on customs duties differ. Proponents of the moratorium emphasise that the commitment has supported a stable and predictable environment for digital trade to thrive. However, other WTO members have expressed concerns about the lack of clarity regarding the scope of the moratorium and the definition of electronic transmissions as well as the opportunity costs of the moratorium. These include the potential foregone customs revenue and the desire to maintain policy space in light of the uncertainty associated with rapid technological change. They have also expressed concerns about the impact of the moratorium on their ability to use customs duties for industrial policy purposes.

The impact of the moratorium on government revenue is estimated to be below 0.33 percent of overall government revenue on average. Value added tax (VAT) represents another way to collect revenue from digital trade that does not discriminate between domestically supplied and imported products, is more uniform across different products, and does not impose a tax burden on intermediate inputs used by domestic producers. The moratorium can impact the amount of customs revenue collected by governments. Uncertainties exist about its scope and the definition of electronic transmissions, but existing estimates of

the potential revenue that could be collected using tariffs on electronic transmissions vary between 0.01 per cent and 0.33 per cent of overall government revenue on average for developing economies, with higher losses for a handful of economies. While tariffs and VAT are not mutually exclusive, recent evidence shows that for most economies, VAT could generate higher revenue from taxing electronic transmissions with appropriate investment in the capacity of tax administrations. Tariffs on electronic transmissions might also impact competitiveness and participation of firms in trade, especially MSMEs and women owned traders.

Beyond trade rules, other regulatory issues also require global solutions: cross-border data flows, competition and consumer protection.

- **A growing number of measures condition the cross-border data flows that underpin digital trade.** But deeper and inclusive international cooperation is needed for a balanced approach to global data governance, which ensures data can flow across borders as freely as possible while addressing public policy concerns.
- **The features of digital markets, including network effects, economies of scale and scope, give rise to concerns about market power and anti-competitive behaviours.** Governments around the world are seeking ways to effectively regulate such behaviours by adapting their legislative frameworks and strengthening enforcement against anticompetitive practices. Efforts should continue to encourage exchange of information and knowledge, collective responses when feasible, as well as innovative approaches and consensus-building to promote competition in digital markets.
- **The lack of appropriate policies and regulations on consumer protection and resources for effective enforcement hinder trust in the digital economy.** Enacting adequate legal frameworks, enforcing regulations and addressing cross-border disputes are essential to create a safer and more inclusive digital environment for consumers. Key challenges include insufficient information and education of online consumers, misleading advertising, unsafe products and payments systems, unauthorized collection and use of customers' personal data, and inadequate dispute resolution and redress mechanisms.

International cooperation is critical to ensure inclusive benefits of digital trade. Global cooperation is needed to ensure that small businesses, women and young entrepreneurs and consumers in all economies can reap the benefits of digital trade. This is particularly challenging as the issues involved fall within the purview of multiple government ministries, which calls for a whole-of-government approach. International organizations can support these efforts by strengthening their cooperation with governments, stakeholders, and each other, and this joint report is a step in this direction.



A

Introduction

Trade has played an important role in fostering economic growth, promoting income convergence among economies and lifting hundreds of millions of people out of poverty (World Bank and WTO, 2015). The expansion of global value chains (GVCs) (ADB, 2021) has been a driving factor behind this growth. Some people, firms and economies have, however, missed out and not fully benefited from trade opportunities.

Following the great financial crisis, the growth of GVCs has stagnated. The rise of automation and the backlash against globalization have further fuelled uncertainties regarding the future viability of this GVC-led model of industrialization. According to WTO projections, the volume of world merchandise trade is expected to grow by 0.8 per cent in 2023, marking a decline from the 3 per cent growth estimated for 2022 (WTO, 2023b). With subdued trade growth and weak economic growth, advances in living standards and prospects for individuals worldwide could be hampered.

Digital trade, statistically defined as “all international trade transactions that are digitally ordered and/or digitally delivered” (WTO, OECD, IMF, and UNCTAD, 2023),¹ has emerged as a dynamic and fast-growing area of the global economy. The value of global exports of digitally delivered services reached US\$ 3.82 trillion in 2022, capturing an estimated 54 per cent share of total global services exports and accounting for 12 per cent of total goods and services exports. Between 2005 and 2022, the estimated average annual growth rate of digitally delivered services reached 8.1 per cent, outpacing those of goods exports (5.6 per cent) and other services exports (4.2 per cent) (WTO, 2023b).

Alongside trade in digitally delivered services, digitally ordered trade is also an important component of digital trade. Digital ordering is an increasingly vital way for producers to reach and take orders from customers both in the same economy and abroad. Although statistics on digitally ordered trade are limited, its share in exports appears to be growing rapidly, including in several developing economies. The share increased from 5 to 8 per cent of all exports in Malaysia between 2015 and 2019 and has more than doubled in Thailand from 2 per cent in 2015 to 5 per cent in 2021. In the same year, digitally ordered exports reached 11 per cent in Canada, up more than one-third since 2019 (UNCTAD, 2023a).

This rapid growth in digital trade highlights the increasing importance and influence of digital technologies in the global economy in facilitating and expanding international trade, enabling businesses to provide goods and services across borders in a more seamless and cost-effective manner. In the wake of the COVID-19 pandemic, digital trade has also become an important tool for supporting and enhancing resilience by maintaining business operations and delivering goods and services amidst physical restrictions but also diversifying supply chains and opening up new markets (IMF, 2022; OECD, 2020b; World Bank and WTO, 2021).

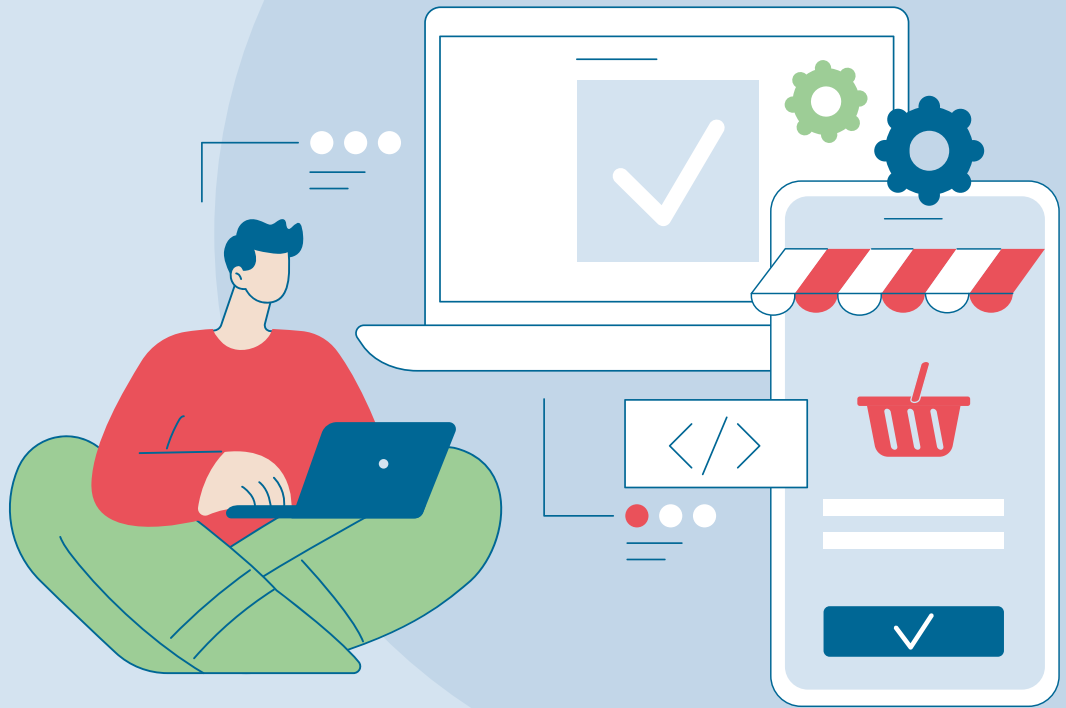
The realm of digital innovations continues to experience rapid growth and transformation (WIPO, 2022). As a consequence, the digitalization of international trade is expected to expand further. With the rise of remote working, an increasing number of firms, especially those in high-income economies, are expected to rely on imported intermediate services for tasks, such as accounting, graphic design and software engineering (WTO, 2019). In specific sectors, such as health services and information and communications technology (ICT), the potential for growth in digital trade is particularly noteworthy. This growth is in part driven by the demands of ageing populations in high-income economies for digital services, including health and wellness, as well as the expanding workforce in geographically remote areas that can work online (ILO, 2021; ITU, 2021b).

As the digital economy continues to evolve, policymakers, businesses and consumers are grappling with the opportunities and challenges it presents. Harnessing the potential of digital trade and ensuring its inclusivity and sustainability are key considerations as the world navigates the complexities of the fast-changing economic landscape.

In an effort to deepen the understanding on a pivotal topic that is becoming increasingly central to trade and the global trading system in the 21st century, the International Monetary Fund, the United Nations Conference on Trade and Development, the Organisation for Cooperation and Development, the World Bank and the World Trade Organization have joined forces to conduct this study on the role of digital trade for development. The joint report is intended to provide a factual and balanced assessment of current developments. It consists of two main sections. Section B discusses the growth potential of the digital economy, explores the impact of digital technologies on trade patterns and looks at the implications for development. Section C discusses the challenges faced by developing economies in harnessing the opportunities of digital trade and the role of domestic policies and international cooperation in overcoming these challenges and fostering a more inclusive digital trade. The study includes a focus on the possible implications of the WTO moratorium on customs duties on electronic transmission, given that the moratorium is one of the issues attracting particular attention in the run-up to the WTO's 13th Ministerial Conference (MC13) to be held in February 2024.

Endnotes

1. The Handbook on Measuring Digital Trade defines all digitally delivered trade as services trade (IMF, OECD, UNCTAD and WTO, 2023). It should be noted, however, that WTO members hold different views as to whether digitizable goods are goods or services once digitized and digitally delivered.



B

Unleashing the potential of digital technologies: growth, trade and development opportunities

Increased use of digital technologies is transforming the way workers, firms and consumers interact. The digital revolution has seen the transition from mechanical and analogue technologies to the widespread adoption of computers and the exchange of machine-readable information (i.e. digital data). While new digital technologies will continue to emerge, current technologies include artificial intelligence (AI), 3D printing, cloud computing and blockchain (OECD, 2019a; UNCTAD, 2021b; WTO, 2018).¹ Digitalization is transforming processes of production, consumption and trade and ultimately impacting on economic growth in multifaceted ways.

This section looks at the opportunities from digitalization. Like any technological change, digitalization brings with it challenges and opportunities. While this section focuses on the potential benefits of digitalization and how digitalization impacts trade, Section C discusses the challenges and the necessary policy options. Whether digital technologies are used in production to order or deliver services or order goods online domestically or internationally (like in the case of digital trade), digitalization provides new opportunities for growth and development and changes what we trade and who trades.

1. Digitalization changes the way economies grow

Digitalization promotes wider services-led growth.

The services sector has been significantly impacted by the advent of new digital technologies, potentially more so than the agriculture and manufacturing sectors (Matthess and Kunkel, 2020). ICTs have played a crucial role in overcoming the traditional need for physical proximity in many services activities. This has resulted in increasing tradability of many services across borders as well as a surge in “trade in tasks” within global value chains and the outsourcing of services, both domestically and internationally (UNCTAD, 2022a; WTO, 2019). Services, such as ICT, finance, and business and professional services, whose suppliers can leverage digital technologies to upscale by reaching remote markets and to innovate by processing more information, can also bring positive spillovers to other sectors. They are therefore well positioned to increase productivity and foster economic growth (Hallward-Driemeier and Nayyar, 2017).

Digital technologies, whether used in production, online purchasing and delivery of goods or services, domestically or internationally, can act as engines of growth by increasing productivity, fostering innovation and boosting trade. Digital technologies can increase productivity by reducing production costs and fostering economies of scale. They can increase the incentive to innovate and foster the exchange of ideas. Digital technologies can also help to expand and diversify exports of both goods and services by reducing trade costs. Conclusive evidence on the impact of digitalization on growth is limited, but there is some evidence that certain forms of digitalization affect positively selected factors of growth (Cardona, Kretschmer and Strobel, 2013; Goldfarb and Tucker, 2019; Hjort and Tian, 2023; Stanley, Doucouliagos and Steel, 2018).

First, digitalization can lower production costs. By leveraging digital technologies, companies can reduce labour costs, streamline operations, optimize resource use and reduce maintenance and downtime costs. For instance, cloud services and high-speed broadband have been found to improve productivity by enabling young firms, particularly those in the manufacturing sector, to expand without increasing their geographic footprint and by allowing established firms to reorganize operations, reduce costs and extend their reach (DeStefano, Kneller and Timmis, 2020; Jin and McElheran,

2017). Digitalization can also lower production costs in the agricultural sector (FAO, 2022). ICT services can provide farmers with access to better and more timely information on soil properties, temperature and weather conditions, crop growth, livestock feed levels and market conditions, thereby reducing information and coordination costs. Equipment monitoring can automate the operation of a range of equipment, such as irrigation pumps, or can be used to track the movement of equipment and animals. The contribution of services to agricultural production and exports is increasingly linked to digital services that are making agriculture “smarter” (i.e. more productive and sustainable) (World Bank and WTO, 2023b).

Digitalization can also increase productivity by helping producers to expand market access or improve input-sourcing strategies and by facilitating lending.

By reducing the time, effort and resources required for searching for, accessing, retrieving and communicating information, digital technologies - for example, data analytics- can enable a more efficient and cost-effective access to relevant data. As a result, firms with relevant capabilities can make data-driven decisions and potentially expand their market access. For instance, internet access was found to help smallholder farmers improve their market participation and volume decisions regarding their output by providing valuable information on prices, marketing strategies and potential buyers and brokers (Fan and Salas Garcia, 2018). Digital technologies have also the potential to reduce input-sourcing costs by facilitating the search for suppliers, offering more competitive prices (Kandilov *et al.*, 2017). For example, Fintech (an application of digital tech to finance) has been found to facilitate increased lending to households and small business (Cornelli *et al.*, 2020).

Second, digitalization facilitates exchange of ideas and fosters innovation.

The exchange of ideas made possible through digital technologies can spark creativity, bring diverse perspectives, enable sharing of knowledge, facilitate feedback and refinement of thinking, foster collaboration, and expand the knowledge base (WIPO, 2022). Firms often act as the primary drivers of technological adoption and implementation thanks to their resources, expertise and market presence that enable them to adopt and integrate more sophisticated technologies into their operations (Cirera, Comin and Cruz, 2022). For instance, adopting cloud services has been found to not only enhance productivity and boost revenue, but also allow teams to collaborate effectively regardless of their geographic locations (Jin, 2022). The adoption and utilization of digital technologies can also have a positive spillover effect, benefiting other firms and industries by creating demand and driving further technological advances. For instance, internet use by industries in developing

economies has been found to have led to knowledge spillovers that have boosted the productivity and innovation of other firms, in particular the most productive ones (Paunov and Rollo, 2016).

Third, improving digital connectivity lowers international trade costs, thus boosting trade across all sectors. Digital technologies enable real-time communication, simplify cross-border transactions and expand market access by allowing for greater efficiency, transparency and customization. Digital technologies can reduce trade costs (such as transportation, information verification and tracking costs), thus improving supply chain efficiency through shorter delivery times, better transport, logistics and distribution services and enhanced traceability along the supply chain (Kang, 2016; Ma, Shi and Kang, 2023). WTO research suggests that a 10 per cent increase in mobile broadband subscription per capita is associated with around 1 per cent lower trade costs both in goods and services. The effect is especially strong for trade in digitally deliverable services, such as business and professional services (Bellucci, Rubinová and Piermartini, 2023). The impact of digital technologies on reducing trade costs has increased over time. OECD research shows that by 2018, the impact of an increased share of individuals using the internet on international trade costs was three times higher than it was in 1995 (López González, Sorescu and Kaynak, 2023). Although estimated trade effects of improved digital connectivity vary depending on the specific measure of connectivity used and methodology, they are significant and positive for all sectors and different levels of development.

Digital trade can be an engine for growth. Similar to other forms of trade, digital trade fosters growth by improving resource allocation, allowing economies to take advantage of economies of scale, and fostering innovation, technological diffusion and access to education. While existing empirical evidence primarily highlights the positive impact of trade in goods on growth, a growing body of evidence shows that services and services trade (which are increasingly delivered digitally) are key drivers of productivity, competitiveness and rising living standards (World Bank and WTO, 2023b). In 2022, cross-border digital payments for online courses through platforms, e-books and audiobooks, reached US\$ 1.2 million in Namibia, suggesting the importance of digital technologies in providing learning opportunities (Bank of Namibia, 2023). The use of digital technologies to supply or access innovative services (even if not exclusively cross border) is central to the realization of economic development strategies.

Digitalization strengthens resilience against increasingly frequent and more intense events of an unpredictable nature. Economic resilience refers to the ability to prevent and prepare for, cope with and recover from unpredictable events, with a view to reducing business interruptions and economic losses caused by them (WTO, 2021). Digital technologies can be essential tools to implement risk prevention, reduction and preparedness strategies, including identifying priorities, developing contingency plans and reviewing insurance coverage. Digital technologies can also enable business operations to continue once an unpredictable event strikes by making the production processes more flexible. Digital technologies have been instrumental in coping with and recovering from the COVID-19 pandemic (Jaumotte *et al.*, 2023). Exports in sectors with more digitally enabled remote work suffered less from COVID-19-related local supply disruptions (Espitia *et al.*, 2021). Greater digitalization also helped insulate economies from negative spillovers from COVID-19-related lockdown measures adopted in other economies (IMF, 2022). Limited connectivity and ICT adoption as well as liquidity shortages and persistent cash-based and payment-on-delivery cultures hampered the diffusion of digital solutions in developing economies during the COVID-19 pandemic (UNCTAD, 2020).

The growth and resilience potential stemming from digital technologies, including through digital trade, ultimately depends on the capacity to adopt and use these technologies. Open trade can help businesses acquire digital technologies, but addressing barriers to using these technologies, including for trading goods and services, is also crucial (see Section C). While barriers to digital technology adoption and use vary depending on the specific context, some common obstacles include insufficient or inadequate physical infrastructure (such as unreliable electricity supply, poor internet connectivity and limited telecommunications networks), restricted access to affordable devices and internet services, and a lack of digital skills and literacy needed to effectively use these technologies. Inadequate regulatory frameworks and policies, such as the lack of consumer protection, data protection and privacy regulations, unnecessary obstacles to data collection, transfer and sharing, or high levels of market concentration and failure to prevent anti-competitive behaviour, can also hinder digital technology adoption and use. Duties and charges on electronic transactions would also represent an obstacle to digital trade.

2. Trade is increasingly digital, but some developing economies are struggling to be part of this transformation

Digitalization impacts how international trade is conducted. Digital technologies enable buyers and sellers to place and receive orders on a global scale, eliminating the need for in-person interactions. In addition, digital delivery facilitates the remote provision of products from one territory to another via computer networks. The terms digital trade and e-commerce are often used interchangeably (see Box B.1.). For this report, digital trade covers products that are digitally ordered and/or digitally delivered. “Digitizable goods” refers to goods before digitization (e.g., a printed book), while “digitized products” applies after digitization (e.g., an e-book), as the word “product” can refer to both goods and services.

Improved data collection is needed to address the limited availability of official statistics on digital trade. Few national statistical agencies – especially in developing economies – publish comprehensive figures on digital sales, and even fewer provide a breakdown of domestic and international digital trade transactions (UNCTAD, 2023a). The lack of information on the economic value of digitally ordered exports and imports makes it difficult to assess how digital methods compare to traditional ones in stimulating economic activity. It also makes it challenging to gauge the effects of online orders on replacing local purchases with foreign options, and how factors like firm size, sector, payment techniques and openness to trade affect these results.

Available evidence suggests that the contribution of digital trade to total exports can differ significantly across economies. The COVID-19 pandemic accelerated a long-term trend toward digital ordering, be it domestically or internationally, that has transformed both business-to-business and business-to-consumer sales, including by driving a significant increase in online retail sales and the expansion of digital marketplaces (OECD, 2023a; UNCTAD, 2022c). Available statistics, however, suggest that the share of digitally ordered exports varies significantly across economies, from 5 per cent in Thailand and 8 per cent in Malaysia to 18 per cent

in the United Kingdom (see Figure B.2) (UNCTAD, 2023a). On-going technological advances, uptake and changes in business practices suggest that the share of trade that is digitally ordered is likely to continue to increase.

Digitally delivered services have become an increasingly important component of trade and are likely to continue to increase. Digital technologies have facilitated the direct cross-border trade of certain services, such as consulting, education and financial services. Global exports of digitally delivered services reached US\$ 3.82 trillion in 2022, marking an almost fourfold increase in value since 2005 and accounting for 54 per cent of total global services exports. Between 2005 and 2022, these exports grew by an average of 8.1 per cent annually, outpacing goods (5.6 per cent) and other services exports (4.2 per cent) (WTO, 2023b).² The ability to digitally deliver services played an important role in trade resilience during the COVID-19 pandemic. While tourism and other services requiring cross-border mobility declined, digitally delivered services exports, including IT consulting, continued to rise (see Figure B.3). Driven by digital technological advances and changing business practices, the share of services trade that can be delivered remotely over computer networks is likely to continue to increase (UNCTAD, 2015; 2023c; WTO, 2023b).

Exports of digitally delivered services are dominated by high-income economies and a few emerging economies. In 2022, high-income economies were responsible for over 82 per cent of global exports of digitally delivered services (see Figure B.4). Among these economies, the European Union holds the largest share at 37 per cent, followed by the United States at 16 per cent, and the United Kingdom at 9 per cent. Meanwhile, 17 per cent of digitally delivered services exports originated from middle-income economies, with China and India accounting for 6 per cent and 5 per cent, respectively. Notably, regions such as Africa, and Latin America and the Caribbean have a relatively restrained market presence in digitally delivered services of 1 per cent and 2 per cent, respectively. The participation of LDCs is particularly limited, accounting for a mere 0.2 per cent of global exports of digitally delivered services, a market share that has fallen.

Despite overall growth in the export of digitally delivered services, Africa and Latin America have continued to experience slower progress. Between 2015 and 2022, exports of digitally delivered services grew faster in middle-income economies (10 per cent on average per year) than in high-income economies (7 per cent). In contrast, exports of digitally delivered services in LDCs expanded by

Box B.1

Digital trade and e-commerce – fundamental concepts and statistical definitions

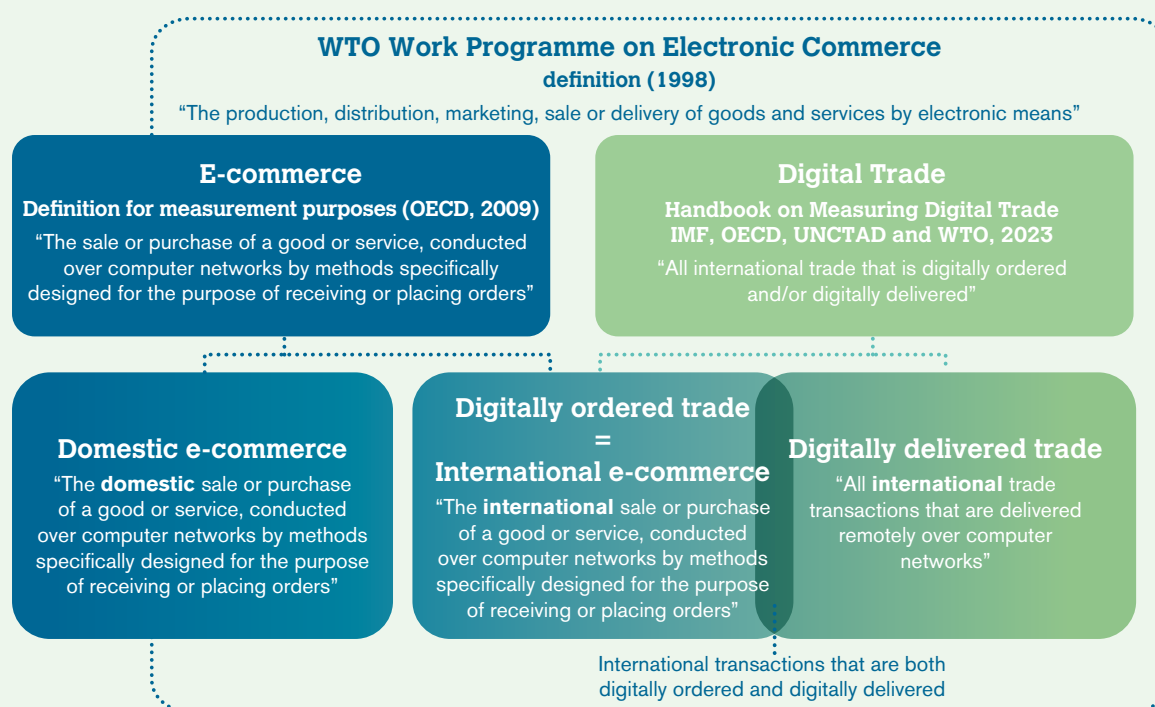
Over the years, different concepts and definitions relating to e-commerce and digital trade have been developed in international institutions. The IMF-OECD-UNCTAD-WTO Handbook on Measuring Digital Trade clarifies the linkages between these concepts by providing a statistical definition of digital trade (IMF, OECD, UNCTAD and WTO, 2023). This definition has gained widespread acceptance by governments, following extensive consultations with statistical compilers and policymakers.

The Handbook defines digital trade as “all international trade that is digitally ordered and/or digitally delivered”. It comprises both digitally ordered trade and digitally delivered trade through computer networks, largely through the internet. Digitally ordered trade covers transactions in both goods and services. Ordering a T-shirt from abroad through the retailer’s website or booking a hotel room in another country through a digital intermediation platform are examples. Digital delivery may take place in the form of emails, voice, and video calls, via apps and intermediation platforms such as online gaming,

music and video streaming, and remote learning platforms. All economic actors, such as businesses, households and governments, can engage as buyers and sellers.

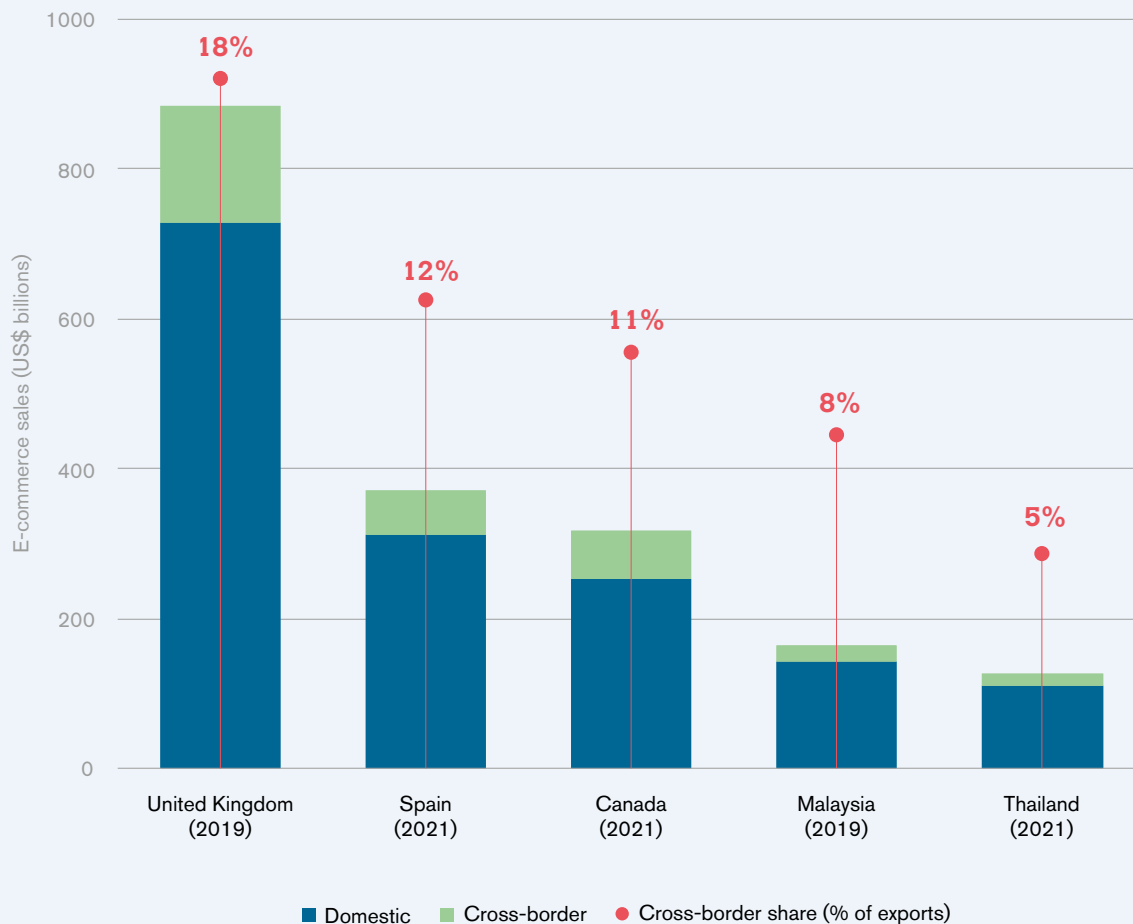
The definition of digital trade in the Handbook is fully compatible with the WTO definition of electronic commerce agreed under the Work Programme on Electronic Commerce, which refers to the “production, distribution, marketing, sale or purchase of goods and services by electronic means” (see Section C.2.c). In fact, from a measurement perspective, the value of products traded digitally intrinsically incorporates the cost of their production, distribution, marketing or delivery. The two statistical criteria of digital ordering and digital delivery are encompassed by the WTO definition of electronic commerce. In addition to cross-border e-commerce, the WTO definition also covers the domestic e-commerce activities of foreign-owned or foreign-controlled service suppliers. Figure B.1 illustrates the relationships between the WTO definition of e-commerce and of digital trade and their components.

Figure B.1: Digital trade and e-commerce – fundamental concepts and statistical definitions



Source: IMF, OECD, UNCTAD and WTO (2023).

Figure B.2: Few economies have published statistics on the value of cross-border business e-commerce sales



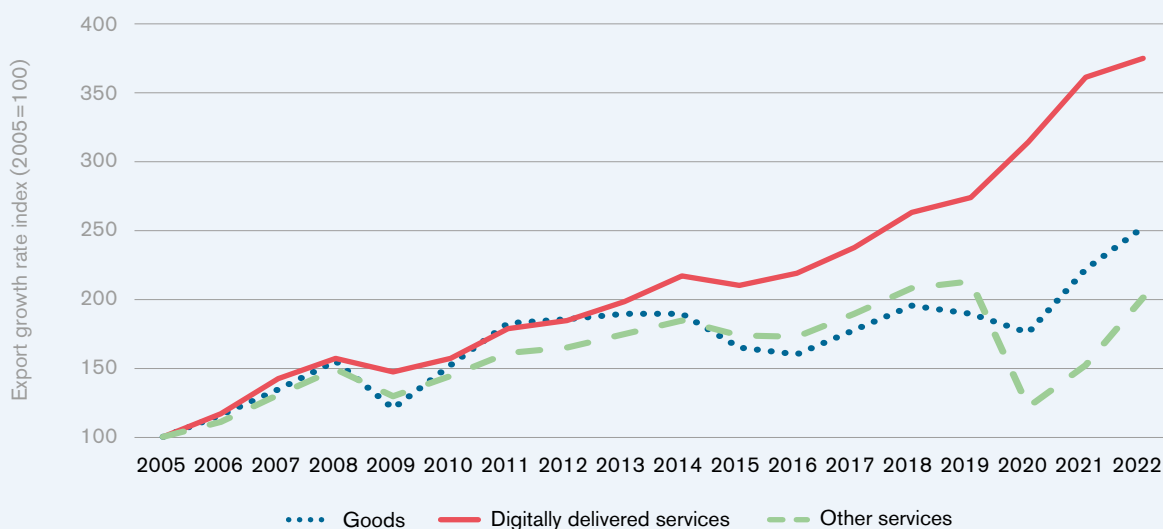
Source: UNCTAD (2023a).

Note: The figure reports the sales by businesses only, including both Electronic Data Interchange (EDI) sale and web sales. This figure assumes that the statistics for business e-commerce exports and total exports can be treated as mutually compatible, despite being based on different data sources.

only 4 per cent. Some of these LDCs, such as Uganda and Zambia, and several other economies, including Barbados and Bolivia, experienced a contraction of their exports of digitally delivered services. Overall, exports of digitally delivered services grew by an average of 6 and 8 per cent annually in Latin America and Africa, respectively, while Asia experienced a higher annual growth rate of 10 per cent (see Figure B.5). Intra-Asia trade in digitally delivered services trade experienced

the highest increase in recent years, accounting for 43 per cent of the region's total trade of these services in 2021, while the share of intra-regional trade in digitally delivered services remained stable in South and Central America and the Caribbean. In contrast, intra-Africa trade in digitally delivered services declined to 3 per cent in 2021, representing the lowest share of intra-regional trade in these services.

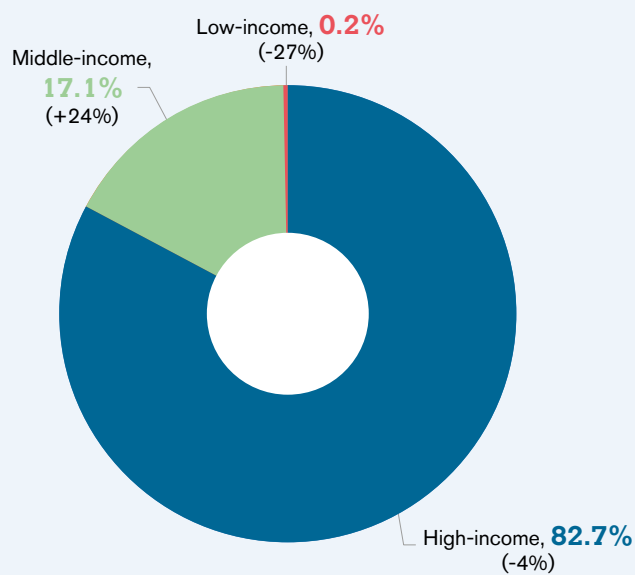
Figure B.3: Global exports of digitally delivered services have grown faster than exports of goods and other services



Source: WTO (2023b).

Note: The figure displays the growth rate of exports of goods, digitally delivered services and other services. The base year of the growth rates is 2005 (2005=100).

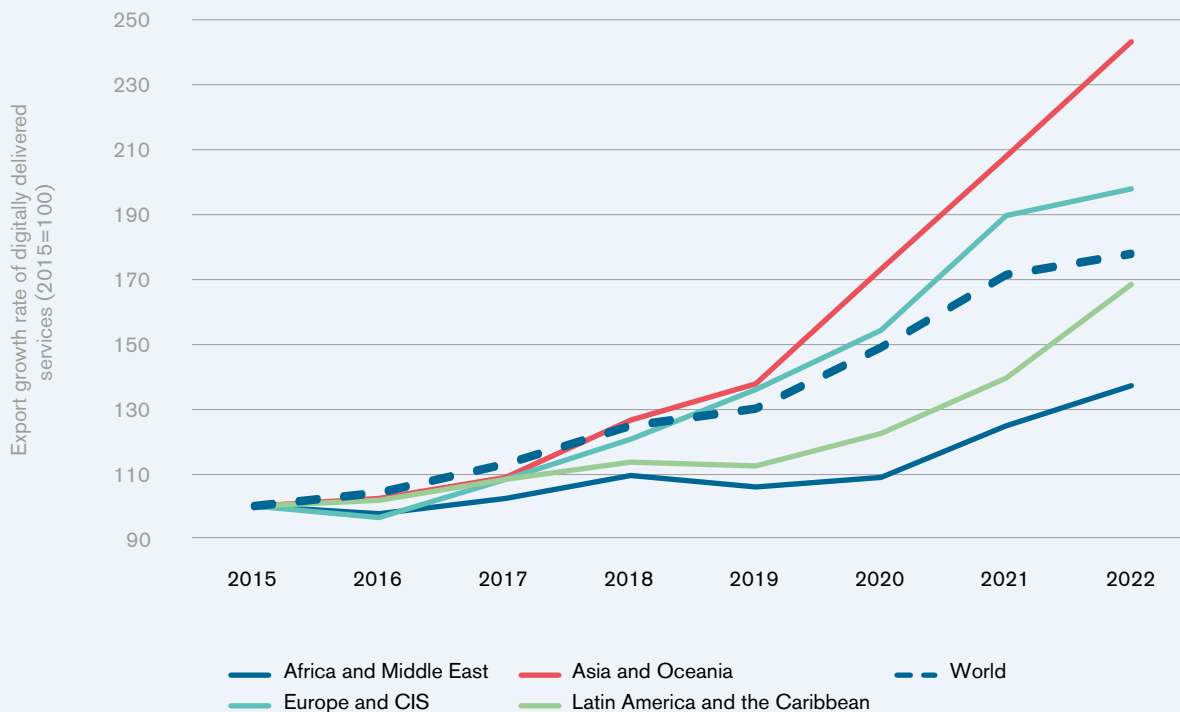
Figure B.4: Digitally delivered service exports are dominated by high-income economies and a small number of middle-income economies



Source: WTO (2023b).

Note: The figure displays the share of exports of digitally delivered services in 2022 by income group. The numbers in parenthesis represent the growth rate of market share between 2015 and 2022.

Figure B.5: The growth of digitally delivered services exports of low- and middle-income economies differs by region



Source: WTO (2023b).

Note: The figure displays the changes in exports of digitally delivered services from middle- and low-income economies by region. The base year of the export index is 2015 (2015=100). High-income economies are excluded from regional groupings but included in the world average.³ CIS corresponds to the Commonwealth of Independent States including certain associate and former member states.

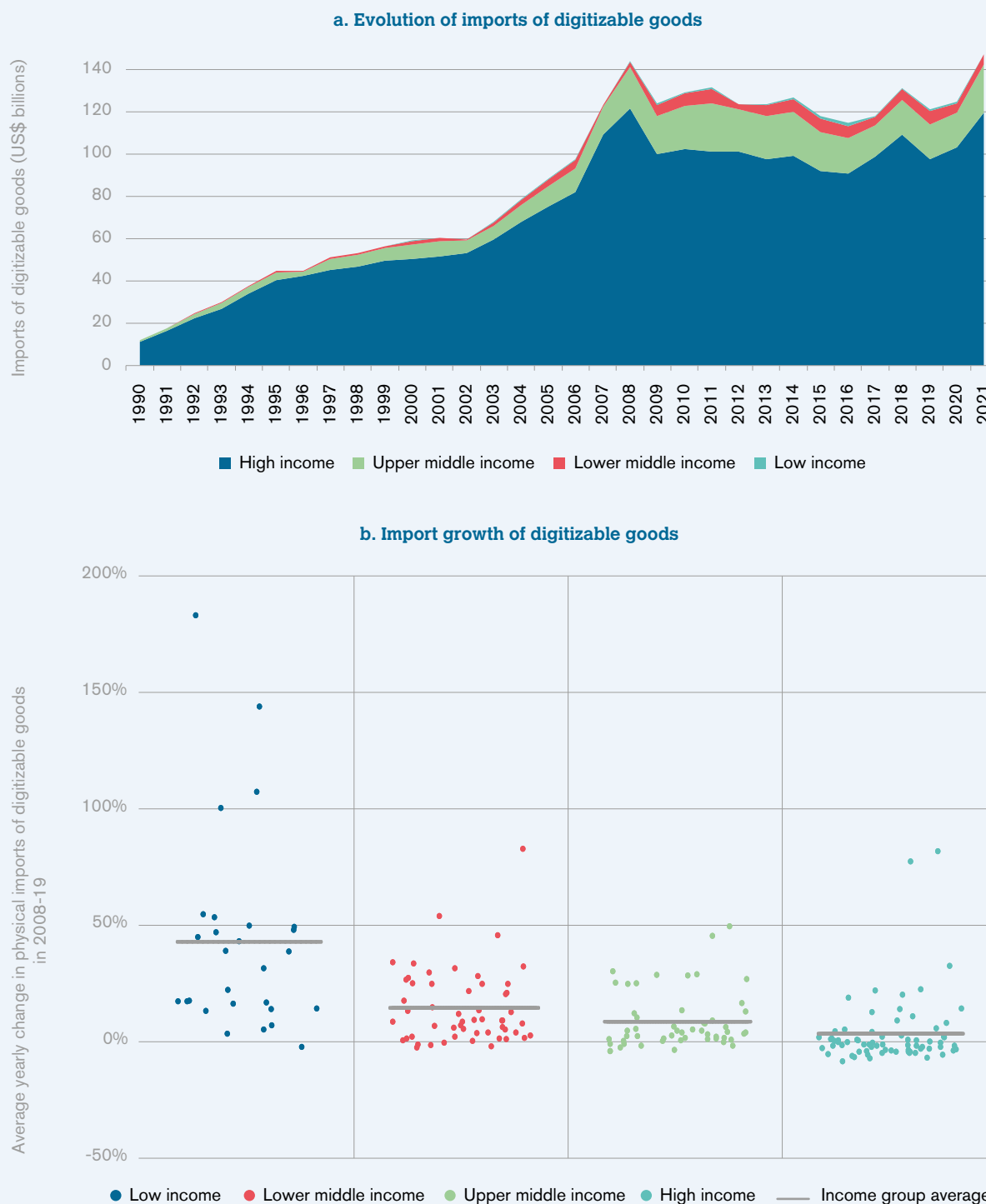
3. Digital trade provides opportunities to launch new products

Digital technologies have provided new opportunities to trade a broad range of services. In the last decade, computer services were the most dynamic services sector. In 2022, digitally delivered services exports were dominated by business, professional and technical services, which accounted for approximately 40 per cent, followed by computer services (20 per cent), financial services (16 per cent) and intellectual property-related services (12 per cent) (WTO, 2023b).

Digital delivery is increasingly common, with impacts on goods trade, predominantly in developed economies.

Demand in physical formats of music, movies, books and software, which once dominated the market, have plateaued as digital equivalents have become more accessible and convenient.⁴ The proliferation of online streaming platforms, e-books and downloadable software has also made it easier for consumers to access these products. These developments make it significantly easier and less costly to deliver a wide range of products across borders. As a result, international trade in digitizable goods has stagnated as digital distribution channels offer cost savings, immediate delivery and a broader reach. However, this is largely a high-income economy phenomenon as digitizable goods imports continued to grow in many middle and low-income economies (see Figure B.6) (Andrenelli and López González, 2023).

Figure B.6: International trade in goods that can be digitized has plateaued



Source: Andrenelli and López González (2023).

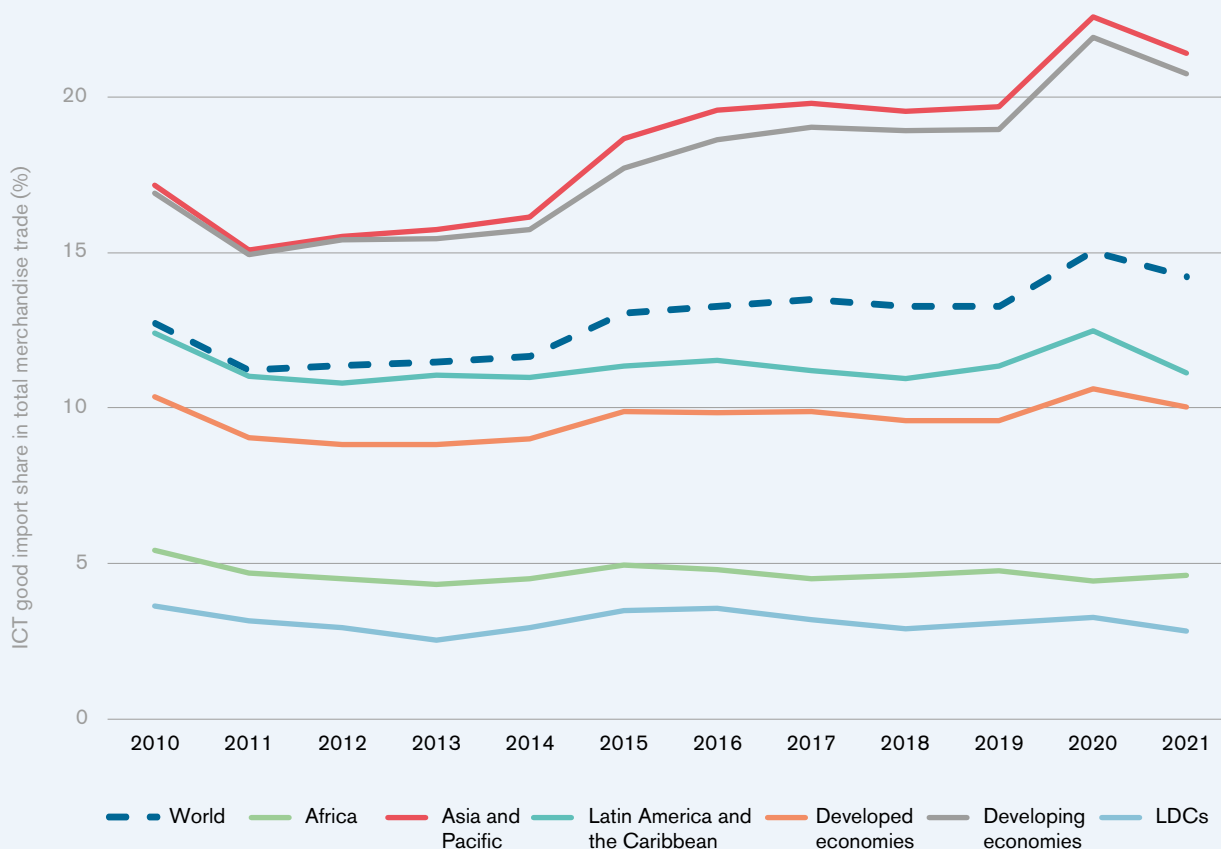
Note: The calculations are based on UN Comtrade data and cover 196 economies (panel a) and on the BACI database for 206 economies (panel b). The scope of digitizable goods covers photographic material, printed matter, storage devices and video games.

Trade in goods that underpin the use of digital technologies has seen an increase too. The rising demand for innovative digital products and solutions, coupled with the growing reliance on digital infrastructure and tools, are making certain goods, such as ICT equipment, essential for achieving optimal functionality and performance in the digital economy. As a result, the demand for these goods has led to an increase in their international trade. From 2012 to 2021, global ICT goods exports grew by nearly 50 per cent to US\$ 2.7 trillion. The share of trade in ICT goods in total merchandise trade varies across regions. While Asia continues to lead in terms of trade in ICT goods, other regions have demonstrated comparatively lower levels of engagement in this sector. In particular, in LDCs and several developing regions, including Northern and Sub-Saharan Africa, the share

of ICT goods in total merchandise trade remains limited due in part to differences in technological development and industrial focus as well as higher tariffs. These economies further experienced a strong decline in the value of both imports and exports of ICT goods as the COVID-19 pandemic took hold (see Figure B.7) (UNCTAD, 2021).

While some digital technologies might reduce trade in goods, others could potentially bolster it. For instance, the introduction of 3D printing tends to be associated with an increase, rather than a decrease, in international trade in goods, such as hearing aids equipment, orthopaedic appliances, aircraft parts, medication and machine parts (Andrenelli and López González, 2021; Freund, Mulabdic and Ruta, 2022).

Figure B.7: Imports of ICT goods in LDCs remain constrained



Source: UNCTAD.

4. Digital trade can contribute to making trade more inclusive

Digital trade can create new opportunities for economies, firms and consumers and integrate more sectors of society into global trade. The adoption of digital technologies can help developing economies reduce barriers to market entry and provide direct access to global markets, often bypassing traditional intermediaries, such as wholesalers, retailers and traditional media publishers. These technologies also offer cost-effective platforms for micro-, small- and medium-sized enterprises (MSMEs) to showcase their goods and services, enhance productivity and compete more effectively. Additionally, digital platforms can empower women entrepreneurs by offering flexible business models, enabling them to overcome socio-cultural barriers and actively participate in international trade. For these opportunities to materialize, it is essential to address economic, technical and social barriers that prevent marginalized communities from engaging in digital trade and from reaping the economic benefits (see Section C). As noted above, so far LDCs and some developing economies continue to play a marginal role in digital trade. Also, MSMEs in these developing economies are often constrained from accessing digital platforms by lack of internet connectivity, undeveloped digital infrastructure, lack of resources for the necessary internet equipment, and lack of policies that help MSMEs access digital markets (UNCTAD, 2022b).

(a) Digital trade can create new opportunities for developing economies, including LDCs

Digital technologies have the potential to enhance e-commerce in LDCs by connecting remote economies to global markets. To enable more inclusive outcomes from digitalization, it is important to enable economies trailing behind in terms of digital readiness to catch up. By addressing challenges in transport and connectivity infrastructure, enhancing digital skills and strengthening regulatory frameworks, LDCs would become better positioned to tap into the vast network of e-commerce, expanding their market reach and increasing economic growth. For instance, a study of Bangladesh shows that the adoption of e-commerce, in particular business-to-business (B2B) e-commerce in the ready-made garments industry, presents an opportunity for the

trade development of developing economies (Hoque and Boateng, 2017).

Export opportunities for digitally delivered products could be better harnessed by economies traditionally at the margins of global trade. Although distance remains a significant factor in overall trade costs (López González, Sorescu and Kaynak, 2023; WTO, 2021), digital technologies reduce the relative importance of some factors of comparative advantage, such as geographical distance from markets and the quality of transport infrastructure. Trade in digitally delivered products, such as e-books, music and computer software, can thrive with improved internet access, an enabling regulatory environment and digital payment infrastructure. Several developing economies have been making significant strides in exporting digitally delivered services (World Bank and WTO, 2023b). For instance, over the past few years, Bangladesh has shown promising growth in its IT sector, especially in software development and IT-enabled services, with computer service exports rising by an average of 31 per cent from 2019 to 2022.

Certain traditional factors of comparative advantage in trade may become less significant in the digital realm. While capital investments and labour costs remain relevant for digital trade, their importance (at least for certain types of skills) is somewhat diminished compared to offline trade. This is in part due to the ability of technologies, such as AI, advanced robotics and 3D printing, to take the place of some tasks, reducing the prominence of these factors (WTO, 2018).

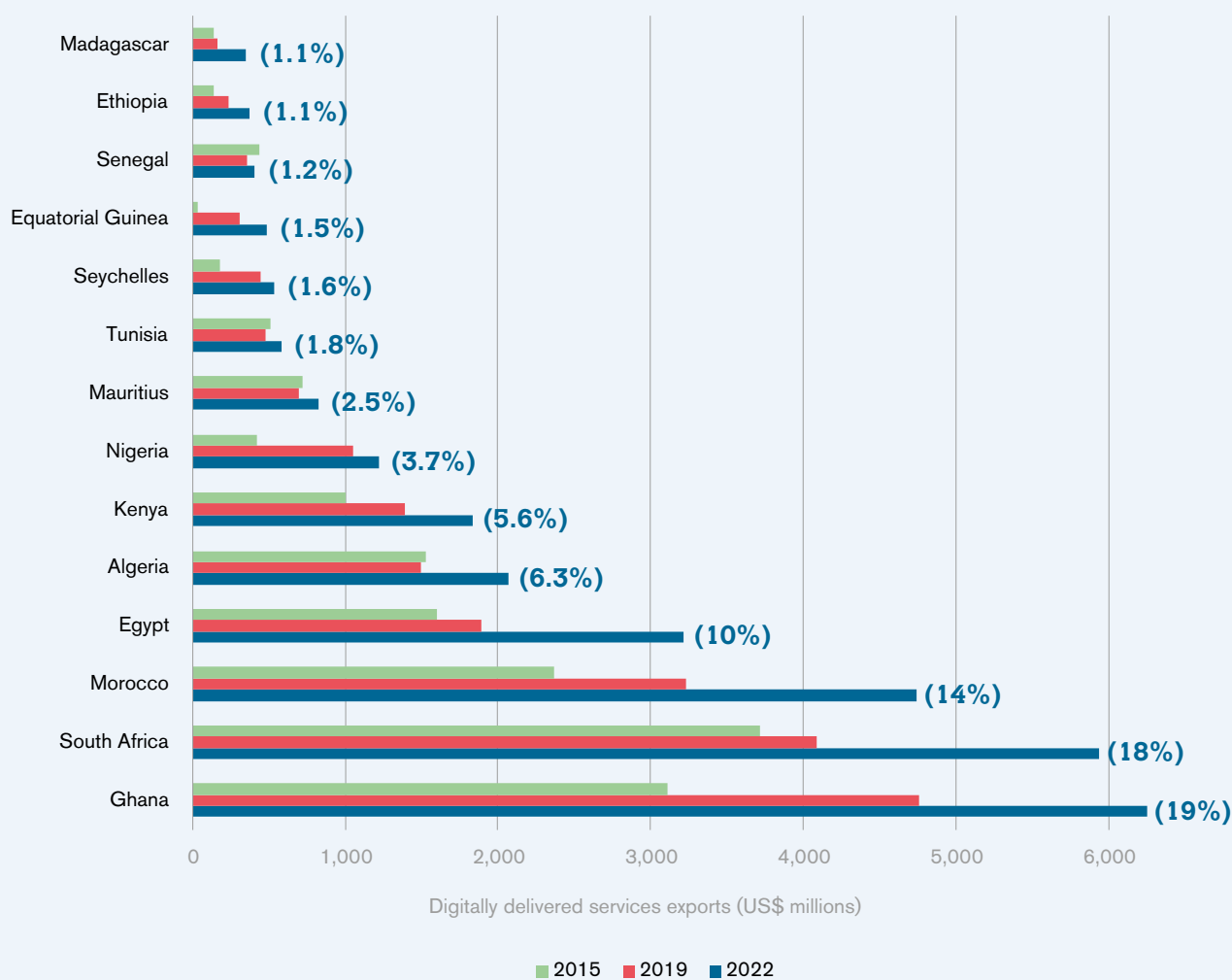
Digital trade brings forth new sources of comparative advantage. New factors of comparative advantage for conducting business in the digital economy include quality digital infrastructure, research and development investment and relevant digital skills. Regulation on cross-border data flows, data privacy and security, competition policy, consumer protection, rules on electronic payment, and intellectual property rights are also important factors affecting digital trade (see Section C) (Anderson *et al.*, 2018). Data are an essential input in the digital economy by enabling firms to analyse consumer preferences, forecast demand and conclude financial transactions. In that context, market size becomes an important factor when cross-border data flows are constrained, as firms in larger economies have access to more data.

While digital trade remains limited in many low- and middle-income economies, some developing economies have made significant progress. Together with other factors, high trade costs have significantly hindered the participation of LDCs in trade, including digitally ordered

and digitally delivered trade. These costs are primarily attributed to poor transport infrastructure and inefficient border crossing procedures.⁵ In this context, certain African economies have been performing well in digitally delivered services (see Figure B.8). Ghana, Morocco and South Africa accounted for over half of the region’s exports of digitally delivered services in 2022. The growth of these services exports in some economies, such as Egypt, Ghana and Madagascar, has outperformed the rest of the world for several years, driven by the Business Processing Outsourcing (BPO) and IT industries (World Bank and WTO,

2023a). In a simulation using the WTO Global Trade Model, an enhanced use of digital technologies in Africa could lead to a potential increase of over US\$ 70 billion in digital services exports between 2023 and 2040, assuming regions with lower broadband connectivity can reduce trade costs in face-to-face intensive sectors more than regions with better broadband connectivity, where trade costs are already lower on average (World Bank and WTO, 2023a). Other developing economies, such as the Philippines, have also experienced growth in call centres, finance and healthcare services.

Figure B.8: Digitally delivered services in some African economies have expanded significantly in recent years



Source: WTO estimates.

Note: The numbers in parenthesis correspond to each country's share in Africa's exports of digitally delivered services.

(b) Digital trade can open up opportunities for greater participation of MSMEs, women and young people in international trade

Digital technologies not only benefit large firms but can also allow newcomers, in particular MSMEs, to participate in global trade. MSMEs in developing economies have been found to account for a relatively larger share in total exports as internet access improves (Sun, 2021). There are, however, important differences across regions, with MSMEs in Africa, Asia and the Middle East reporting relatively lower levels of digital platform usage compared to other regions. At the same time, businesses participating in international trade tend to report a higher rate of using digital platforms, especially among micro-sized firms (WTO, 2023a).

Data on European firms show that the disparity between small and large firms in export participation is much smaller for sales over digital networks than overall trade (WTO, 2018). In addition, as firm size increases, the reliance on e-commerce marketplaces decreases, while the use of the firm's own website or app increases. Many of the services offered by online platforms have traditionally been supplied by large wholesalers and retailers, which act as export intermediaries and facilitate indirect exports for smaller firms. Access to digital marketplaces have empowered many MSMEs by reducing trade costs associated with intermediaries (Lendle *et al.*, 2013). For example, platforms like Soko in Kenya and Etsy in the United States have enabled artisans and MSMEs to reach a global customer base with handmade crafts and unique products (WTO, 2018).

Strong growth in small parcel shipments reflects in part the increasing participation of MSMEs in e-commerce.

While the number of cross-border online business-to-consumer (B2C) transactions is increasing, their average value is decreasing, generating more frequent international flows of lighter and cheaper parcels (López González and Sorescu, 2021). For instance, in 2017, 84 per cent of cross-border goods purchased online weighed 2 kilos or less, and almost 60 per cent of them cost less than EUR 50 (IPC, 2018).

The rise of e-commerce platforms has enabled MSMEs to sell their goods globally, contributing to the uptick in small parcel shipments. Direct-to-consumer sales through e-commerce also mean MSMEs are shipping individual items more often than bulk deliveries to retailers. Some MSMEs use the drop-shipping model, where they do not keep goods in stock but rather purchase them from a third party once they have an

order, which inherently involves frequent small parcel deliveries. Similarly, a just-in-time production approach, which some MSMEs may have adopted to produce goods based on demand, leads to more frequent but smaller shipments. The surge in small parcels fuelled by digital trade raises logistics challenges for customs administrations in both developed and developing economies (see Section C.2.e) (WTO, 2018).

Digital trade can offer new opportunities for women and young people to access international markets.

Digital trade can provide women with increased access to global markets and flexible work opportunities, often removing traditional barriers of entry, including time and mobility constraints. By embracing e-commerce and online business platforms, women can achieve greater financial independence and economic empowerment (World Bank and WTO, 2020). According to the World Bank's Global Findex Database, in 2021, men and women across income groups showed relatively minor differences in using mobile phones or the internet for online purchases, with a gap more pronounced in lower-middle income economies where the shares were 12 per cent for men and 9 per cent for women.

Women tend to be relatively more present in online marketplaces than offline, although the COVID-19 pandemic partially disrupted this trend.

Despite specific statistics regarding women-owned business participation in digital platforms varying depending on the platform, region and context, there are examples showing that women are relatively more present online than offline. More than half of Shopify's global entrepreneurs are women (Jungle Scout, 2023; Shopify, 2023). Similarly, more than 80 per cent of Etsy sellers are female and twice as likely to be young adults (Etsy, 2022). In 2019, 97 per cent of US women-owned eBay businesses exported to an average of 16 economies, outpacing traditional businesses not using online tools (eBay, 2021). In Upwork, an online marketplace through which freelancers provide services, 44 per cent of the workers are women, compared to an average of 25 per cent of the non-agricultural economy globally (World Bank, 2016).

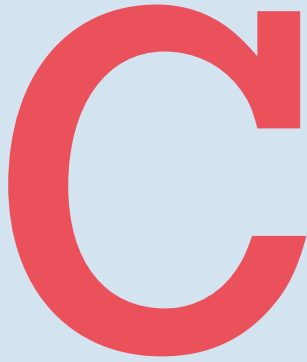
In recent years, women's participation in digital trade has been hampered by the COVID-19 pandemic. In the Philippines, while the share of women-owned businesses on the Lazada e-commerce platform increased from 60 to 66 per cent during the pandemic, their overall sales declined by 27 per cent. Meanwhile, in Côte d'Ivoire, Kenya and Nigeria, the pandemic caused, on average, a 7 per cent drop in sales for women-owned businesses on the Jumia e-commerce platform, whereas men-owned businesses experienced a 7 per cent sales increase (IFC, 2021).

Social media can enable individuals, including young people and women, and MSMEs to connect with wider audiences and collaborate globally. Online education platforms provide individuals with opportunities to learn and acquire skills from any location. Instant digital translation technology also provides a solution for overcoming language barriers and communication issues. Social media can help empower women and young entrepreneurs by providing platforms for visibility, networking and business growth (Miniesy,

Elshahawy and Fakhreldin, 2022). Technology-enabled crowdfunding platforms can further offer women and young people an alternative means to address their financial constraints by providing a finance mechanism that bypasses the traditional barriers often faced when seeking to access capital. As discussed in Section C, small firms, women and young people need to be able to access and productively use the internet. Digital skills are essential in this context to adapt to the changing requirements of labour markets.

Endnotes

1. Artificial intelligence refers to the simulation of human intelligence in machines (e.g., machine learning and deep learning). 3D printing, also known as additive manufacturing, refers to the process of making three-dimensional solid objects from digital files. Cloud computing is the on-demand online availability of computing resources, such as infrastructure platforms and software. Blockchain refers to a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a network.
2. These estimates are based on the assumption that what was digitally deliverable in 2015 was also digitally deliverable in 2005.
3. The following high-income economies, based on the World Bank classification, have been excluded from the geographical groupings: Anguilla; Antigua and Barbuda; Aruba; Australia; Austria; Bahamas; Kingdom of Bahrain; Barbados; Belgium; Bermuda; Brunei Darussalam; Canada; Cayman Islands; Chile; Croatia; Curaçao; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; French Polynesia; Germany; Greece; Guyana; Hong Kong, China; Hungary; Iceland; Ireland; Israel; Italy; Japan; Republic of Korea; State of Kuwait; Latvia; Lithuania; Luxembourg; Macao, China; Malta; Nauru; Netherlands; Netherlands Antilles; New Caledonia; New Zealand; Norway; Oman; Panama; Poland; Portugal; Qatar; Romania; Saint Kitts and Nevis; Kingdom of Saudi Arabia; Seychelles; Singapore; Sint Maarten; Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Chinese Taipei; Trinidad and Tobago; United Arab Emirates; United Kingdom; United States and Uruguay.
4. Despite the increased availability of e-books, their usage continues to significantly trail behind that of printed books worldwide (Richter, 2022).
5. For instance, a doubling of the distance between buyers and sellers in Ethiopia and Nigeria has been found to result in transportation costs that are four to five times higher than in the United States (Atkin and Donaldson, 2015).



Role of domestic policies and international cooperation in supporting digital trade

Governments around the world are increasingly recognizing the potential of digital trade to contribute to economic growth and enhance global competitiveness. A growing number of economies are adopting domestic policies aimed at fostering a conducive environment that allows businesses and consumers to leverage digital technologies and platforms for cross-border digital transactions. At the same time, they are grappling with the complexities of regulating the rapidly evolving landscape of digital trade.

Despite the new opportunities presented by digital trade, many developing economies still face significant barriers hindering their ability to fully engage in it. Some of the most common and critical barriers faced by these economies, especially LDCs, include inadequate digital infrastructure, limited digital skills, a deficient regulatory environment and an inefficient payment system (UNCTAD, 2023e). Financing problems, including increasing external debt burdens and inadequate budgets for public investments, have exacerbated some of these barriers.

Addressing the barriers that hinder the participation of developing economies in digital trade can contribute to development. Improving the ability of developing

economies, in particular LDCs, to engage in digital trade is necessary to help them increase their global trade share, as envisaged in Target 17.11 of the 2030 Agenda for Sustainable Development (UNCTAD, 2022f). Promoting digital trade requires improving connectivity, ICT infrastructure and digital skills, establishing a predictable and transparent legal and regulatory environment, and addressing the risks associated with digitalization, including cybercrime, consumer protection, privacy and upheaval in the labour market.

International cooperation plays an important role in supporting developing economies in participating in digital trade. While domestic policies are essential to address digital trade barriers and challenges, international cooperation can yield benefits by maximizing positive cross-border spillovers and minimizing negative ones through the exchange of knowledge, expertise and resources. Given its cross-cutting nature, the development of digital trade spans multiple policy areas, including ICT infrastructure and services, digital skills development, the legal and regulatory frameworks, trade facilitation and logistics, payment solutions, and access to financing. Greater international cooperation could further create synergies to promote digital trade and address the challenges that LDCs and other developing economies face with regard to digital trade.

1. Improving digital connectivity, ICT infrastructure and digital skills is essential to promote digital trade

The growth of digital trade relies on reliable and affordable internet access and relevant digital skills. To engage in and reap the benefits of digital trade requires access to fast and reliable internet infrastructure and affordable electronic devices, connectivity subscriptions and electricity infrastructure (to power digital devices). According to IMF staff estimates, US\$ 418 billion in (public and private) investment is necessary to bring connectivity to unconnected households globally (Oughton, Amaglobeli and Moszoro, 2023). Governments can facilitate this by intervening both on the supply side (investing in infrastructure) and on the demand side (increase internet affordability) (Amaglobeli et al., 2023). Moving low-income developing and emerging market economies to the levels of digital adoption in emerging and advanced economies, respectively, would require annual expenditures of 1.8 and 0.05 per cent of GDP (Kumar, Amaglobeli and Moszoro, 2023). Widespread digital literacy and proficiency in using digital devices are also essential to bridge the digital divide (i.e. the gap between those who use the internet and those who do not). Equally important is promoting awareness of the opportunities presented by digital trade. International cooperation plays an important role in addressing the digital divide and facilitating equal access to digital trade opportunities.

(a) Investment in infrastructure along with policies to ensure reliable and affordable internet access is key

Modern and reliable digital connectivity and ICT infrastructure, such as fibre-optic networks and advanced wireless mobile telecommunication technologies, have become essential to expand digital trade. These networks, including international submarine cables, enable extremely fast and reliable transmission of information with minimal data loss, allowing users to share large amounts of data in real time. However, these technologies are not universally accessible, and communication networks

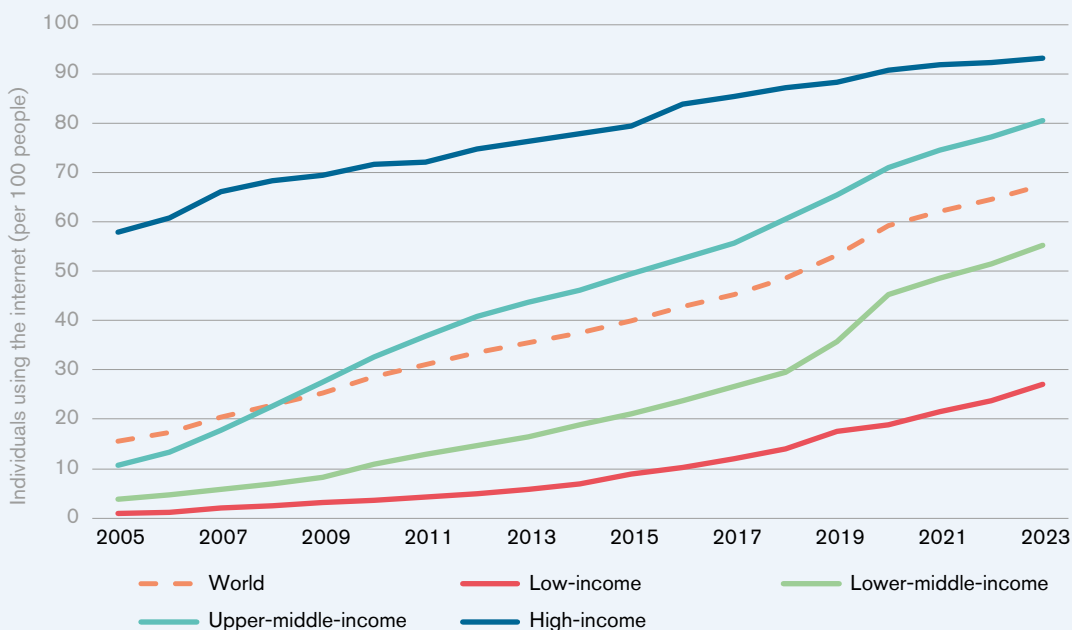
lack the necessary bandwidth for full engagement in the global digital economy, as data-intensive services, such as AI, the internet-of-things (i.e. devices that connect and exchange data with other devices) and big data analytics, continue to expand.

Limited access to digital connectivity remains a significant hurdle for expanding digital trade in developing economies. Despite progress in digital network expansion, approximately 2.6 billion people, or one-third of the global population, do not have access to the internet, with the majority residing in low- and lower-middle income economies (see Figure C.1). This poses a significant challenge to achieving the UN Sustainable Development Goal of “universal and meaningful connectivity” by 2030. Rural areas worldwide have particularly low digital connectivity rates, with less than half of the rural population having access to the internet compared to over 80 per cent in urban areas.

Although access to the internet is gradually increasing, the high cost of internet services continues to hinder internet use, and thereby digital trade, in many developing economies. Access to the internet does not automatically translate into greater internet use. While 67 per cent of the world population uses the internet, the share in LDCs stands at 35 per cent. Similarly, international bandwidth usage per internet user is six times lower in LDCs compared to the global average (ITU, 2022b, 2023). The price of 1.5 gigabytes (GB) of mobile broadband often exceeds 5 per cent of the monthly Gross National Income (GNI) per capita in many developing economies and, in some cases, even surpasses 20 per cent, resulting in internet use being unaffordable for low-income households and financially constrained firms (see Figure C.2). Internet access remains expensive in many developing economies due to a combination of limited infrastructure, regulatory barriers and lack of competition in the telecommunications sector (OECD, 2020a).

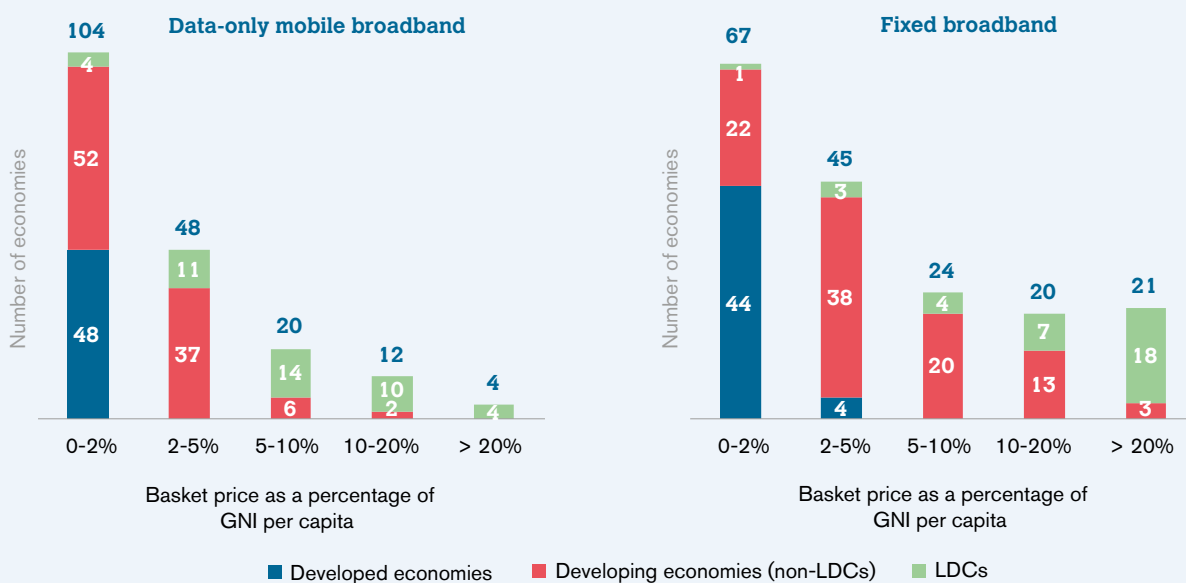
Investment plays a pivotal role in expanding and enhancing digital infrastructure, ensuring widespread and reliable digital connectivity. Investment and trade policies with clear, consistent and straightforward rules can attract domestic and foreign capital flows into crucial digital projects, from broadband networks to data centres. Well-structured investment and trade policies can also foster competition, leading to innovation and cost reductions that make digital services more affordable for end-users. Policies can further target underserved areas, promoting more equitable access and bridging digital divides. Developing economies, in particular LDCs, however, often face budgetary constraints and competing priorities, which can limit the

Figure C.1: The digital divide remains high



Source: ITU's World Telecommunication/ICT Indicators Database.

Figure C.2: Digital connectivity remains very expensive in many developing economies



Source: ITU (2021a).

Note: The figure shows the number of economies with digital connectivity, broken down by the price of the broadband basket as a percentage of GNI per capita in 2021.

allocation of funds to digital infrastructure projects. In that context, foreign investment policy, while applicable to all economic sectors, is particularly relevant for creating an enabling environment for such investments (OECD and WTO, 2017).

Comprehensive, supportive policies, beyond investment in digital connectivity, are essential to foster the use of digital networks. Introducing competition in monopolized segments of the telecommunications market can also promote digital connectivity. This often requires adding domestic policies on anti-competitive practices, interconnection rules, universal service obligations and the structure and functions of an independent regulator.¹ Incentives to enable operators to provide digital services at reduced costs to end-users and in previously unviable areas can also contribute to improving the affordability of digital connectivity (Begazo, Blimpo and Dutz, 2023). For instance, regulators can require telecom operators to serve rural areas as a condition for obtaining a licence in lucrative urban areas, ensuring broader access to affordable digital networks. Universal service funds, sourced from telecom revenues, can also be used to finance digital connectivity in commercially challenging areas or for specific groups. Policies on technology innovation can further encourage research and development in digital technologies, ensuring businesses remain competitive and at the forefront of emerging technologies.

Trade policy can promote affordable digital connectivity worldwide by reducing trade barriers and fostering competition in the telecommunication services sector. International trade enables economies to access advanced communication equipment, infrastructure components and cutting-edge technologies that they may not produce domestically, accelerating the development and deployment of digital networks, broadband services and other connectivity tools. High tariffs on imports of ICT equipment needed to build, maintain and access networks contribute to the digital divide. For example, tariffs on the products covered by the expanded Information Technology Agreement are, on average, 9.6 per cent for low-income economies compared to 4.5 and 2.1 per cent for upper-middle- and high-income economies.² Lowering trade barriers in the telecommunication services sectors can foster competition and improve access to higher-quality digital services at lower prices for both consumers and firms. It is important that market opening is accompanied by regulation to ensure competition and universal service; however this may pose challenges for low-income economies.

(b) Policies to support the development of digital skills of consumers and firms are crucial to facilitate digital trade

Achieving a high level of internet usage does not guarantee a robust engagement of consumers and firms in digital trade. Digital trade remains limited in many developing economies, including those with a high level of internet use. For instance, ITU statistics show that while about 80 per cent of individuals in certain developing economies use the internet, only a fraction of them, ranging from 4 to 14 per cent, actually engage in online shopping. While various factors contribute to a low participation in digital trade, the lack of digital skills is an important barrier that prevents consumers and firms from making the best use of opportunities in digital trade (UNCTAD, 2023d).

Developing digital skills and integrating training into all education levels are essential to support participation in digital trade. Digital skills are multifaceted and range from basic skills, including digital literacy skills required to be able to go online, make informed choices and perform digital transactions, to specialist skills required for researching, developing, producing and servicing ICT software and systems, such as applications and websites. In addition, digital entrepreneurship skills are needed to develop new business models and drive innovation in products, markets and processes (World Bank, 2019b). Integrating ICT training into all education levels, collaborating with industries on curricula development and promoting problem-solving skills can help prepare young people for the workplace and enable adults to integrate digital technologies into their work (UNCTAD, 2022f).

Addressing the digital skills divide is crucial to make digital trade more inclusive. The lack of digital skills is greater among vulnerable groups, such as the elderly, the economically disadvantaged, those with disabilities, rural inhabitants and certain ethnic or minority groups. Integrating ICT training throughout education, collaborating with industry and fostering skills like problem-solving are vital (UNCTAD, 2022f). MSMEs, especially in developing economies, tend also to face greater challenges to engage in digital trade compared to large companies (UNCTAD, 2022c). The Future of Business survey, carried out through Meta's "Data for Good" initiative in collaboration with the World Bank and the OECD reveals that some of the main obstacles identified by MSMEs include acquiring relevant technical skills and knowledge and paying fees for accessing digital platforms (WTO, 2023a). Providing customized digital skills training can play a significant role in assisting MSMEs in navigating and benefiting from digital trade.

Digital skills have become essential for workers to navigate the evolving demands of the labour market.

The integration of digital technologies in production processes can render some jobs obsolete, threatening job security for certain roles (UNCTAD, 2017b). Labour market policies can support workers in adapting to technological advances and mitigate potential loss of jobs by providing retraining programmes to upskill workers for digital jobs, promoting lifelong learning, addressing time and financial constraints to training participation, tackling unequal access to digital technologies based on employment status, and encouraging firms to train groups at risk of losing their jobs (OECD, 2019b). Employment protection and compensation schemes can also help to alleviate labour market disruptions arising from digitalization. Reducing the costs incurred by workers who are obliged to change jobs can also lower public resistance to digital technological change (WTO, 2017).

(c) International cooperation can help bridge the digital gap by enhancing digital connectivity and skills

Financing digital connectivity is crucial to broaden its reach, enhance its stability and make it more affordable for all users. The United Nations' 2030 Agenda for Sustainable Development emphasizes the importance of digital inclusion by aiming for universal and affordable internet access for everyone. By pooling resources and expertise across borders, economies can jointly fund large-scale telecommunication infrastructure projects, such as undersea fibre optic cables or satellite networks, which individual economies might find challenging to finance on their own. Collaborative financial efforts, facilitated by international organizations, development banks or direct donor funding, can contribute to extending digital connectivity to underserved or unserved regions, thereby bridging the digital divide and promoting global digital inclusion.

Digital connectivity is addressed in international trade cooperation. The WTO's Information Technology Agreement (ITA) and its subsequent expansion contributes to digital connectivity by eliminating tariffs on IT products covered by the agreements. Many of these products are critical components of the electronic commerce physical infrastructure. In parallel, a limited but increasing number of regional trade agreements (RTAs), namely 64 agreements, include cooperation provisions to promote ICT infrastructure development and diffusion and to address technical regulations, standards and conformity assessment procedures related to ICT equipment (Monteiro, 2021; Monteiro, Posada and Tuthill, 2021).

Aid for Trade contributes to bolstering digital connectivity by fostering physical and digital infrastructure.

The Aid for Trade initiative, a WTO-led multi-stakeholder programme launched in 2005, supports developing economies, in particular LDCs, in building the necessary economic infrastructure and productive capacity to benefit from global trade opportunities. Although current Aid for Trade metrics do not provide a precise assessment of its support for digital connectivity, the analysis of ICT-related flows suggests a growing focus on digitalization (OECD and WTO, 2022). ICT-related commitments increased from US\$ 1.5 billion in 2019 to US\$ 2.2 billion in 2021, representing 4.1 per cent of total Aid for Trade commitments (UNCTAD, 2023b).

Improving foreign investment policies and trade-related service sector policies are key for attracting the private investment needed to develop digital connectivity.

Private investment in public telecommunication infrastructure, including land-based and submarine cables, far surpasses official development assistance (OECD and WTO, 2017). Creating an open and enabling regulatory environment to promote greater competition in the ICT sector can help to stimulate private investment in digital infrastructure and increase ICT access and use. Telecommunications services are covered by the WTO's General Agreement on Trade in Services (GATS) and its Annex on Telecommunications.³ A majority of WTO members have made legally binding market-opening commitments on telecommunications services under the GATS, and most of them have also inscribed in their schedules of commitments the pro-competitive regulatory principles for the sector contained in the Reference Paper on Basic Telecommunications. Alongside these commitments negotiated in the WTO, an increasing number of economies, including many developing economies but only a handful of LDCs, have negotiated specific provisions on telecommunications services in their RTAs. While some of these provisions replicate existing WTO rules, many other provisions add clarifications or expand some of the disciplines set out in the GATS (Monteiro, Posada and Tuthill, 2021).

International cooperation is intensifying efforts to foster investment in digital skills and bridge knowledge gaps.

Several international organizations have developed programmes to help developing economies build the skills needed for consumers and businesses to maximize the benefits of digital trade. These organizations include the International Labour Organization (ILO), the International Trade Centre (ITC), the International Telecommunication Union (ITU), the United Nations Commission on International Trade Law (UNCITRAL), UNCTAD, the Universal Postal Union (UPU) and the World Bank as well as UN regional commissions. For instance, UNCTAD's eTrade For All initiative, launched in 2016, is a

collaborative effort among 35 members (including the World Bank and the WTO) to enhance transparency in capacity-building for “eTrade Readiness Assessment”. It serves as a central platform for developing economies to identify potential sources of assistance and connect with potential partners in various areas, including infrastructural support and skills-building (UNCTAD, 2022d).

2. An enabling legal and regulatory environment coupled with proactive trade policies are essential components of the ecosystem for digital trade

(a) A robust domestic regulatory framework is crucial for fostering digital trade

A well-designed and effective domestic regulatory framework provides a stable and secure environment for digital trade, fostering trust and confidence among businesses and consumers. The domestic regulatory framework sets the rules that govern various aspects of digital trade, including electronic authentication and signature, consumer protection, privacy, intellectual property, electronic payments, and cybersecurity (Nemoto and López González, 2021). The domestic regulatory framework for digital trade remains highly dynamic, adapting rapidly to technological advances and changing market conditions. For instance, ensuring new digital technologies, such as automated or AI-based decisions, operate fairly, without bias, and uphold human values is crucial. Domestic policies and regulatory frameworks are also increasingly addressing other key issues, such as cross-border data flows, competition in the digital environment and online consumer protection, as discussed below. Addressing the regulatory issues associated with digital trade remains, however, a challenge for many developing economies, in particular LDCs. The digital trade legislation in many developing economies still lags behind (UNCTAD, 2018).

An open regulatory environment magnifies the benefits of digital connectivity for international trade, in

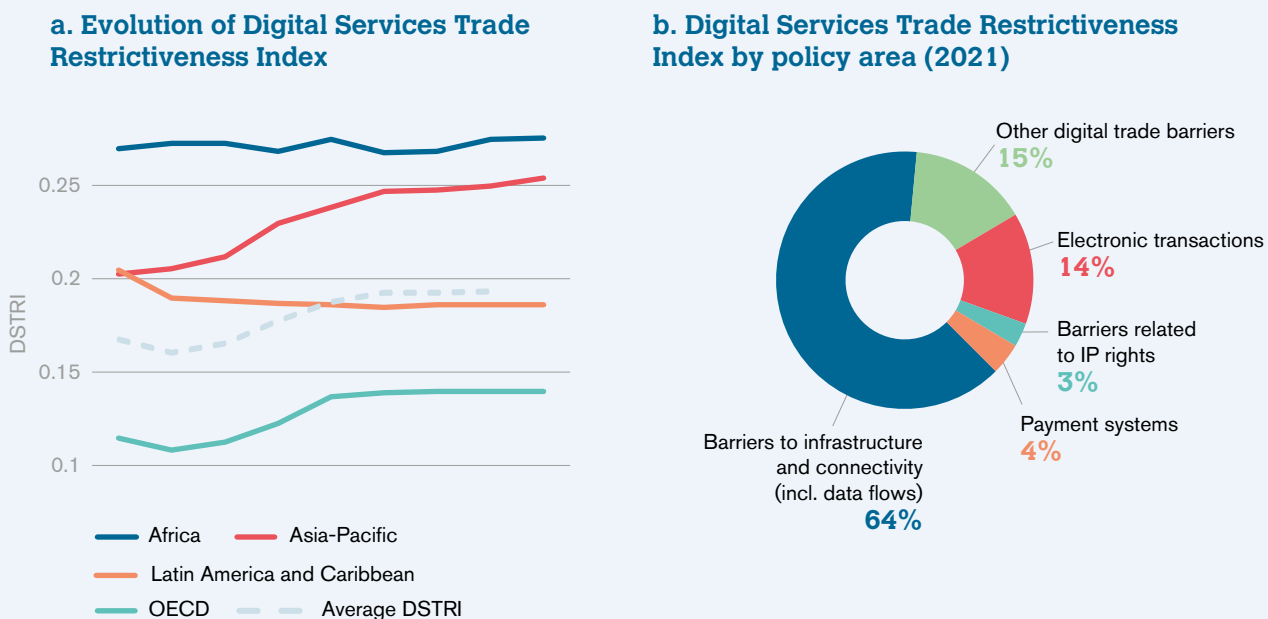
particular digitally delivered services. Estimates from the WTO’s Trade Cost Index suggest that improving mobile broadband connectivity to levels seen in economies like Austria, Indonesia, South Africa or Uruguay could reduce average trade costs by 4 per cent in high-income economies and by 10 per cent in low-income economies.⁴ They also suggest that the reduction in trade costs generated by improved digital connectivity more than doubles in middle- and low-income economies with an enabling regulatory environment for digitally delivered services. The trade cost-reducing impact of digital connectivity is even stronger for digitally delivered services (Bellucci, Rubínová and Piermartini, 2023).

The domestic regulatory environment that supports digital trade is becoming more restrictive in many cases. Evidence from the OECD’s Digital Services Trade Restrictiveness Index (DSTRI) suggests that domestic regulation affecting digital trade has become increasingly tight, especially on issues relevant to bridge the digital divide, such as infrastructure and connectivity, including restrictions on data flows and data localisation measures, as discussed below (see Figure C.3). The DSTRI ranges between zero and one, one being the most restrictive. Restrictiveness is assessed against a benchmark across different areas in the DSTRI. In some areas, this means that the lack of regulation is considered to be restrictive. The 2022 DSTRI database also reveals significant regional variations. The average level of restrictiveness is lower in OECD economies, and the Americas have lower average levels of restrictiveness compared to African and Asian economies. However, the DSTRI also highlights notable progress in Africa in lowering barriers to digital trade. As discussed below, eliminating relevant barriers enhances digital trade, facilitates the integration of new digital technologies across the world, and promotes a more inclusive participation in digital trade.

(b) While digital trade is increasingly being disciplined in bilateral and regional trade agreements, the participation of developing economies in such agreements remains limited

International cooperation on digital trade-related disciplines has primarily occurred within the framework of RTAs. The number of RTAs with digital trade provisions has been growing since the early 2000s (Monteiro and Teh, 2017). By the end of 2022, 116 RTAs incorporated provisions related to digital trade, representing 33 per cent of all existing RTAs (López González, Sorescu and Kaynak, 2023) (see Figure C.4).⁵ Beyond the increasing number of RTAs with

Figure C.3: Digital trade barriers, in particular regarding infrastructure and connectivity, are intensifying



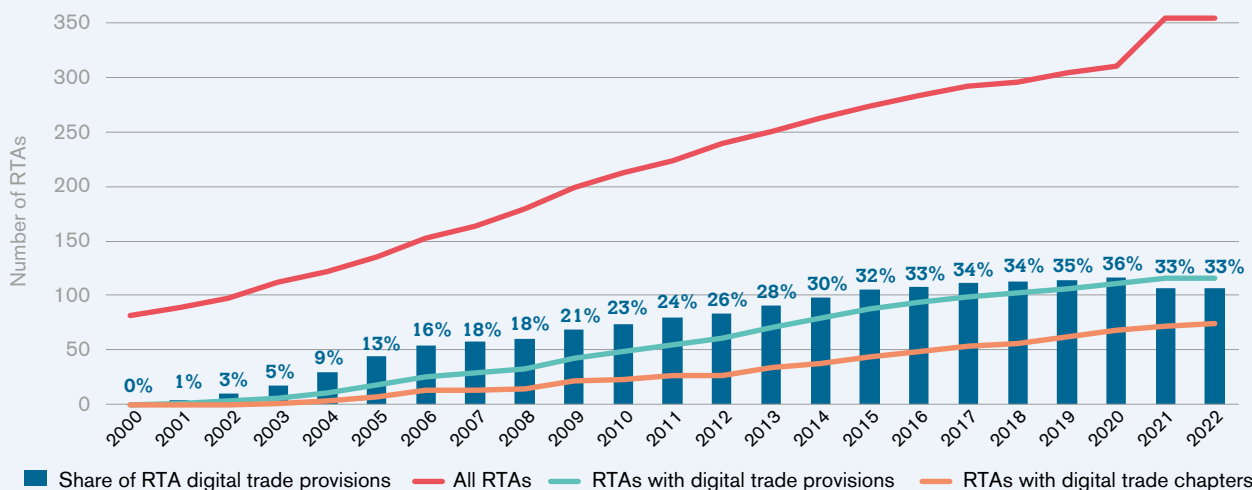
Source: OECD Digital Services Trade Restrictiveness Index, 2022.

Note: The DSTRI ranges between zero and one, one being the most restrictive. Panel (a) displays the evolution of the DSTRI. The average DSTRI corresponds to the simple average DSTRI for the 100 economies covered, including 22 African economies, 21 Asian economies, 38 OECD members and 13 South American economies.

digital trade provisions, the number of these provisions and the level of detail they contain have also increased significantly over the years. Most detailed provisions on digital trade are found in dedicated chapters on digital trade, which are included in 74 RTAs. Although the number of RTAs with digital trade provisions continues to increase, the choice to include detailed provisions on digital trade tends to remain limited to RTAs negotiated by high-income and some middle-, mostly upper middle-, income economies. Only a few LDCs have negotiated an RTA with digital trade provisions. Besides developing new regulatory disciplines or updating and clarifying existing ones, most RTAs also provide greater market access through deeper services commitments and lower tariffs in relevant sectors. Alongside RTAs, some economies are also expanding their cooperation on digital trade by entering into so-called digital economy agreements (DEAs) (see Box C.1).

Digital trade provisions in RTAs cover a wide array of digital trade issues. While digital trade provisions in RTAs vary greatly in terms of language, many of them tend to address similar issues (Monteiro and Teh, 2017; WTO, 2018). The most common digital trade provisions in RTAs address privacy and data protection, consumer protection, unsolicited commercial electronic messages, electronic authentication, paperless trading, cross-border data flow and cybersecurity. An increasing number of RTAs, 100 as of June 2022, replicate the WTO commitment to refrain from imposing customs duties on electronic transmission (the so-called “e-commerce moratorium”) (see Box C.2 and Section C.2.d). Other issues, such as source code, non-discrimination treatment of digital products, and data localization (i.e. the practice of storing and processing data within a specific geographic location) are addressed in a more limited number of agreements (see Figure C.5).

Figure C.4: A growing number of RTAs have digital trade provisions



Source: López-Gonzalez, Sorescu and Kaynak (2023).

Note: The analysis only considers agreements notified to the WTO and currently in force. RTAs with digital trade provisions are defined as agreements with at least one e-commerce/digital trade provision. Digital provisions are identified from the Trade Agreements Provisions on Electronic-commerce and Data (TAPED) database (accessed August 2022) (Burri, Vasquez Callo-Müller and Kugler, 2022).

(c) WTO rules already cover digital trade, but some of these rules may need to be updated to adequately address the evolving nature of digital trade.

Digital trade falls within the scope of existing WTO agreements. As mandated by the 1998 WTO Work Programme on Electronic Commerce, most discussions on how WTO rules apply to e-commerce, defined as “the production, distribution, marketing, sale or delivery of goods and services by electronic means” for the purposes of the Work Programme, have concluded that existing WTO agreements cover e-commerce, even without specific references to it (WTO, 2017).⁶ While the applicability of the WTO agreements to digital trade is widely accepted,⁷ there is still uncertainty regarding whether digitized products are goods or services, and therefore whether the General Agreement on Tariffs and Trade (GATT) or the GATS applies.

The GATS covers digital trade in services. The GATS makes no distinctions regarding different technological means through which a service may be supplied, including electronic means. Measures affecting trade in services through electronic means are generally recognised as subject to GATS obligations and commitments.⁸ Obligations such as most-favoured-nation

(MFN) treatment⁹ and transparency apply to all services covered by the Agreement whether or not liberalisation commitments have been undertaken. Market access and national treatment disciplines, instead, apply only in sectors where a member has scheduled a specific commitment, and only to the extent of the liberalisation undertaken.¹⁰ As a result, the most advantageous and stable conditions for digital trade in services are achieved when commitments exist and when those are as open as possible. The predictability of conditions for digital trade in services might, however, be limited by the fact that many GATS commitments relevant for digital trade are nearly 30 years old and do not necessarily reflect the actual services market conditions (WTO, 2019).

Trade in digitally ordered goods is subject to the existing WTO rules on trade in goods. The GATT and various other relevant WTO agreements¹¹ do not distinguish between the manner in which goods are traded and apply to goods purchased online and delivered physically.¹² Trade in digitally ordered goods is therefore subject to the principles of non-discrimination (MFN and national treatment) and transparency, among other things. In addition, several WTO agreements are particularly relevant to trade in digitally ordered goods, including the Customs Valuation Agreement and the Trade Facilitation Agreement (TFA) (see Section C.2.e).

The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) covers trade in intangible digital products.

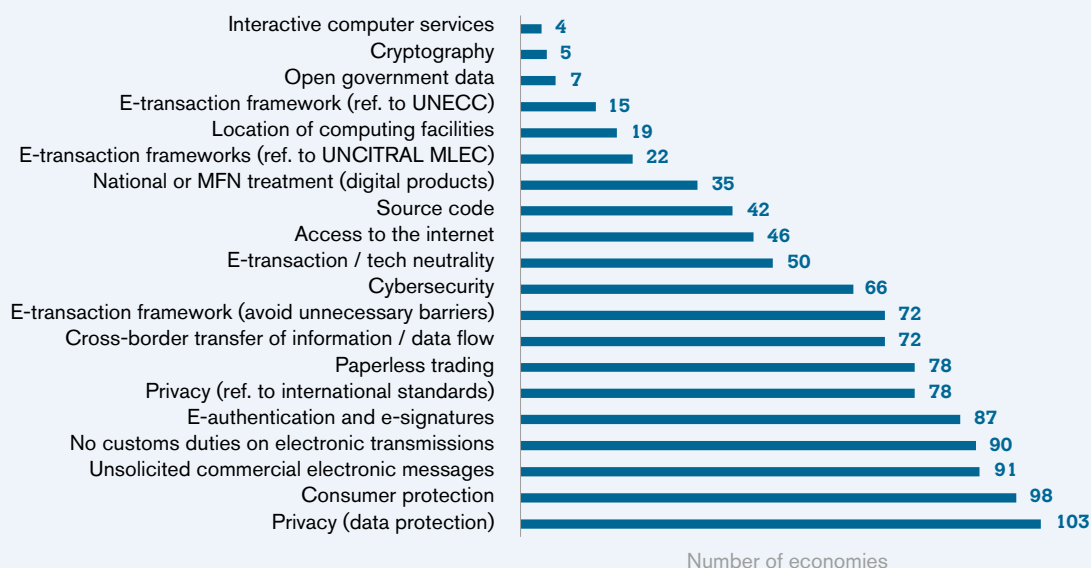
The ownership and transfer of use-rights to digital products like music, software and films largely determine the commercial transaction, making the underlying IP licence crucial in defining the nature of the digital transaction. While the TRIPS Agreement does not expressly address digital trade, it is essentially technology-neutral and extends to products traded online and online commercial activity more generally. TRIPS disciplines on the non-discriminatory availability of IP rights, such as undisclosed information, copyright (including for software), patents and trademarks, balanced enforcement mechanisms, and the scope for competition safeguards, are particularly relevant to digital trade.¹³

A majority of WTO members consider that the existing WTO rules on digital trade need to be updated and complemented to respond to the changing nature of trade and to facilitate digital trade. Under the so-called Joint Statement Initiative (JSI) on E-Commerce¹⁴, 90 WTO members, including many developing economies and a few LDCs, as of October 2023, are negotiating rules on trade-related aspects of e-commerce.¹⁵ Significant progress has

been made on several sets of disciplines, including electronic signature, online consumer protection and paperless trade. Technical discussions continue on several other issues, such as customs duties on electronic transmissions. The need for special and differential treatment for developing and LDC members is also being considered. Negotiators have also started to address data-related issues as well as questions about the legal status of these talks. The negotiations of the E-Commerce JSI are expected to conclude by the end of 2023.

New international trade cooperation initiatives have been launched to support the participation of developing economies, in particular LDCs, in digital trade negotiations. The “E-commerce Capacity Building Framework” launched by Australia, Japan, Singapore and Switzerland in early 2023 aims to bolster the participation of developing and LDC members in the E-Commerce JSI and help them tap into digital trade opportunities by bringing together a wide range of technical assistance, training and capacity building efforts. One of these capacity-building initiatives is the Digital Advisory and Trade Assistance Fund (DATA Fund), a pilot programme hosted by the World Bank, aimed at fostering trust in digital markets, streamlining online business processes and offering specialized training for policymakers.

Figure C.5: A wide range of digital trade issues are covered in trade agreements



Source: Nemoto and López-González (2021).

Note: The figure identifies the number of economies having negotiated specific types of digital trade provisions in their RTAs. Digital provisions are identified from the Trade Agreements Provisions on Electronic-commerce and Data (TAPED) database (accessed June 2020) (Burri, Vasquez Callo-Müller and Kugler, 2022). UNCITRAL MLEC refers to the United Nations Commission on International Trade Law Model Law on Electronic Commerce. UNECC refers to the United Nations Convention on the Use of Electronic Communications in International Contracts.

Box C.1

Broader digital economy agreements are emerging

In parallel to RTAs, some economies have negotiated digital economy agreements (DEAs). These include the Digital Economy Partnership Agreement (DEPA) between Chile, New Zealand and Singapore and the Digital Economy Agreement between Australia and Singapore. As of 2023, five DEAs are in force, while an additional three are signed but not yet in force (López González, Sorescu and Kaynak, 2023).

These agreements cover many of the same digital trade issues addressed in RTAs, but they also go beyond these issues to

include cooperation on artificial intelligence, digital identity and open government data. Provisions in DEAs tend to be “best endeavours” clauses that seek to promote shared values, continued dialogue and cooperation. Moreover, these agreements are often referred to as “living agreements” that aim to deepen mutual understanding of the digital economy and help participants adapt to emerging technologies, business models and regulatory challenges (Honey, 2022).

Box C.2

Disciplines on the non-imposition of customs duties on electronic transmissions are frequently included in RTAs

Provisions on the non-imposition of customs duties on electronic transmissions (NICDET provisions) are some of the most common elements in e-commerce chapters. There are nearly as many NICDET provisions as there are e-commerce chapters, signed by a total of 102 economies. 87 of these signed at least one provision that does not tie the commitment to the outcome of the E-commerce Work Programme at the WTO.

Six key observations emerge from the analysis of these commitments (Andrenelli and López González, 2023):

1. The majority of agreements (88 out of 100) do not tie NICDET provisions to the outcome of the WTO E-commerce Work Programme. Most agreements do not specify that the lapse of the multilateral practice would lead to the review of their NICDET provision. The opposite is true for only 12 agreements which explicitly tie commitments to the WTO e-commerce Work Programme.
2. Internal taxation is deemed to be outside the scope of NICDET provisions. The most widespread addition is the exclusion of internal taxation from the scope of the NICDET provision (provided that these are imposed in a manner consistent with the trade agreement or the GATT).
3. Most agreements also specify, in the broader digital trade chapter, that measures related to the electronic delivery of services fall within the scope of the obligations contained in other chapters of the agreement, typically the services or investment chapters, subject to any relevant exceptions and reservations or limitations therein.
4. No agreement clarifies that the non-imposition of customs duties applies exclusively to the ‘carrier’ element of electronic transmissions, while an increasing number of agreements clarify that NICDET commitments include the content of electronic transmissions.
5. There are different understandings of what electronic transmissions refer to. Some agreements refer to ‘the importation or exportation of digital products by electronic means’, and often to the non-discriminatory treatment of those digital products, with accompanying definitions of what these ‘digital products’ are (i.e. computer programs, text, video, images, sound recordings and other products that are digitally encoded). Other agreements stipulate that ‘deliveries by electronic means shall be considered as the provision of services [...] which cannot be subject to customs duties.’
6. A growing number of provisions further clarify the preferential nature of NICDET commitments. An increasing number of agreements specify that the NICDET provision only applies with respect to the Parties, i.e. ‘between a person of one Party and a person of the other Party’, or ‘between the parties’ (41 out of 100 agreements).

(d) The WTO moratorium on customs duties on electronic transmissions will be a key issue at the upcoming WTO 13th Ministerial Conference (MC13) to be held in February 2024

Since 1998, WTO members have periodically agreed to extend the moratorium on the imposition of customs duties on electronic transmissions. In June 2022, at the WTO's 12th Ministerial Conference (MC12), members agreed to further extend the moratorium “until the 13th Ministerial or 31 March 2024, whichever is earlier”. At MC12, members also agreed to “intensify discussions [...] including on scope, definition and impact” of the moratorium, which are key issues in assessing the implications of extending it.

WTO members have expressed varied views about the renewal of the moratorium on customs duties. Proponents of the moratorium emphasise that the standstill on customs duties has supported a stable and predictable environment for digital trade, allowing it to thrive. They argue that the moratorium offers flexibility and adaptability to address the evolving nature of digital trade, promotes innovation and accommodates diverse forms of electronic transmissions.¹⁶ They also contend that the moratorium delivers benefits by reducing trade costs for digitalized products subject to duties if traded offline, increasing consumer welfare, and extending access to foreign digital inputs that are key for export competitiveness. It contributes to giving confidence to business to invest and create jobs by signalling that WTO members intend to maintain the status quo regarding the application of customs duties to electronic transmissions. However, other WTO members have expressed concerns about the lack of clarity on the scope of the moratorium and the definition of electronic transmissions and the opportunity costs of the moratorium. The latter include the potential foregone customs revenue and the desire to maintain policy space in light of the uncertainty associated with rapid technological change. As the digital revolution is still unfolding, they have pointed to the uncertainty about what will enter their economies as “electronic transmissions”. They have also expressed concerns about the impact of the moratorium on their ability to use customs duties for industrial policy purposes.

A proper assessment of the impact of the moratorium needs to consider the potential losses and benefits involved. The definition and scope of “electronic transmissions” are both points of contention among WTO members. For most members, electronic transmissions include the content being transmitted, while for other members, it only covers the carrier

medium, namely the transmission or the binary digits (bits) that carry the information. Likewise, there is disagreement among WTO members as to whether the moratorium applies to digitally delivered services. Discussions on the potential costs and benefits of the moratorium have, to date, been framed mostly in terms of (i) customs revenue implications; (ii) alternative methods to raise revenue on electronic transmissions; (iii) the opportunity costs associated with the introduction of customs duties; and (iv) the impact of new technologies like 3D printing.¹⁷

The extent of the potential loss of customs revenue resulting from the WTO moratorium has been estimated to be below 0.33 per cent of overall government revenue on average. Uncertainties about its scope and the definition of electronic transmissions, which ultimately determine the tax base for the eventual customs duties, make it difficult to precisely determine its impact. Nevertheless, existing estimates of the potential average revenue that developing economies could collect using tariffs on electronic transmissions vary between 0.01 per cent and 0.33 per cent of overall government revenue on average, with higher estimates for a handful of economies (Andrenelli and López González, 2019, 2023; Banga, 2017, 2019, 2022; Hanappi, Jakubik and Ruta, 2023; Schuknecht and Pérez-Esteve, 1999; Teltscher, 2001; WTO, 2016).¹⁸ These estimates do not take into account administrative and technical costs related to the collection of this revenue, which would reduce the net revenue collected.

Assessments of the fiscal implications of the moratorium need to consider existing commitments in trade agreements regarding the ability of economies to impose tariffs. Commitments include provisions in RTAs restricting the ability of parties to impose customs duties on electronic transmissions (even in the absence of the WTO moratorium). Such commitments have been incorporated in 88 RTAs signed by 87 economies, including 33 developing economies.¹⁹ These commitments are not tied to the WTO moratorium discussions.²⁰ In addition, preferential treatment granted in RTAs, customs valuation practices and other trade commitments, such as the WTO's ITA, further limit tariff revenue on digitizable goods that can be considered as foregone because of the e-commerce moratorium. As a result, high-income economies would, on average, only be able to levy tariffs on 55 per cent of their imported digitizable goods, while upper-middle-income economies could do so for 61 per cent, lower-middle-income for 76 per cent, and low-income economies for 88 per cent, with significant variations among economies (Andrenelli and López González, 2023).²¹ Overall estimates of potential customs revenue implications of the moratorium taking trade commitments into account are reported in table C.1. Note however that these impacts could be more

pronounced for specific economies (Andrenelli and López González, 2023).

Contrary to tariffs on goods, there is less understanding on how to apply custom duties on electronic transmissions. While raising tariffs generally comes with low administrative costs, it is unclear whether this is also the case for collecting tariffs on electronic transmissions given the limited available information regarding setting up a system for raising these tariffs, and the accompanying administrative and compliance costs.

Domestic taxes represent another way to collect revenue from digital trade that does not discriminate between domestically supplied and imported products, is more uniform across different products, and does not impose a tax burden on intermediate inputs used by domestic producers. Value added taxes (VATs) and goods and services taxes (GSTs) typically apply uniformly and are based on consumption location. VAT/GST can raise revenue from both domestic and foreign firms and apply to broad categories of products. Although a growing number of developing economies are successfully adapting their VAT systems for digital trade, low-income economies continue to face challenges with VAT administration and compliance, including with collecting VAT from non-resident sellers. To close this gap and improve revenue mobilization, further investment and technical assistance for modernizing their tax and customs infrastructure is required by the global community.²² Learning from good practices, economies may

seek to make digital platforms liable for tax on sales made by online traders that they facilitate, data sharing and cooperation tax authorities (OECD, 2019c).

The moratorium does not affect governments' capacity to generate revenue through non-discriminatory consumption taxes, such as VAT/GST. The adoption of VAT/GST systems has grown significantly in the last 30 years, and as of 2022, 174 economies had implemented such taxes, and more than 120 jurisdictions are either in the process of adapting or considering adapting their VAT administration to address the challenges posed by digitalization (OECD, 2022b). At the same time, the share of trade taxes in total government revenue has continued to decrease in most economies (Aizenman and Jinjarak, 2009; Kowalski, 2006). Taxes on domestic consumption have the advantage of being broader-based, resulting in fewer distortions to production and consumption decisions, lower revenue instability, and potentially greater gains in revenue generation if investment is directed at improving their administrative efficiency (Aizenman and Jinjarak, 2009; De Mooij and Swistak, 2022; Kowalski, 2006). While tariffs and VAT/GST are not mutually exclusive, recent evidence shows that for most economies VAT/GST could generate higher revenue from taxing electronic transmissions compared to hypothetical tariffs, given current rate structures. In both developed and developing economies, standard VAT rates on digitizable goods are, on average, higher than the average tariffs, while the average effective VAT rates in developing economies are lower. Ultimately collected revenue is based on the individual rates associated with the mix of imported products comprising the tax base. IMF staff estimates that, globally,

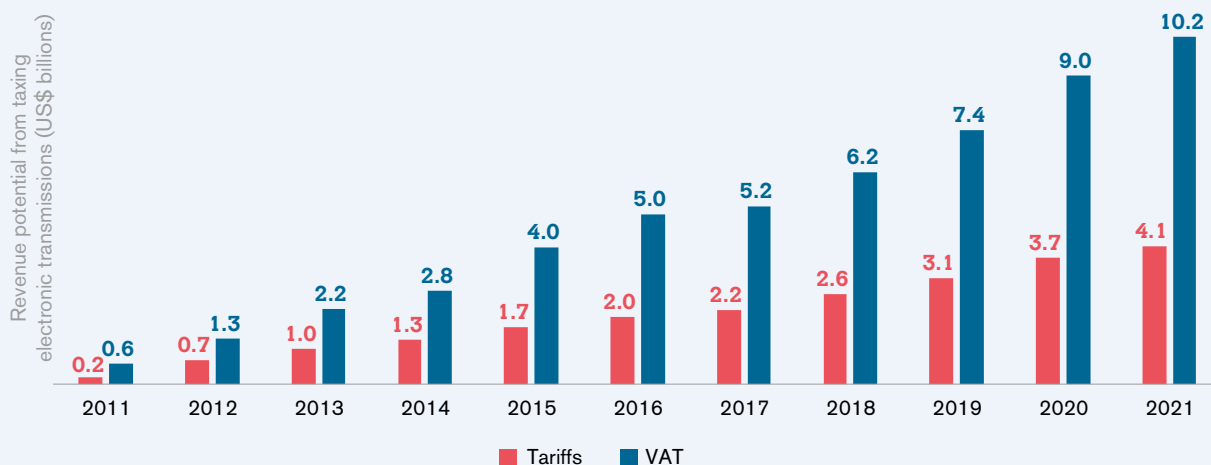
Table C.1: Potential customs revenue implications of the moratorium

	Average MFN tariff	Average share of imports that are dutiable	Sum of potential foregone revenue (US\$ million)	Average share of foregone revenue in potential customs revenue (%)	Average share of foregone revenue in total government revenue (based on 131 economies) (%)
Low-income	10.3%	87%	60	1.64%	0.33%
Lower-middle-income	9.0%	72%	738	1.09%	0.20%
Upper-middle-income	5.7%	60%	256	0.40%	0.06%
High-income	1.9%	53%	205	0.22%	0.01%
All economies	5.9%	64%	1,265	0.68%	0.10%

Source: Andrenelli and López González (2023).

Note: The analysis is based on 171 economies unless otherwise indicated for 2021 or latest available year.

Figure C.6: IMF upper-bound estimates of revenue from VAT/GST on electronic transmissions vs. hypothetical revenue from tariffs on electronic transmissions



Source: Hanappi, Jakubik and Ruta (2023).

Note: See the main text for a description of the methodology used.

potential revenue from VAT is approximately 150 per cent higher than potential revenue from customs duties on electronic transmissions in 2021 (see Figure C.6) (Hanappi, Jakubik and Ruta, 2023).²³ Another study, in addition, finds that for most economies, namely 77 out of 106 economies, VAT/GST on computer, audio-visual and information services imports (that were not previously imported through a physical carrier medium) in 2021 (or latest available year) would completely offset potential reductions in customs revenue that could be attributed to the moratorium²⁴ (see Figure C.7) (Andrenelli and López González, 2023).

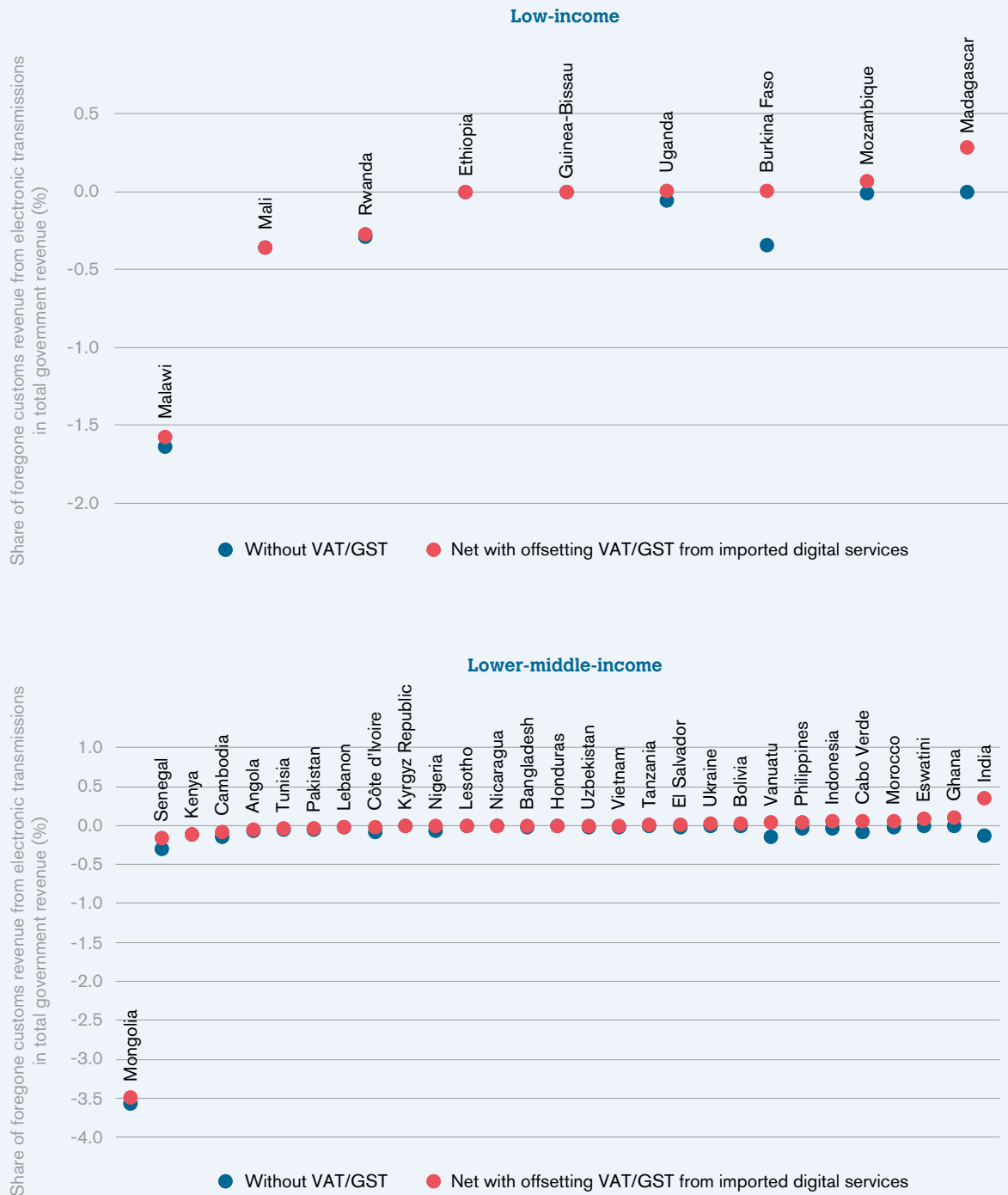
Imposing customs duties on electronic transmissions would reduce relevant digital trade and thereby lower its benefits. Unlike VAT/GST which applies to final consumption, tariffs raise the cost of inputs for production, with implications for business competitiveness. Customs duties on electronic transmissions would likely negatively affect those who can benefit the most from digital delivery or from the use of digital tools to trade, namely MSMEs and women owned traders.²⁵ It is also worth bearing in mind that the trade and competitiveness impact of potential customs duties on electronic transmissions would depend on the structure of trade and tariffs and on commitments including in RTAs that affect the ability of economies to levy such customs duties.

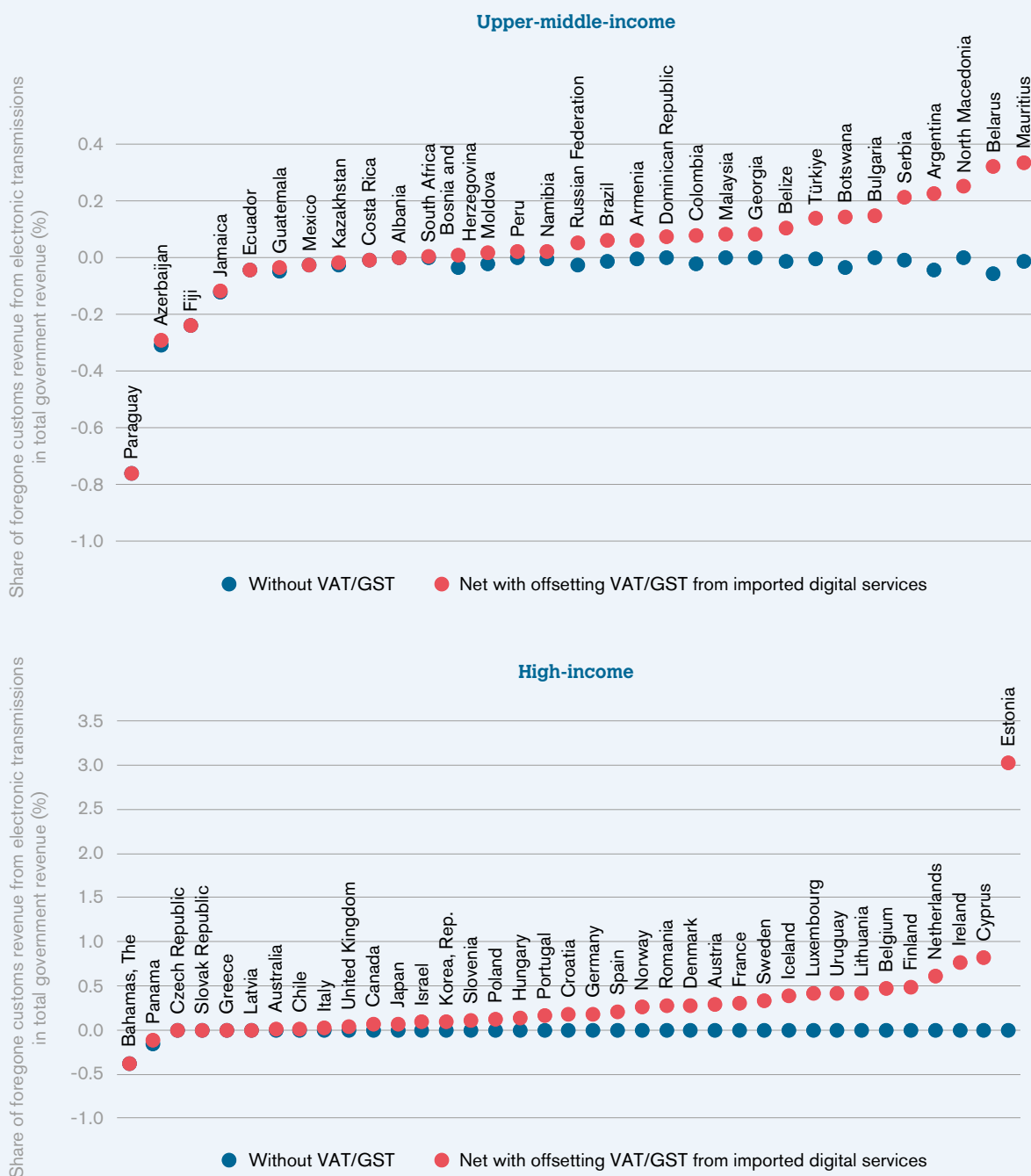
(e) Digitally ordered goods trade can benefit from the full implementation of the WTO Trade Facilitation Agreement (TFA)

The speed and cost at which digitally ordered goods are traded and delivered are influenced by the efficiency of customs and logistical procedures. Delays in the clearance of goods, including those ordered digitally, can slow down their cross-border movement and cause logistics difficulties that can lead to significant increases in trade costs. Time delays in connection with customs have been found to increase by 5 to 6 per cent the average trade costs (WTO, 2018). The surge in digital trade and the associated increase in small parcel shipments present new challenges for customs and logistics, necessitating further efficiencies in border clearance procedures.

Trade facilitation tools, enabled by digital technologies, can lower trade costs and boost digitally ordered goods transactions. Trade facilitation tools, such as Electronic Data Interchange (EDI) and Single Window Systems (SWS), improve cross-border clearance procedures. EDI enables the electronic transfer of documents, while SWS create a

Figure C.7: OECD estimates of revenue generated from VAT/GST on growing computer, audio-visual and information services imports offset in most cases hypothetical foregone customs revenue from electronic transmissions





Source: Andrenelli and López González (2023).

Note: See the main text for a description of the methodology used. The income group classification is based on the World Bank's 2022-2023 classification. Trade statistics on computer, audio-visual and information services cover trade previously traded physically as well as trade that was never traded through physical carrier media.

centralized platform for customs procedures, accelerating trade-related information processing and border clearance. Improvements in different mechanisms of collaboration, from risk management systems and coordinated inspections to authorized trader programmes, can also improve border agency co-operation.

While the implementation of the WTO TFA has promoted digitalization in border processes worldwide, it has been slower in low-income economies. The TFA aims to expedite the cross-border movement of goods by enhancing transparency and simplifying administrative procedures at the border. The TFA Facility helps developing and LDC members assess their trade facilitation needs and identify development partners to address them through capacity building and technical assistance. According to the UN Global Survey on Digital and Sustainable Trade Facilitation, the implementation rate of trade facilitation measures has increased in recent years. Overall, since the TFA was concluded, trade facilitation reforms, which include automation of border processes, are estimated to have reduced trade costs by 4.5 per cent, boosting global trade by up to 16 per cent in specific regions and particularly benefiting developing economies. Yet, in spite of many positive developments, the automation and streamlining of border procedures in lower-income economies remain very much work in progress (OECD, 2023b). Continued reforms could further decrease trade costs by up to additional 12 percentage points in developing economies and facilitate digitally ordered goods trade (Sorescu, forthcoming).

International trade cooperation, including Aid for Trade, plays an important role in improving cross-border trade through trade facilitation. Trade facilitation ranks high on the Aid for Trade priorities of both developing economies and development partners, encompassing not just customs and other border procedures but also physical and digital connectivity (see Section C.1). This aid has shown positive outcomes in tackling border bottlenecks and addressing border issues (WTO, 2022). For instance, UNCTAD provides assistance in the implementation of trade facilitation reforms, supporting economies through capacity building and technical assistance with digital technologies for trade facilitation, such as trade and customs digitalization through the Automated System for Customs Data (ASYCUDA) programme, with technologies supporting transparency, such as trade portals, and with coordination capacity for national trade facilitation committees, including the Reform Tracker platform - a web-based project management and monitoring tool for trade facilitation reforms.

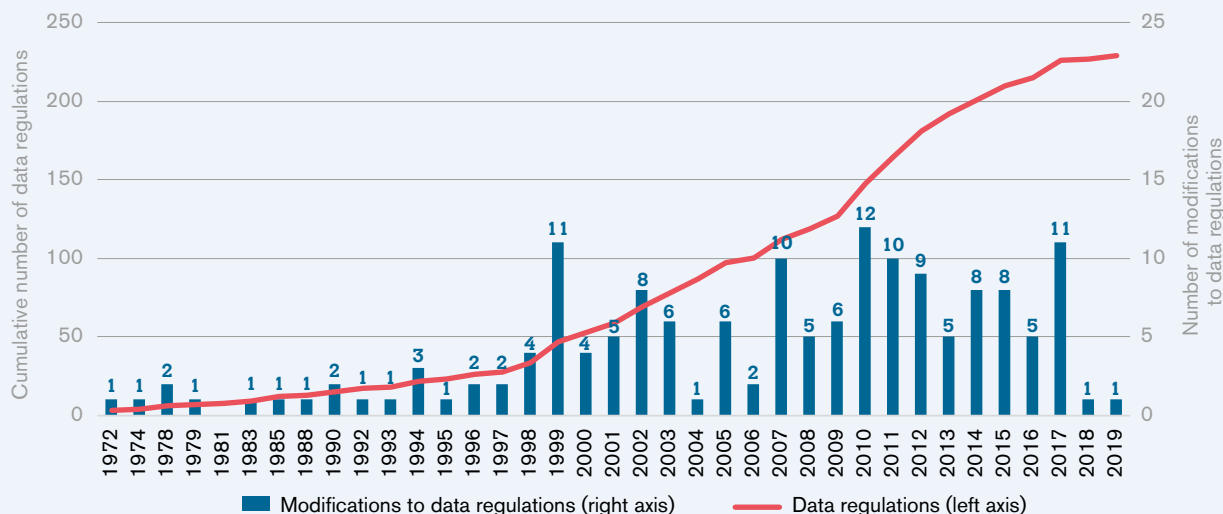
3. Some regulatory issues in the realm of digital trade could benefit from deeper international cooperation

The rise of digital trade has brought forth a host of new regulatory challenges for governments worldwide. As governments grapple with the complexities of regulating digital trade, they seek to strike a balance between facilitating the growth of the digital economy and addressing new regulatory challenges. These issues involve areas such as cross-border data flows, competition and online consumer protection. While some of these issues are specifically related to digital trade, others have broader implications for the whole digital economy.

(a) Cross-border data flows are pivotal to the expansion and efficiency of digital trade

The surge in digitalization has been marked by an increase in digital data flows within and across economies. Data flow proxies show significant growth. In 2022, international bandwidth usage, which serves as a measure of data flows, reached 1,200 Tbit/s worldwide, a sixfold increase from 2016 (ITU, 2022a). These data flows originate from various sources, including personal, social and business activities and play an increasing role in socio-economic interactions, including trade, global supply chain management and resilience. Access to comprehensive data in this digital age is rapidly becoming a significant source of comparative advantage. Tracking cross-border data flows is, however, challenging (ITU, 2022a).

Cross-border data flows raise various policy concerns, increasingly prompting economies to either condition data movement or mandate domestic data storage. The growth of data flows raises issues, including privacy, consumer protection, competition, cybersecurity and national security. This may explain the adoption of measures affecting such flows by conditioning the movement of data across international borders or mandating domestic storage of data has increased significantly over the years (see Figure C.8) (Casalini and López González, 2019). These data regulations apply to different types of data and sectors and pursue various objectives, including personal data protection, national security

Figure C.8: Measures affecting cross-border data flows have increased significantly

Source: Casalini and López González (2019).

Note: The figure captures measures conditioning the movement of data across international borders or mandating that data be stored domestically.

and digital industrial policy. For instance, data localization requirements have increased in the past decade and may have become more trade restrictive by mandating stronger domestic storage and/or processing of data (López González, Casalini and Porras, 2022).

Different approaches to regulating data flows have been adopted worldwide, depending on the type of data and the objectives being pursued. Four different, yet not mutually exclusive, approaches to data flow regulation have emerged over the years (Casalini and López González, 2019). The first approach involves the absence of regulation on cross-border data flows usually due to the lack of data protection legislation. It does not involve any restrictions on the movement of data, but it can hinder digital trade due to trust issues and reluctance to share data (see Section C.2.a). The second type of approach involves the use of “open safeguards” regulations, which grant entities some discretion in protecting transferred data, sometimes following government guidelines, while holding them accountable for any data misuse (e.g. ex-post accountability principles, contracts and private sector adequacy). The third approach uses “pre-authorized safeguards”, which require government approval before data transfer (e.g. public adequacy decisions²⁶ and public sector-led ex-ante safeguards)²⁷. The fourth approach uses “ad-hoc authorisations”, which allow data transfer on a case-by-case basis subject to review and approval by relevant authorities (e.g. “important data”). The analysis of the impact of these

different approaches to data governance on digitally delivered services find higher volumes of trade is associated to cross-border data rules found in economies with an “open transfers” model (encompassing the first and second type of regulations listed above), as well as with the privacy safeguards featured in the “conditional transfers” (akin to “pre-authorized safeguards”) model (Ferracane and van der Marel, 2021; World Bank, 2021).

The global fragmentation of data flow regulations hinders data protection and digital trade, underscoring the need for increased international cooperation. While there are legitimate reasons for diversity in regulation, the regulatory landscape that underpins cross-border data flows is becoming increasingly complex and fragmented. The emerging patchwork of approaches risks undermining the policy objectives they were intended to serve in the first place. Evolving, overlapping or sometimes conflicting requirements for entities involved in data processing can not only have trade impacts but also create operational uncertainty about which rules to apply to which data. This, in turn, can generate legal uncertainty and administrative burden and costs. Fragmentation in approaches to data flows can also hamper technological progress and reduce competition and business opportunities. There is also a risk that a fragmented and silo-oriented, data-driven digital economy will emerge, going against the benefits of the Internet as a free, decentralized and open network. A balanced approach to data governance is needed to ensure

data can flow across borders as freely as necessary and possible, while ensuring transferred data are granted the desired oversight and protection (OECD, 2022a; UNCTAD, 2021b). Data governance and cross-border data flows are addressed in various trade and non-trade-related international fora (WTO, 2018). Some international instruments set out specific rules or recommendations for the transfer of specific types of data, such as the Asia-Pacific Economic Cooperation (APEC) Cross-Border Privacy Rules (CBPR), the Council of Europe's Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (Convention 108), the OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data and the OECD Declaration on Government Access to Personal Data Held by Private Sector. RTAs are also gradually addressing data localization and cross-border data flows, with some explicitly prohibiting data localization and unnecessary barriers to cross-border data flows while exempting measures affecting data flows to achieve a legitimate public policy objective. The development of international standards on specific technologies, such as those developed by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), further contributes to facilitating interoperability and data exchange between systems and regions.

More international cooperation is needed for developing economies to access shared best practices, technical assistance and funding to overcome data-related challenges. As economies allocate more domestic resources to develop their capacities for creating and capturing data value, developing economies, in particular LDCs, face financial and technical challenges. Limited infrastructure in LDCs can hinder data collection and processing (see Section C.A.1). The lack of skilled personnel trained in data analytics and science makes it also hard to interpret and use data effectively. Additionally, financial constraints, which have been exacerbated by the COVID-19 pandemic, restrict the adoption of modern technologies and platforms. The absence of comprehensive data protection regulations can further stifle trust and willingness to share data, further impeding the creation of data-driven value in these economies.

(b) Competition policy is essential to maintain open and dynamic digital markets

A transparent and pro-competitive business environment is vital for supporting and developing the digital economy. Such an environment stimulates innovation by encouraging risk-taking and fostering a culture of continuous improvement. A business-friendly regulatory framework, including easy entry and exit for firms and open trade policies,

is also essential for enabling businesses to access and leverage digital technologies to enhance their competitiveness (World Bank, 2019a).

The emergence of new business models and products has fuelled the growth of digital trade. At the heart of this growth are digital platforms, which have transformed many economic sectors (UNCTAD, 2019; WTO, 2018). These platforms offer consumers a wide range of services, including marketplaces (e.g., Alibaba and Amazon), application stores (e.g., Apple App Store and Google Play), social networking sites (e.g., Facebook, LinkedIn and TikTok) and search engines (e.g., Baidu, Bing and Google). Through these platforms, many sellers, including many MSMEs, have also gained access to global markets, benefitted from real-time analytics and enhanced their operational efficiency, even with limited resources.

While digital platforms offer multiple benefits, they exert significant market power in many segments of the digital economy. Large platforms' market power in segments like cloud storage, distribution, mobile applications, search and social networks is amplified by network effects (i.e. the fact that when more people use a product or service, its value increases), access to large data streams and economies of scale and scope. These platforms have further solidified and strengthened their ecosystems through various strategies, including strategic partnerships with traditional sectors, new sector expansion and acquisitions (OECD, 2022c; UNCTAD, 2019). For instance, between 2016 and 2021, Amazon, Apple, Facebook, Google and Microsoft dominated AI start-up acquisitions (UNCTAD, 2021b). A rising share of global digital advertising revenue is also captured by big tech companies.

High market concentration in the digital economy raises challenges for market players and consumers. Market players may face barriers to entry and potential anti-competitive behaviour (UNCTAD, 2021a). For instance, the collection and control of data by a limited number of tech companies can lead to market power, which can be used to limit access for new entrants and competitors. Consumers, despite enjoying immediate advantages, such as greater choice, convenience and cost savings, may also suffer from high market concentration in digital trade, such as reduced long-term choices, higher prices and potential data privacy concerns.

As market concentration continues to grow, governments are seeking ways to regulate the digital economy by adapting their legislative frameworks to digital-related competition concerns and strengthening enforcement against anti-competitive conduct. Certain

developed economies have introduced or adapted their competition laws and promote a competitive, open and accessible digital economy (Fredriksson and Moreira, 2023; UNCTAD, 2021a). Moreover, a number of jurisdictions have implemented, or proposed, new regulations for digital markets to foster competition and regulate large platforms' market power (OECD, 2021). Some of these reforms foresee a mechanism that uses predefined criteria to designate the market players subject to the regulation and to enable swift and targeted enforcement of the relevant provisions. Such provisions generally take the form of a code of conduct, or, alternatively, are set out as principles that will be tailored to specific designated companies.

While a few emerging economies have revised their competition law to intensify the scrutiny of digital platforms, others are still in the process of adopting digital competition law. In response to changing acquisition trends in the tech sector, several governments have also adapted their merger rules by introducing or clarifying thresholds and guidelines or implementing automatic merger notifications. Besides legal reforms, some competition authorities have opted for a softer approach by providing business with clear directives and legal certainty by establishing guidelines that define acceptable conduct for digital platforms.

Developing economies, particularly LDCs, face challenges in adopting and enforcing competition law for the digital economy. Resource constraints, the need for technical expertise, and the challenges of the rapid evolution of digital markets can disproportionately affect developing economies' competition authorities. Additionally, the global nature of digital platforms complicates jurisdictional issues, increasing the need for international cooperation amongst authorities.

Enhanced international cooperation between competition authorities is crucial to address the global competition challenges posed by digitalization. Anti-competitive practices by digital platforms transcend borders, requiring a holistic collaborative approach that encompasses competition, consumer protection, data protection and industrial policies. Competition authorities are encouraged to tackle digital challenges by faster responses, including through timely enforcement actions and the use of interim measures, and to enhance international cooperation and information sharing and expand international best-practice guidelines on digital issues (Akcigit et al., 2021). Given the nascent state and resource constraints of competition authorities in many developing economies, leveraging more international cooperation can also provide crucial support to access best

practices, technical support and financial assistance in addressing digital competition hurdles. Discussions on digital competition are taking place in different international fora, such as the G7, OECD and UNCTAD.

(c) Enhanced online consumer protection helps build trust in digital markets

The lack of consumer protection in digital trade can erode trust and hinder digital trade growth. While digital trade brings convenience and accessibility, it also poses risks such as fraud, misleading advertising, unfair terms and conditions, unsafe products and unwanted and potentially harmful electronic communications (spam). Survey data reveals a prevailing sense of distrust towards the internet among consumers worldwide, resulting in some consumers taking precautions, such as reducing online purchases (CIGI, IPSOS, ISOC and UNCTAD, 2019). The absence or insufficiency of policies and mechanisms designed to safeguard the rights and interests of consumers engaged in digital trade contributes to this digital distrust.

Online consumer protection policies strive to ensure that consumers in the digital realm are afforded the same level of protection as those engaged in traditional commerce. Consumer protection policies should accommodate the special features of digital trade in different ways, including regulations against online deception practices, disclosure requirements about terms of sale and return policies, liability regimes for online intermediaries, dispute resolution mechanisms for online transactions, and effective redress mechanisms (e.g. refunds or compensation to address grievances) (OECD, 2016; UNCTAD, 2023d; UNGA, 2015). Data protection also contributes to consumer protection by ensuring consumers have control over their data and are informed about its use (see Chapter C.2.a). Similarly, secure electronic payment mechanisms are fundamental to national consumer protection policies (see Box C.3) (UNCTAD, 2022a).

Mechanisms to protect consumers from online malicious activities, including phishing (i.e. obtaining sensitive information via illegal means) and spam, also play an important role in upholding the safety and integrity of digital transactions.²⁸ Likewise, guidelines that prevent deceptive digital advertising practices and ensure the authenticity of online reviews and endorsements further contribute to consumer protection. Consumer education programmes can also empower consumers to learn about their rights, potential online threats and best practices for secure online shopping.

Box C.3

Electronic payments facilitate seamless digital trade transactions across borders

Electronic payments form the backbone of modern trade. They transfer sums between payment accounts using digital devices or channels, including online bank transfers, payment cards, mobile money, QR codes, digital currencies and electronic funds transfers. While domestic digital trade might accommodate electronic payment methods like cash-on-delivery and face-to-face transaction, such approaches are unsuitable for cross-border digital transactions. In some developing economies, in particular LDCs, limited ICT infrastructure, low financial inclusion, regulatory challenges and trust issues can hinder the uptake of electronic payments. Mobile money solutions have, however, gained popularity in some developing regions, filling the void created by a lack of conventional banking services (Suri, 2017).

Navigating through different complex regulatory systems can deter digital trade opportunities. While intermediaries help with currency conversion, regulatory compliance and electronic transfers, conflicting regulations or non-interoperable financial data can reduce transaction efficiency. These challenges increase financial process costs and hinder the digital trade growth potential.

International cooperation can help improve the efficiency of cross-border regulatory frameworks for electronic payments enhancing digital trade. Payment system interoperability is

crucial for enabling faster cross-border transfers and increasing consumer confidence. Aligning domestic security standards in payment transactions with international standards can further contribute to making cross-border electronic payments more efficient. The GATS provides the underlying framework for commitments on trade in services, including electronic payment services (WEF, 2018). A limited but increasing number of RTAs also address electronic payments, with some focusing on cross-border supply of such services.

Digital currencies, such as cryptocurrency, could help facilitate digital trade by enhancing the efficiency of cross-border payments through streamlining processes and reducing intermediaries. They enable real-time cross-border payments and can overcome challenges like high costs, slow speeds, operational complexities and lack of transparency (Adrian et al., 2022). Moreover, they could also provide alternative credit information for trade finance and broaden access for MSMEs, especially in developing economies where information from credit bureaus is often limited or unavailable. However, to realize these benefits, strong legal and institutional measures need to be in place to mitigate the risks, and international cooperation on these issues, such as privacy, cost-effective anti-money laundering measures and combating the financing of terrorism (AML/CFT) is crucial (IMF, 2023).

Enforcement of online consumer protection policies is essential to uphold consumers' rights. It requires a robust infrastructure, underpinned by relevant legal and institutional frameworks, to develop, implement and monitor consumer protection policies. With rapid technological changes and innovative deceptive practices, the constant reevaluation of consumer protection policies ensures they remain relevant and effective (OECD, 2022d; UNCTAD, 2021a). Engaging regularly with businesses, consumer groups and experts provides insights and feedback on the evolving digital trade landscape. Adequate human and financial resources for consumer protection enforcement agencies are also important to ensure effective compliance and facilitate redress for aggrieved consumers.

Developing economies, particularly LDCs, face challenges in adopting and enforcing consumer protection policy. Limited financial and human resources

can constrain some developing economies from adopting and implementing online consumer protection policies. The lack of technical expertise and infrastructure in some of these economies can further hinder the formulation and implementation of effective consumer protection policies. In addition, a constrained institutional framework, marked by fragmented regulatory bodies and inadequate legal frameworks, can complicate the establishment of robust consumer protection mechanisms.

The absence and ineffectiveness of online consumer protection limit digital trade opportunities, highlighting the importance of greater international cooperation.

As consumers increasingly make online purchases from international vendors, international collaboration is important to ensure digital trade is safe and that malicious online practices, which can operate beyond national borders, are effectively tackled. Online consumer protection is addressed

in various trade and non-trade-related international fora. Some international instruments set out guidelines and best practices for safeguarding consumer rights and promoting fair business practices in both traditional and online markets. These instruments include the United Nations Guidelines for Consumer Protection and the OECD Guidelines for Consumer Protection in the Context of Electronic Commerce. RTAs are also increasingly addressing online consumer protection, with some explicitly requiring the adoption of online consumer protection measures (see Chapter C.2.b) and this is an area where multilateral discussions are taking place under the WTO Work Programme on E-commerce and plurilateral negotiations under the JSI. The most common provision on online consumer protection in RTAs promotes cooperation, including the exchange of information and experiences. The exchange of knowledge and best practices on online consumer protection is also taking place in other fora, including APEC and the International Consumer Protection and Enforcement Network (ICPEN).

Enhanced cross-border collaboration among domestic consumer protection authorities is crucial for enforcing online consumer protection and addressing violations across multiple jurisdictions. Yet, such international collaboration remains limited, with only 35 per cent of consumer protection agencies reporting experience in cross-border enforcement cooperation (Muniz Cipriano and Izaguerri Vila, 2020). Most current collaboration is among developed economies and on an informal basis. Inter-agency informal collaboration may be insufficient to adequately address the growing number of cross-border unfair commercial practices and to allow for satisfactory dispute resolution and redress for online consumers. In the rapidly changing digital landscape, the international exchange of experiences can improve the capabilities of national consumer protection authorities, especially in developing economies. International cooperation at regional and multilateral levels could benefit from more regular exchanges of information between international institutions and networks to identify avenues for cooperation and common projects, while avoiding duplication.

Endnotes

1. Anti-competitive practices can include using information from competitors for an anti-competitive advantage, withholding from other suppliers necessary technical information about essential facilities and commercially relevant information, and applying anti-competitive cross-subsidization practices, where a company uses profits from one segment of its business to unfairly subsidize activities in another segment. Another anti-competitive practice is the resistance of incumbents to offering interconnection to their network for the termination of calls or other services. Universal service obligations provide a safety net of services for portions of the population for which there are insufficient commercial incentives, such as those in low-income, rural and remote areas.
2. The Information Technology Agreement (ITA) expansion, often referred to as ITA-2 or the expanded ITA, refers to an extension of the original ITA adopted in 1996 under the WTO. The expansion was agreed upon in 2015 and includes a range of additional tech products that were not covered in the original agreement, including new-generation semiconductors, optical lenses, medical equipment such as magnetic resonance imaging machines and ultrasonic scanning apparatus, telecommunication satellites, touch screens, software and video game consoles, and advanced microscopes and telescopes.
3. The Annex on Telecommunication establishes disciplines on the access to and use of public telecommunications transport networks and services.
4. These countries represent examples of economies in the 75th percentile of their income group.
5. Digital trade provisions refer to the presence of a provision that can be considered as important for digital trade as identified in Burri and Polanco (2020). Digital trade chapters refer to there being a separate chapter in the trade agreement.
6. See WTO documents WT/MIN(98)/DEC/2 and WT/L/274 (1998). Four terms are especially relevant to the deliberations on digital trade under the WTO agreements: goods, services, electronic commerce, and electronic transmissions. Of these, only “electronic commerce” is defined in the WTO. Neither “goods” nor “services” are defined in the GATT and the GATS, respectively. As for “electronic transmissions”, the term first appeared in the 1998 Declaration on Global Electronic Commerce, but its meaning was not further defined.
7. An increasing number of RTAs include a provision referring to the applicability of WTO rules to digital trade.
8. See WTO document S/L/74. WTO jurisprudence has also consistently found in this sense.
9. According to the GATS most-favoured-nation (MFN) obligation, a member must accord “immediately and unconditionally to services and services suppliers of any other member treatment no less favourable than that it accords to like services and services suppliers of any other country” (GATS Article II).

10. GATS market access disciplines prohibit mainly quota-type restrictions, while national treatment proscribes the discrimination of foreign services or service suppliers.
11. Besides GATT 1994, the Agreements on Agriculture, Anti-Dumping, Customs Valuation, Import Licensing Procedures, Pre-shipment Inspection, Rules of Origin, Safeguards, Sanitary and Phytosanitary Measures, Subsidies and Countervailing Measures, Technical Barriers to Trade, and Trade-Related Investment Measures do not make any distinction between the manner in which goods are traded.
12. A decision of the WTO Committee on Customs Valuation applies specifically to products traded by means of a physical support (e.g., data or software recorded in a DVD) and provides that, in determining the customs value of imported carrier media bearing data or instructions, WTO members may take into account only the cost or value of the carrier medium itself and not the cost or value of the data or instructions.
13. The non-discrimination principles of the TRIPS Agreement ensure that any additional protection that WTO members grant in national laws and international and bilateral treaties benefit, as part of specific approaches developed on how to apply the TRIPS standards in the context of digital trade, also the nationals of all other WTO members.
14. The legal status of the JSI on e-commerce and its relationship with the multilateral trading system is still being debated among WTO members.
15. While many WTO members engaged in the JSI on E-commerce have included digital trade provisions in some of their RTAs, several other WTO members not involved in the negotiations have also incorporated digital trade provisions in their RTAs (Nemoto and López González, 2021).
16. Various business associations, representing companies across different sectors and economies at different levels of development, have repeatedly expressed support for not imposing tariffs on electronic transmissions. See, for instance, Global Services Coalition (2022).
17. See section C.2.d.
18. Across all reviewed studies, higher estimates of potential tariff revenue are reported for only a handful of developing economies (see for instance Figure C.7). Note that some of these estimates include scenarios where existing tariffs are no longer collected on all digitizable goods (e.g., books, videos, or music whether traded online or through a physical carrier). A literature review on studies analysing the customs revenue implications of the WTO moratorium on customs duties on electronic transmissions can be found in the annex.
19. The 33 developing economies with such commitments are Argentina; Armenia; Belize; Brazil; Colombia; Costa Rica; Dominica; Dominican Republic; Ecuador; El Salvador; Georgia; Grenada; Guatemala; Guyana; Haiti; Honduras; India; Jamaica; Jordan; Malaysia; Mexico; Moldova, Republic of; Mongolia; Morocco; Nicaragua; Paraguay; Peru; Saint Lucia; Saint Vincent and the Grenadines; Suriname; Türkiye; Ukraine; and Viet Nam (Andrenelli and López González, 2023).
20. Another 12 agreements involving 15 economies have commitments not to impose customs duties on electronic transmissions that are tied to the WTO moratorium.
21. The estimates are based on an analysis covering 188 economies.
22. See Hanappi, Jakubik, and Ruta (2023), Box 1 for different collection methods for VAT on digital transactions and Annex 3 on specific developing economy experiences. Regional VAT Digital Toolkits for Latin America and the Caribbean, Asia-Pacific and Africa cover region-specific implementation and operational aspects of adapting VAT/GST systems to digital trade (OECD, World Bank and ATAF, 2023; OECD, World Bank and ADB, 2022; OECD, World Bank, CIAT and IDB, 2021).
23. Estimated static global revenue potential is calculated for all WTO members using the current rate structure for VAT and (hypothetical) MFN tariffs, without accounting for reductions to potential tariff revenue due to RTAs or other preferences, and uses an upper bound estimate of trade growth in digitized products (Hanappi, Jakubik and Ruta, 2023).
24. This means that, for most economies, the growth in digitally delivered services imports is likely to have generated more tax revenue through GST/VAT systems than the foregone revenue from customs duties due to the digitalisation of so-called 'digitizable goods' (Andrenelli and López González, 2023).
25. This report does not assess the potential impact on other enterprises.
26. Public adequacy decisions involve a unilateral recognition by a designated public body certifying that the personal data protection regime of another jurisdiction meets specific privacy requirements, allowing for the transfer of personal data to that jurisdiction when the level of protection is deemed equivalent to domestic standards.
27. Ex-ante legal safeguards serve as alternative measures when a public adequacy decision has not been made, providing ex-ante legal guarantees for transferred data to ensure consistent levels of protection and enforcement in the destination jurisdiction, encompassing standardised contractual safeguards, binding corporate rules (BCR) and other approved legal instruments or schemes.
28. Phishing is a fraudulent attempt, typically carried out via email, to steal sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity. Spam refers to unsolicited messages sent over the internet, typically to a large number of users, for various purposes, including advertising, phishing and spreading malware (such as viruses, spyware and ransomware).



D

Conclusions

This joint report has looked into the role of digital trade in development and how economies can work together to reap the full benefits of digital trade for a more resilient and inclusive global trading system.

The report has sought to answer two main questions: what are the opportunities and challenges for developing economies arising from digital trade, and how can international cooperation help developing economies exploit these opportunities and address the challenges arising from digital trade?

The report has shown that digital technologies can enhance productivity, reduce trade costs, promote more service-driven inclusive growth and strengthen resilience. Since 2005, the value of digitally delivered services exports has experienced a nearly fourfold rise, with an annual average growth of 8.1 per cent between 2005 and 2022. This growth rate has surpassed both that of goods exports at 5.6 per cent and that of other services exports at 4.2 per cent. However, some economies, especially in Africa and LDCs, show slower progress, reflecting the fact that a reliable and affordable digital infrastructure, along with supportive public policies, is crucial for effectively participating in and benefiting from digital trade.

A comprehensive and multi-faceted strategy is necessary to improve the adoption and effective use of digital technologies. This strategy includes investments in physical and digital infrastructure, enhancing digital literacy and skills, and adopting regulatory frameworks that are conducive for digital trade. Efforts to bridge socioeconomic and cultural divides are also crucial. International cooperation and knowledge-sharing can contribute to overcoming these barriers and promoting the adoption and effective use of digital technologies in developing economies.

International cooperation on digital trade-related issues has primarily taken place in bilateral and regional trade agreements, with separate discussions on updating existing trade rules and creating new ones taking place in the WTO. With the WTO's MC13 on the horizon, this joint report addresses a pressing WTO issue: the renewal of the moratorium on customs duties on electronic transmissions. WTO members have expressed different views about the renewal of the moratorium. Proponents of the moratorium emphasise that the commitment has supported a stable and predictable environment for digital trade to thrive. However, other WTO members have expressed concerns about the lack of clarity regarding the scope of the moratorium and the definition of electronic transmissions as well as the opportunity costs of the moratorium. These include the potential foregone customs revenue and the desire to maintain policy space in light of the uncertainty associated with

rapid technological change. They have also expressed concerns about the impact of the moratorium on their ability to use customs duties for industrial policy purposes.

This joint report notes that the exact customs revenue implications of the moratorium are difficult to assess, but available estimates suggest that average potential forgone revenue in developing economies ranges between 0.01 per cent and 0.33 per cent of total government revenue. The costs of implementing customs duties on electronic transmissions, including creating the necessary infrastructure, would also need to be considered. This report notes that there are other ways of raising revenue from electronic transmissions, notably through VAT/GST. VAT does not discriminate between domestically supplied and imported products, is more uniform across different products, and does not impose a tax burden on intermediate inputs used by domestic producers. Imposing customs duties on electronic transmissions would reduce relevant digital trade and thereby lower its benefits. It might also impact competitiveness and participation of firms, in particular MSMEs and women owned traders.

Beyond the moratorium, the joint report points at regulatory issues that may require global solutions to harness the full potential of digital trade, bridge the digital divide and support inclusive growth. Cross-border data flows are pivotal to digital trade, but the global fragmentation of data flow regulations hinders data protection and digital trade. Increased international cooperation can help achieve a balance in data governance and thereby ensure data can flow across borders as freely as necessary and possible while ensuring transferred data are granted the desired oversight and privacy protection. Rapid technological advances and network effects have led to increased market concentration in the digital economy, giving rise to concerns about market power and anti-competitive behaviour. Enhanced international cooperation between competition authorities is crucial to address the global competition challenges posed by digitalization. The lack of online consumer protection regulation and enforcement and disparities in regulatory systems for digital payments can erode trust and hinder digital trade growth. Enhanced cross-border collaboration among domestic consumer protection authorities is crucial for enforcing online consumer protection and addressing violations across multiple jurisdictions.

In summary, while digital trade holds significant promises for consumers and businesses globally, including in LDCs, it is imperative to channel its potential towards fostering economic development and achieving inclusive growth by improving developing economies' capacity to participate in digital trade.

Annex A:

Literature review on studies analysing the customs revenue implications of the WTO moratorium on customs duties on electronic transmissions

The first attempt to estimate the foregone customs revenue of the WTO moratorium on customs duties on electronic transmissions was undertaken by Schuknecht and Pérez-Esteve (1999). They used a list of goods that included cinematographic film, newspapers and videogames to provide upper bound estimates of possible tariff revenue losses, based on the assumption that all trade that could be digitized would be digitized. The analysis suggests that the potential foregone revenue effects would amount to less than 1 per cent of total tariff revenue across most economies. The paper also highlighted the strong potential for electronic transmissions to enhance services trade, underscoring that tariff revenue losses would need to be weighed against gains arising from growing trade in services (see also Mattoo and Schuknecht (2000) and Mattoo, Pérez-Esteve and Schuknecht (2001).

More recently, and at the request of WTO members, the WTO Secretariat (2016) re-examined and updated the analysis of potential tariff revenue losses arising from the WTO moratorium. Using a list of 30 goods at the six-digit harmonised system (HS) and their applied tariff rates, the analysis suggests that the estimated revenue collected from “digitizable goods” (defined as physical goods which have the potential to be digitized and subsequently sent across borders digitally) had fallen from US\$ 1.2 billion in 2000 to US\$ 823 million in 2014 – a global loss nearing US\$ 400 million. Overall, the duties collected on digitizable goods imports amounted to 0.26 per cent of total estimated customs revenue in 2014, with only four developing economies collecting more than 1.5 per cent of total customs revenues from such tariffs.

Banga (2019) used an updated list of 49 goods, also using the HS classification, to estimate the revenue impact of the WTO moratorium, focusing not only on the potential revenue loss arising from these trade flows being fully digitized, but also on the revenue not collected on trade flows that might have already been digitized, such as e-books. The author created a counterfactual projection of the value of trade that might have already been digitized by taking the average growth rate of trade in digitizable goods between 1998-2010 and

extrapolating this for the period 2011-2017. The analysis based on average *bound* tariffs suggests that potential aggregate tariff revenue losses would amount to US\$ 8 billion for developing economies and US\$ 212 million for developed economies in 2017. The analysis based on *effectively applied* duties suggests that the foregone revenue would amount to US\$ 2.7 billion for developing economies and US\$ 123 million for developed economies.

Applying the same methodology, Banga (2022) updated these estimates, highlighting that potential foregone revenue for developing and least developed economies in 2020 would amount to US\$ 14.3 billion when calculated using bound tariffs and US\$ 5.5 billion when using applied duties.

Andrenelli and López González (2019) and Evenett (2021) review existing estimates of the fiscal implications of the WTO moratorium, and find that even the highest estimates (reported by Banga (2019)) represent, on average, 0.01-0.33 per cent of overall government revenue.

Köhler-Suzuki (2020) estimates the potential fiscal revenue losses from digitized goods for Egypt and Viet Nam separately using the same definition for digitizable goods used by Banga (2019). The analysis based on effectively applied duties suggests that estimated potential tariff customs revenue from digitizable goods in Egypt grew from US\$ 5 million in 1998 to US\$ 9 million in 2008, and then decreased to US\$ 3 million in 2016. Similarly, the estimated potential tariff revenue for Viet Nam grew from US\$ 15 million in 2002 to US\$ 27 million in 2009, but then decreased to US\$ 17 million in 2018.

Hanappi, Jakubik and Ruta (2023) use a list of 49 digitizable goods based on WTO (2020) and the methodology of UNCTAD (2017a) and Banga (2019, 2022) to assess the maximum fiscal revenue potential of imposing tariffs (effectively applied rates) on flows of digitized imports. The authors find that in terms of total government revenue, the estimated revenue potential of imposing tariffs ranges from 0.03 per cent

for high-income economies to 0.33 per cent for low-income economies on average. They argue that collecting VAT from these flows is not only less distortionary, it can also generate higher revenue given appropriate investment in administrative capacity to better capture digitized flows and increase coverage and compliance.

Andrenelli and López-González (2023) calculate the potential revenue implications of the WTO moratorium taking into account existing commitments that economies made that limit the ability to raise tariffs independently from the WTO moratorium, such as includes commitments not to impose customs duties on electronic transmissions as well as preferences granted in RTAs or commitments from the WTO Information Technology Agreement. The analysis does not assume that all trade that can be digitized would be digitized, reflecting the fact that, for many economies, imports of digitizable goods have continued to grow in the past decade. The study also quantifies potential offsetting effects from

VAT/GST taxes applied to growing computer, audio-visual and information services imports. The results show that the potential foregone customs revenue that could be attributed to the WTO moratorium would amount to US\$ 1.3 billion, representing an average of 0.68 per cent of potential total customs revenue or around 0.1 per cent of overall government revenue. Moreover, for 77 out of 106 economies for which data is available, potential foregone revenue would be offset by rising revenue from VAT/GST on digital services imports which are considered as 'born digital' and grow in proportion more than digitizable goods' decline. The paper also shows that to the extent that current tariffs on digitizable goods would be indicative of potential tariffs on electronic transmissions and that electronic transmissions are captured in digital services statistics, low income economies would impose relatively high tariffs on electronic transmissions and also face relatively high tariffs on such transmissions in middle-income economies, which are currently their main export markets for digitally-delivered services.

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This report explores the opportunities and challenges for developing economies arising from digital trade and discusses the role of international cooperation in tackling these opportunities and challenges. The report considers policy actions in the areas of digital infrastructure, skills, international support for capacity development, and the regulatory and policy environment. Specific policy issues include the WTO e-commerce moratorium, regulation of cross-border data flows, competition policies, and consumer protection.



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