



Shedding New Light on the Evolving Regulatory Framework for Digital Services Trade



UNITED NATIONS



Shedding New Light on the Evolving Regulatory Framework for Digital Services Trade

This document has been prepared by Janos Ferencz, Irene Oliván García, Matteo Fiorini and Elisabeth van Lieshout from the Trade and Agriculture Directorate (TAD) of the Organization for Economic Co-operation and Development (OECD); Witada Anukoonwattaka from the UN Economic and Social Commission for Asia and the Pacific (ESCAP); Simon Mevel, Geoffroy Guepie and Jason Mc Cormack from the UN Economic Commission for Africa (ECA); and Nanno Mulder from the UN Economic Commission for Latin America and the Caribbean (ECLAC). The views expressed here are those of the authors and should not be construed as the views of the OECD, ESCAP, ECA, ECLAC, or any other entity mentioned herein.

This document, as well as any data and any map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. The names of countries and territories used in this joint publication follow the practice of the OECD.

The authors are grateful for comments by John Drummond, Javier Lopez Gonzalez and Silvia Sorescu from the OECD and Yann Duval from ESCAP.

The regulatory data for countries not covered by the OECD STRI and Digital STRI was collected by:

- For ESCAP: Aditi Pandey, Archana Subramanian, Ayushi Singh, Fandi Achmad, Juan F. Rodrigo Lopez, Kshitiz Dahal, Le Thu Ha, Natnicha Sutthivana, Runqiu Du, Said Jafarli, Sariyya Bunyatova, and Yohan Nah.
- For ECA: Abdou Khadre Diop, Biruh Gemeda Gage, Etienne Bama Cham, Clarence P. Freeman, Yao Golo Nukunu, Manfred Kouty, Emmanuel Omoju Oluwasola, Talent Nesongano, Ronald Cheuka Tapiwa, Beatrice Murugi Kinyua, Kuda Tshiamo-Kgati, Latifa Zandamela, Marie-Louise Aren, Nomalanga Pearl Gule, Tiava Rajohnson, Ny Kanto, Staicy Doreen Wagala, Yasmin Ismail, Roland Leudjou, Mahamat Abdellatif, Hilda Mwakatumbula, Folasade Aderoju, Richard Adu Gyamfi, Jacqueline Pimer, Rose Ronoh, Richard Kubwalo, Jaqueline Musiitwa, Azwimpheleli Langalanga.
- For ECLAC: Sofía Loria Obando and Karla Sofía Roca.

The authors wish to thank Frédéric Gonzales and Ana-Maria Muresan of the OECD for the data calculations.

Finally, the authors thank Caitlin Boros, Laëtitia Christophe, and Michèle Patterson for preparing this document for publication.

Table of contents

1. Setting the scene	4
2. What is digital trade and why does it matter?	5
3. Recent developments on digital trade in Africa, the Asia-Pacific, and Latin America	6
4. STRI tools to assess the regulatory environment for digital trade	10
5. The regulatory environment for digital services trade	11
6. Mapping potential linkages between restrictiveness and digital performance	17
7. Way forward	23
Annex A. Description of the Digital STRI and STRI framework	26
Annex B. Digital STRI and STRI results by region	28
Annex C. Country Code List	31

Figures

Figure 1. Digitalisation has a positive impact on trade in goods and services	5
Figure 2. Overview of digital trade restrictiveness in 2021	11
Figure 3. Digital STRI and computer services STRI per country, 2021	12
Figure 4. Main barriers to digital trade	14
Figure 5. Common barriers to digital services trade as captured in the Digital STRI across regions, 2021	15
Figure 6. Common barriers to trade in computer services across regions, 2021	16
Figure.7. Trends in digital services trade restrictiveness	17
Figure 8. Restrictions to digital services trade and access	18
Figure 9. Restrictions to digital services trade and use of digital technologies	19
Figure 10. Restrictions to digital services trade and share of digitally enabled services	20
Figure 11. Services trade reforms and changes in access	21
Figure 12. Services trade reforms and changes in use	22
Figure 13. Services trade reforms and changes in share of digitally enabled services	23

Key messages

- In 2021, regulatory barriers to digitally enabled services remained high across the globe. On average, economies in Africa were the most restrictive, followed by economies in the Asia-Pacific and Latin America and the Caribbean (LAC) region. There are, however, considerable variations and diversity among economies within regions.
- Compared to the benchmark year of 2014, barriers to digitally enabled services have been growing over the years, with the highest overall increase observed in the Asia-Pacific region and the OECD. In the LAC region, regulations have been more stable over time and showed moderate liberalisation since the COVID-19 pandemic started. In Africa, too, barriers have eased moderately in recent years but, on average, remain the highest among all regions.
- Barriers related to communications infrastructure and connectivity contribute to at least half of all barriers observed in all regions. This demonstrates scope to reduce barriers related to telecommunications services across the board, as well as scope to ease unnecessary and unjustified barriers to cross-border data flows.
- Computer services, which are fundamental to digital trade, are also subject to considerable trade barriers across countries. Barriers affecting the cross-border movement of computer professionals remain high across countries, although they may have been partially alleviated by the increased possibility of remote operations put in place during the COVID-19 pandemic. Restrictions on access to public procurement markets as well as restrictions affecting foreign investment (e.g. foreign investment screening, performance or localisation requirements) remain substantial bottlenecks in the sector.
- Lower restrictiveness to digital trade, as measured by the DSTRI and the computer services STRI, is associated with higher access and use of communication networks and increased trade in digitally enabled services. Open digital markets lower trade costs for businesses, increase competitiveness, and lower prices for consumers. Multilateral trade rules and open commitments on services can lock in these benefits and provide certainty to firms seeking to access foreign markets.

1. Setting the scene

The growing adoption of digital technologies has revolutionised international trade, making it easier and cheaper to trade across borders (López González and Jouanjean, 2017^[1]). The COVID-19 pandemic further accelerated the adoption of digital technologies and demonstrated the importance of digital trade to global economic recovery (OECD, 2020^[2]).

Trade is an essential vehicle to enable digital transformation, which relies heavily on access to digital networks and equipment, seamless transfer of data across borders, and movement of skilled workers and knowledge. Policies that aim to increase connectivity, to ease trade restrictions on information and communication technology (ICT) goods, and to lower barriers on digitally enabled services contribute to strengthening the pillars upon which digital trade operates (Lopez-Gonzalez and Sorescu, 2021^[3]).

As discussions on digital trade progress, whether under the WTO Joint Statement Initiative on E-commerce, through the increased number of digital trade provisions in regional trade agreements, or in the context of emerging digital economy partnership agreements, understanding the benefits and channels through which digitalisation and related policies impact trade and trade costs is becoming a policy priority.

In recent years, the evidence base to measure the regulatory environment affecting digital trade has been enriched with new data and indicators, including the OECD Services Trade Restrictiveness Index (STRI)¹ which covers several services at the forefront of digitalisation, and the OECD Digital Services Trade Restrictiveness Index (Digital STRI)² which covers cross-cutting barriers on digital trade (Ferencz, 2019^[4]). This has contributed to a better understanding of existing and emerging trade barriers across countries, has enabled benchmarking against best practice, and continues to inform evidence-based policy strategies on digital trade.

In an effort to improve regional and global evidence on policies affecting digital trade, the UN Economic Commission for Latin America and the Caribbean (ECLAC), the UN Economic and Social Commission for Asia and the Pacific (ESCAP), and the UN Economic Commission for Africa (ECA) have worked with the OECD between 2020 and 2022 to expand the coverage of the STRI and Digital STRI tools to shed new light on the current state of global and regional regulatory landscapes that affect digital services trade.

This brief provides a summary of the key findings and insights across the three regions covered. The first section introduces the meaning of digital trade and its growing economic importance, followed by an analysis of recent developments on digital trade across the three regions. The subsequent sections describe the STRI tools and present the findings, trends, and preliminary associations between regulatory policies and trade performance.

¹ For further details, see <http://oe.cd/stri>.

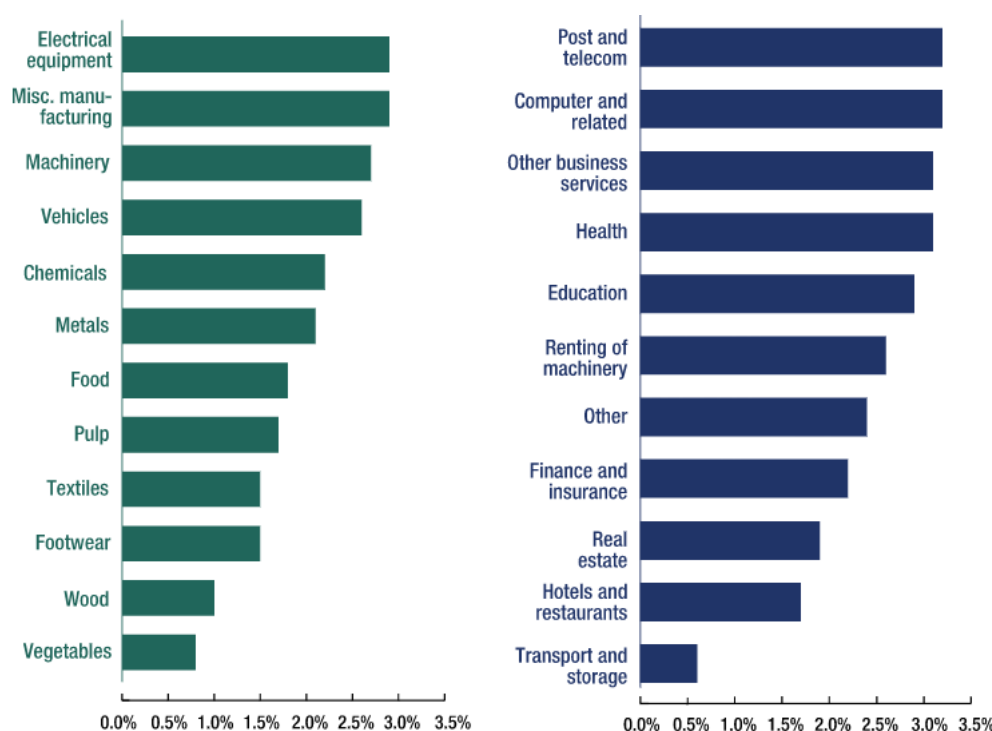
² For further details, see <http://oe.cd/dstri>.

2. What is digital trade and why does it matter?

In much the same way that reductions in transport and co-ordination costs enabled the fragmentation of production along global value chains, declining costs of sharing information are powering a digital trade revolution that is changing traditional trade patterns. Digital trade involves digitally enabled or digitally ordered cross-border transactions in goods and services which can be either digitally or physically delivered (López González and Jouanjean, 2017^[5]).

Countries with better digital connectivity, such as a higher degree of Internet penetration, have a greater degree of trade openness and sell more products to more markets. More digitalisation also means more trade: a 10% increase in digital connectivity between countries³ raises goods trade by nearly 2% and trade in services by over 3% (López González and Ferencz, 2018^[6]). Importantly, these positive effects emerge across all sectors (Figure 1). In addition, when goods are traded internationally in small parcels, a 10% increase in bilateral digital connectivity (both countries increasing their connectivity rates) raises parcel exports by up to 4% (López González and Sorescu, 2021^[7]).

Figure 1. Digitalisation has a positive impact on trade in goods and services



Note: This figure shows the percentage increase in exports as a result of a 10% increase in bilateral digital connectivity and is derived from a gravity model on a sample of 160 countries.

Source: López González and Ferencz (2018^[6]).

³ Digital connectivity between two countries, or the potential thereof, is proxied using the minimum of the share of the population that is using the Internet. The measure acts as a mass parameter of potential digital connections, reflecting that both supplying and demanding countries require good connectivity for digitally enabled trade to flourish. Internet penetration indicators are used as a proxy for digital connectivity since such data are available for more countries and more time periods than for other indicators. Internet penetration indicators also have a high correlation with other measures of digital connectivity (e.g. business and household use of broadband, access to computers, and wireless broadband and fixed broadband subscriptions).

Digitalisation can also help countries to draw greater benefits from their regional trade agreements. When combined with a regional trade agreement, a 10% increase in digital connectivity gives rise to an additional 2.3% growth in goods exports (López González and Ferencz, 2018^[6]). In addition, digital trade facilitation tools can help reduce the costs of trade at different stages of the supply chain. Sustained implementation of the World Trade Organization (WTO) Trade Facilitation Agreement (TFA), for instance, has enabled the wider digitalisation of trade processes. Even modest efforts to reduce performance gaps in automated border processes – as captured by the OECD Trade Facilitation Indicators – could further increase trade by as much as 4% across all goods sectors (OECD, 2020^[8]).⁴ In addition, greater use of digital tools for streamlining border processes can increase exports of small parcels by more than 6% (López González and Sorescu, 2021^[7]). Importantly, automation of border processes can help micro, small and medium enterprises (MSMEs) in developing countries to engage in international trade and increase the value of their exports and imports by more than 4.5% (López González and Sorescu, 2019^[9]).

Digital trade is especially important for developing country micro, small and medium-sized enterprises (MSMEs) and women entrepreneurs. Access to cheaper, more sophisticated and diverse digital inputs – including productivity-enhancing software, communications technology or e-payment services – can help firms deliver their output to a wider customer base across different countries and overcome existing trade costs disadvantages. Recent evidence suggests that access to digitally deliverable business services such as Internet banking or online accounting services, helps drive export competitiveness, especially in lower-middle-, and lower-income countries (Andrenelli and López González, 2019^[10]). Moreover, recent analysis shows that in developing countries, MSMEs with a digital presence in the form of a webpage are more likely to become exporters than those with no digital presence (Andrenelli and López González, 2019^[10]). Digital services also help women-led firms, which are generally smaller than those led by men, overcome some of the barriers to establishing and growing their businesses and to trading on international markets. This includes lowering the costs of accessing credit and obtaining information through professional networks (Korinek, Moïse and Tange, 2021^[11]).

3. Recent developments on digital trade in Africa, the Asia-Pacific, and Latin America

3.1. Africa

African economies are constantly evolving in terms of digital technology. The use of the Internet, mobile phones, and other tools to facilitate digital trade has grown rapidly. In 2019, around 29% of people in sub-Saharan Africa were using the Internet, whereas less than ten years ago internet penetration was only 7%.⁵ Mobile broadband has also grown in Africa over the past decade. In 2020, mobile broadband penetration was nearly 20 times higher than in 2010, making Africa the fastest growing region for mobile money (UNCTAD, 2021^[12]). More than half of all registered active accounts are located on the continent and accounted for two-thirds of the total value of mobile transactions worldwide in 2021.⁶

The extensive use of ICT and the increase in digitization within Africa has led to strengthening its business potential and will certainly impact the evolution of digital trade. The development of mobile money, for

⁴ The potential increase in trade across sectors is based on a reduction of 0.1 points in the bilateral performance gap, based on the OECD Trade Facilitation Indicators for 163 economies.

⁵ Figures on internet penetration come from World Bank indicators.

⁶ Mobile money figures come from GSMA 2022 report on mobile money ([State of the Industry Report on Mobile Money - 2021 \(gsma.com\)](https://www.gsma.com/mobilemoney/state-of-the-industry-report-on-mobile-money-2021))

example, has resulted in the financial inclusion of a whole range of economic actors, especially women, youth, and micro- and small-sized enterprises. In Zambia, for example, access to a basic but affordable and appropriate payment technology via mobile money has increased the profitability of micro-enterprises from 36% to 74% (Frederick, 2014^[13]).

Such development has led the governments of African countries to consider digital trade and e-commerce in the second phase of negotiations of the African Continental Free Trade Area (AfCFTA) Agreement. Emerging from the COVID-19 pandemic, interest in digitalization has increased as it has proven to be particularly useful in bolstering economic resiliency. Studies have also shown the pandemic helped to increase the rate at which countries were digitalizing. Findings from an April 2021 joint survey by ECA and International Economics Consulting Ltd (IEC) to African businesses revealed that 65% of respondents increased their rate of digitalization as a response to the pandemic (ECA & IEC, 2021^[14]).

Digitalization has allowed countries to maintain trade relationships with traditional partners and has helped them to access new markets and diversify the goods and services they offer. Further, between 2019 and 2020, Africa experienced a 10% increase in services exports, nearly on par with the global performance of 14%. Digitalization, however, raises issues related to security, data integrity, privacy and data protection, and intellectual property rights which require greater international cooperation to ensure that incentives for digital trade and e-commerce are not limited. The Enhanced Digital Access Index (EDAI) provides a first look at this issue by showing that most Sub-Saharan African countries lag in digital connectivity and suggests that a better regulatory environment (among other things) is needed to promote digital connectivity (Alper and Miktus, 2019^[15]).

Focusing on these regulatory challenges, the United Nations Economic Commission for Africa (ECA), through the African Trade Policy Centre (ATPC), has launched a training and research initiative on "Regulatory Integration of Digital Trade in Africa" to build two national databases on various measures identified in the Digital STRI as well as on issues related to digital trade integration. Key findings from the initiative are summarized, along with the formulation of specific recommendations, in country profiles. The objective of this initiative is to better assess the readiness of African countries to effectively engage in digital trade and e-commerce and to assist member States on digital trade issues in general, including digital trade/e-commerce discussions in the AfCFTA context.

These evidence-based findings open interesting prospects that could strengthen initiatives currently underway on the continent. As mentioned above, they can feed into Phase II negotiations of the AfCFTA on digital trade/e-commerce and be of use for subsequent implementation of the AfCFTA Agreement. Also, by suggesting regulatory commonalities across the continent, these findings can help inform the discussions and drafting of the Continental Harmonization Plan for Africa that is currently being developed by the African Union as part of the already approved Digital Transformation Strategy for Africa⁷. This strategy aims to harmonize ICT policy and regulatory frameworks in the digital sector and envisions paving the way forward to creating a digital common market in Africa by 2030.

3.2. Asia-Pacific

The Asia-Pacific region includes important exporters of ICT enabled services, especially economies in the East, Southeast, and South Asian sub-regions. The region accounted for approximately 24% of global trade in ICT enabled services in 2020. Since 2014, the Asia-Pacific region has changed from being a net importer to a net exporter of these services. The strong growth has been driven by increasing online penetration, e-commerce, and the use of e-payments systems and other digital technologies, as well as

⁷ The Digital Transformation Strategy for Africa (2020-2030) was adopted at the February 2020 African Union Summit.

the growing servicification of goods trade. The importance of ICT-enabled services in the region's commercial services trade increased significantly, from 42% to 63.5% (exports) and 41% to 54% (imports) during the period from 2010 to 2020.

However, export shares of these ICT-enabled services are highly concentrated in a handful of economies. Nearly 80% of the exports of the region come from the five largest exporters: the People's Republic of China (hereafter "China"), India, Japan, Korea, and Singapore. In addition, Hong Kong; China, the Russian Federation (hereafter "Russia"), and the Philippines add another 10% to the region's exports. Although other developing economies in the Asia-Pacific region are significantly smaller in terms of export size, they have a high dependence on ICT-enabled services exports. Examples include Afghanistan, Bangladesh, Nepal, Pakistan, and Papua New Guinea. Although ICT-enabled services in these economies seem to be at a nascent stage, such exports contributed more than 50% of overall services exports in these emerging economies even before the COVID-19 pandemic. Also, servicification implies that indirect exports of digital services embedded in manufactured exports from Asia-Pacific economies participating in global value chains, such as China, Indonesia, Malaysia, Thailand, and Viet Nam could be significant.⁸

In parallel to the WTO discussions on e-commerce, advanced Asia-Pacific economies, Singapore, in particular, have started concluding digital economy agreements. Asia-Pacific economies have increasingly included digital trade rules in new regional trade agreements (RTAs). Of 214 RTAs in the region in 2021, 76 include e-commerce elements, 52 address online consumer protection, 56 address data privacy, 20 include cross-border data flows, and 12 – including the Regional Comprehensive Economic Partnership (RCEP) – have provisions limiting data localization. However, cross-border data flow and data localization provisions frequently include exceptions to meet public policy objectives.⁹ As the scope and ambition levels of these agreements vary, there are increasing concerns of a "digital noodle-bowl".

Governments in the region have seen increasing policy implementation challenges. ESCAP's Digital and Sustainable Regional Integration Index (DigiSRII) shows that the region's progress in terms of inclusive digital economy integration has been slow.¹⁰ Research shows that MSMEs and women tend to struggle more in the modern business models that require digital literacy, and inclusive and efficient access to and use of Internet.¹¹ As governments try to understand how to support businesses to "build back better" from the COVID-19 pandemic, supporting MSMEs to use digital technologies and participate in cross-border digital trade more effectively and efficiently are increasingly prioritized. For instance, new regional trade agreements with e-commerce elements tend to include a chapter specifically on MSMEs. Similarly, the latest UN Survey on Digital and Sustainable Trade Facilitation reveals that implementation of measures for special and disadvantaged groups (SMEs and women) has increased, although there is significant room for further improvement.¹² Going forward, greater efforts to agree on common digital trade rules

⁸ Up to 37% of the value in a range of manufacturing exports from the Asia-Pacific region came from services inputs. See ESCAP (2017), *Services and Global Value Chains: the Asia-Pacific Reality*, Studies in Trade, Investment, and Innovation No.89, https://www.unescap.org/sites/default/d8files/knowledge-products/GVCs_STII89.pdf.

⁹ ESCAP. *Preferential Trade Agreements in Asia and the Pacific 2021/2022*. Asia-Pacific Trade and Investment Trends. Available at <https://www.unescap.org/kp/2021/preferential-trade-agreements-asia-and-pacific-20212022>

¹⁰ See ESCAP Digital and Sustainable Regional Integration Index, at <https://www.unescap.org/resources/DigiSRII> Anukoonwattaka and others (2022). ESCAP Digital and Sustainable Regional Integration Index, at <https://www.unescap.org/resources/DigiSRII>.

¹¹ Anukoonwattaka et.al. (2022), "Digital economy integration in Asia and the Pacific: insights from DigiSRII 1.0", the *Asia-Pacific Sustainable Development Journal*, Vol. 28, No. 2, pp.113-148. Available at https://www.unescap.org/sites/default/d8files/2022-03/APSDJ%20Vol.28_No.2-4_31_03_22.pdf

¹² Please see <https://www.untsurvey.org/>.

across larger groups of regional economies is important to reduce trade costs and risks associated with conflictual regulatory rules, particularly for MSMEs.¹³

3.3. Latin America and the Caribbean

Latin America and the Caribbean's (LAC) participation in global ICT enabled exports has been low and is falling, with the region's share declining from 2.4% in 2010 to 1.7% in 2020.¹⁴ Nevertheless, LAC has seen a rapid take-up in e-commerce since the start of the pandemic, being the fastest growing region in the world in 2020, albeit from low levels.¹⁵ With imports exceeding exports, the LAC is a net importer of ICT-enabled services. Regional exports are highly concentrated in only five countries: Argentina, Brazil, Chile, Costa Rica and Mexico, which accounted for two-thirds of the total in 2020.

There are several factors for LAC's low and declining share in global ICT exports. These include a strong specialization of services exports in mostly tourism and transport. Most countries' goods exports are concentrated in few (processed) commodities or low-tech manufactures, whereas the contribution of medium- and high-tech manufacturing value added is relatively small. This production and export specialization holds back innovation and the use of ICT-enabled services. Moreover, the region is characterized by large productivity differences between sectors and between large and small firms, which exceed those observed in European countries. Many low productivity sectors and firms have difficulty in transforming digitally and to engage in digital trade (CAF, ECLAC and OECD, 2020^[16]). Moreover, LAC has few articulated public-private strategies to promote ICT-enabled exports.¹⁶

The underdeveloped digital ecosystem is another element holding back LAC's digital services exports. One of the region's weakest areas is ICT infrastructure with below world average connection speeds, and highly unequal broadband connection and quality between countries and between urban and rural areas. This situation is compounded by high logistics costs, which hampers the growth of e-commerce. LAC countries also face shortages in specialized workers to produce and export ICT enabled services. Although the region offers a broad range of digital technology training programs and courses, there are few specialized postgraduate offerings (CAF, ECLAC and OECD, 2020^[16]).

National regulatory frameworks for digital trade in LAC have been developed over the years, but continue to operate mostly in silos despite several efforts to harmonize regulations that could facilitate a single regional digital market. These include the Digital Agenda for Latin America and the Caribbean (eLAC), and digital agendas by subregional integration schemes such as Caricom, Mercosur and Pacific Alliance. Some countries participate in free trade agreements with chapters focusing on digital trade. Examples include the USMCA (United States-Mexico-Canada agreement), the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP, including Chile, Mexico and Peru), and Digital Economy Partnership Agreement (DEPA, including Chile).

¹³ ESCAP-OECD (2022). Asia-Pacific Digital Trade Regulatory Review.

¹⁴ Data from stats.wto.org.

¹⁵ According to eMarketer, Global e-commerce report, <https://www.emarketer.com/content/global-ecommerce-update-2021>.

¹⁶ See also Alvarez, M., K. Fernández-Stark, N. Mulder and W. Weck (2021), "Governance and export performance of modern services in Latin America and India", ECLAC and KAS, Santiago, <https://repositorio.cepal.org/handle/11362/47245>.

4. STRI tools to assess the regulatory environment for digital trade

The analysis in this report is based on the Digital STRI and the STRI for computer services, which identify, catalogue and quantify barriers that affect trade in services, including digitally-enabled services, presenting these in a transparent and comparable manner. The two indices provide insights on the key regulations that affect digital trade in a given economy and help policy makers to identify regulatory bottlenecks and design policies that foster more competitive and diversified markets for digital trade.

The Digital STRI and the STRI have two components: a publicly available regulatory database including information on applied regulations and composite indices ranging between 0 (most open) and 1 (most restrictive) derived from the regulatory information per economy. The Digital STRI covers cross-cutting measures that affect mostly the cross-border supply of any kind of digital service, while the STRI for computer services covers sector-specific barriers across different disciplines, including restrictions on foreign direct investment, movement of computer professionals, and access to procurement. Both the Digital STRI and the computer services STRI recognize that countries may impose certain restrictive measures for legitimate public policy objectives, and these tools are not meant to prejudge the legitimacy of such measures.

The Digital STRI and the STRI for computer services are each organised under five policy areas (see Annex A for the complete list of measures):

- Infrastructure and connectivity, electronic transactions, payment systems, intellectual property rights, and other barriers affecting trade in digitally enabled services for the Digital STRI.
- Restrictions on foreign entry, restrictions to the movement of people, other discriminatory measures, barriers to competition, and barriers to regulatory transparency for the STRI for computer services.

The collaboration between the OECD and ESCAP, ECA and ECLAC facilitated analysis of the regulatory environment in 42 economies¹⁷ in addition to the existing STRI coverage. Consequently, this report builds on regulatory information collected for close to a hundred countries worldwide. Countries in Africa are only covered in the Digital STRI. The time period covered in the regulatory data collection is 2014-2021, with annual data points for each country.

¹⁷ Data for Argentina; Bolivia; Dominican Republic; Ecuador; Guatemala; Paraguay; Uruguay was collected by ECLAC. Data for Brunei Darussalam; Cambodia; Lao PDR; Hong-Kong, China; Nepal; Pakistan; Vanuatu was collected by ESCAP. Data for Nigeria; Zimbabwe; Uganda; Tanzania; Cameroon; Malawi; Zambia; Kenya; Ghana; Chad; Gabon; Rwanda; Botswana; Mozambique; Gambia; Eswatini; Madagascar; Burundi; Egypt; Senegal; Ethiopia; Democratic Republic of the Congo; Liberia; Togo; Congo; Sierra Leone and Namibia was collected by ECA. The OECD provided technical support.

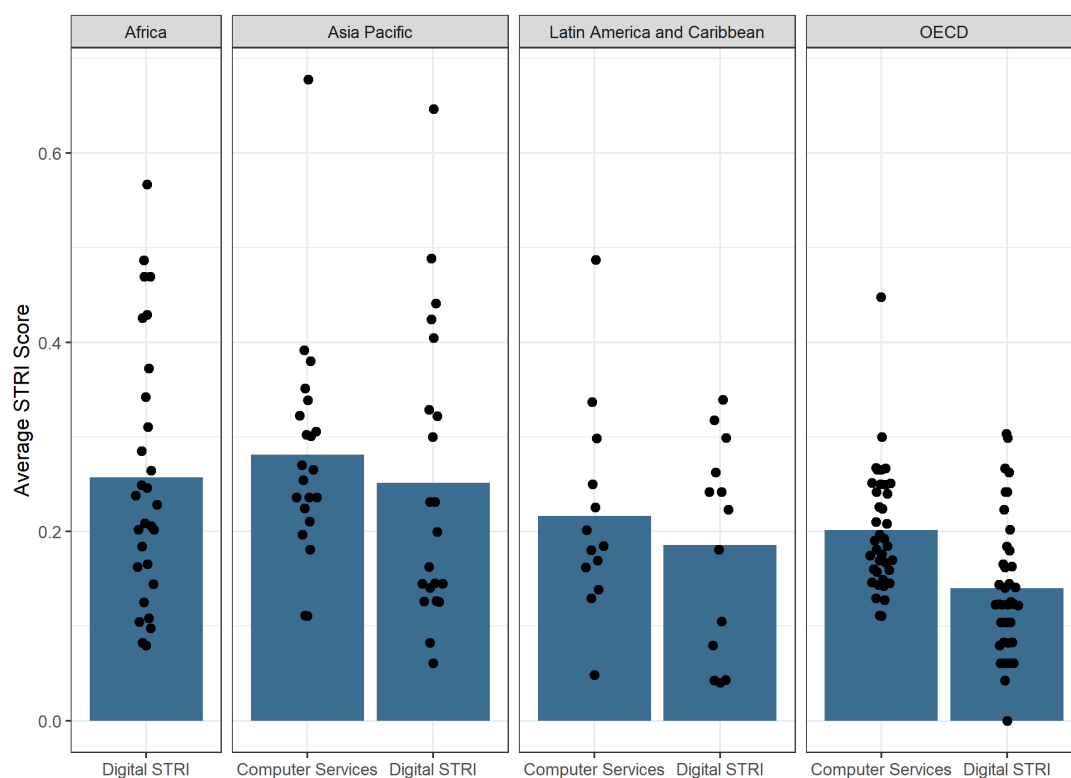
5. The regulatory environment for digital services trade

5.1. State of play

The regulatory environment for digital trade is highly diverse across economies in the three regions and compared to the OECD (Figures 2 and Annex B). The highest, most restrictive, average is observed in Africa where the dispersion of the indices is also wide across economies showing greater regulatory heterogeneity. There is a similar level of dispersion in the Asia-Pacific region, although the average Digital STRI is somewhat lower than in Africa. In Latin America, the outcomes indicate a more open regulatory environment compared to Africa and the Asia-Pacific, but the average index remains higher than that of the OECD countries.

With respect to computer services, in general, the STRI values tend to be higher in this sector than the Digital STRI across all regions. On average, the STRI for computer services is highest in the Asia-Pacific region, followed by the LAC region and the OECD. The higher averages reflect the more complex regulations that encompass not only trade and investment regulations, but also regulations affecting professional and business migration, competition policy, procurement policy and regulatory transparency.

Figure 2. Overview of digital trade restrictiveness in 2021



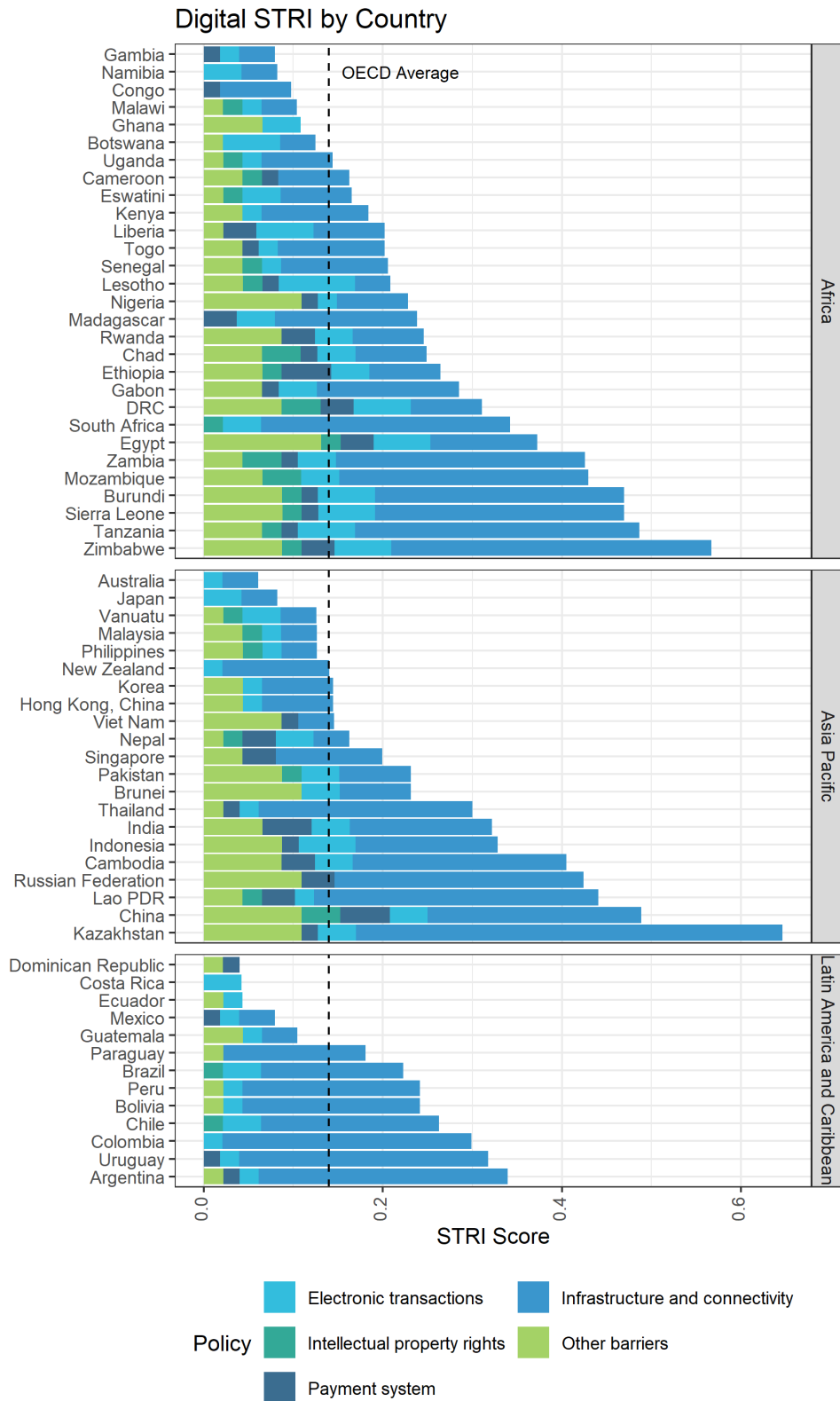
Note: Each bar shows the average STRI score for all the countries in the region. The dots represent specific countries.

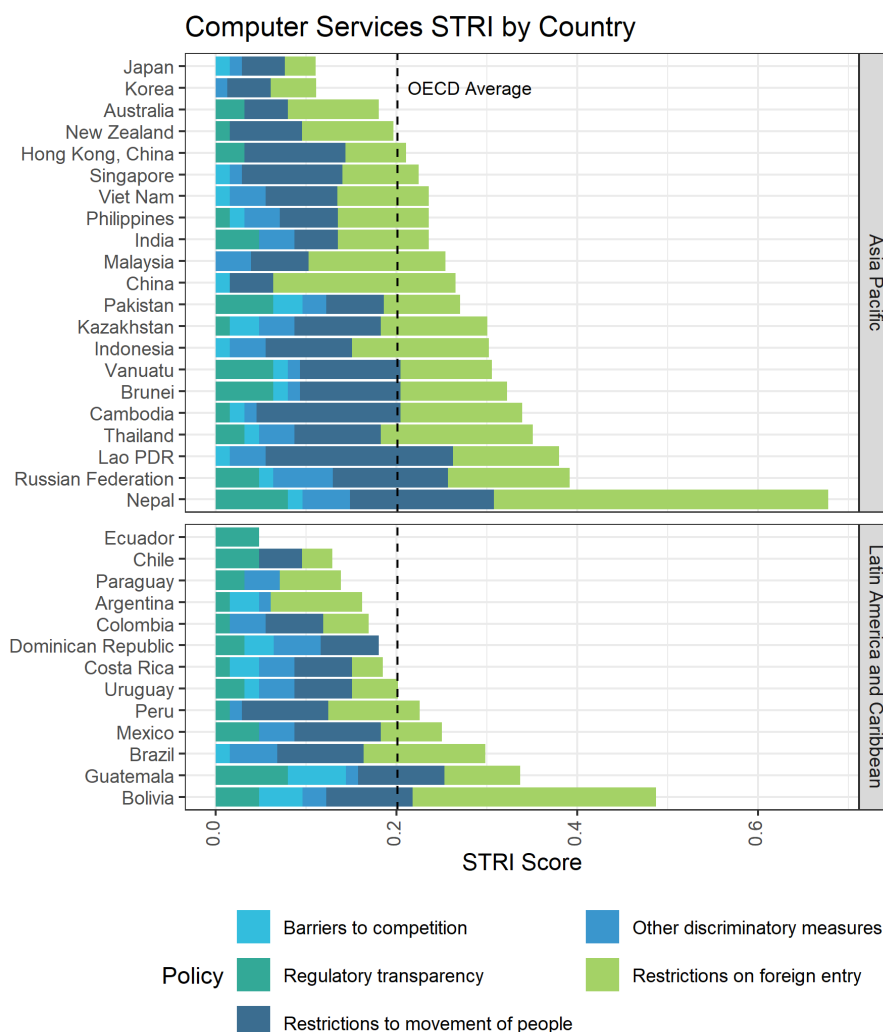
Source: OECD Digital STRI and computer services STRI (2021).

Country-level outcomes are shown in Figure 3. The top countries with the most open regulatory environment for digital services trade are:

- Gambia, Namibia and Congo in Africa;
- Australia, Japan and Vanuatu in the Asia-Pacific; and
- Dominican Republic, Costa Rica, and Ecuador in the LAC region.

Figure 3. Digital STRI and computer services STRI per country, 2021





Source: OECD Digital STRI and computer services STRI (2021).

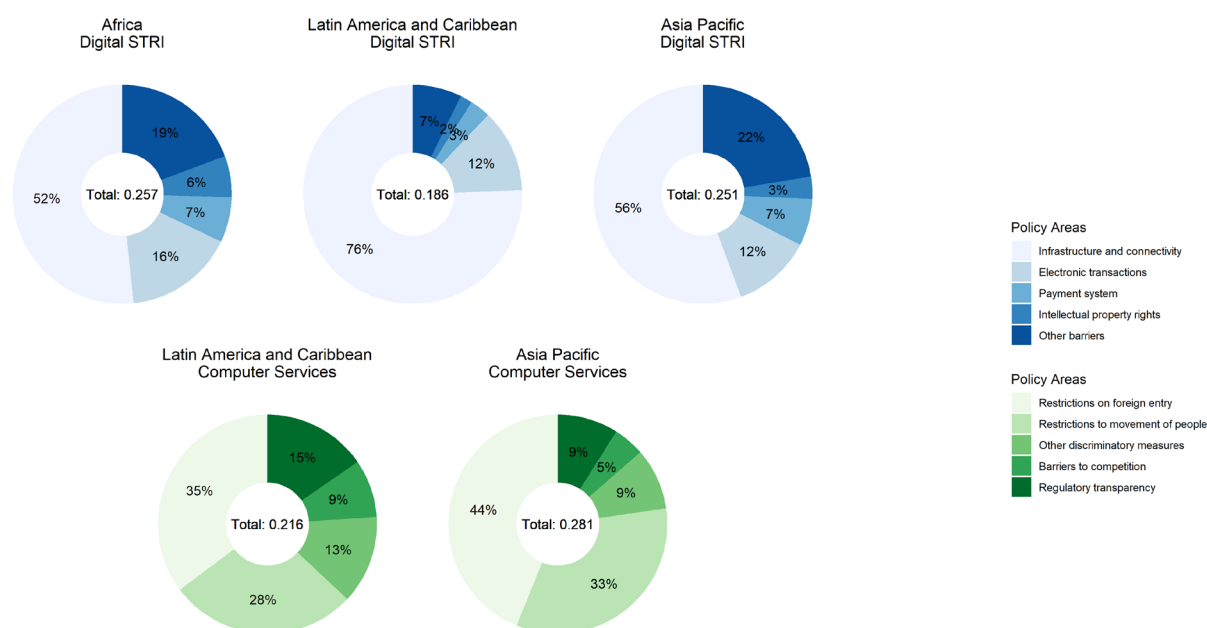
5.2. What measures drive these outcomes?

For all regions, the key barriers for cross-border digital trade identified in the Digital STRI are mostly related to barriers that affect infrastructure and connectivity, electronic transactions, and measures grouped under the heading “other barriers affecting trade in digitally enabled services”, which includes commercial or local presence requirement and limitations on online content (Figure 4).¹⁸ In the computer services STRI, the key barriers include restrictions to foreign entry and restrictions to the movement of computer professionals.

¹⁸ For an overview of measures included under each policy area, see Annex A.

Figure 4. Main barriers to digital trade

Digital STRI and computer services STRI per policy area



Source: OECD Digital STRI and computer services STRI (2021).

Figure 5 provides an overview of the most common cross-cutting barriers to digital services trade across the different regions.

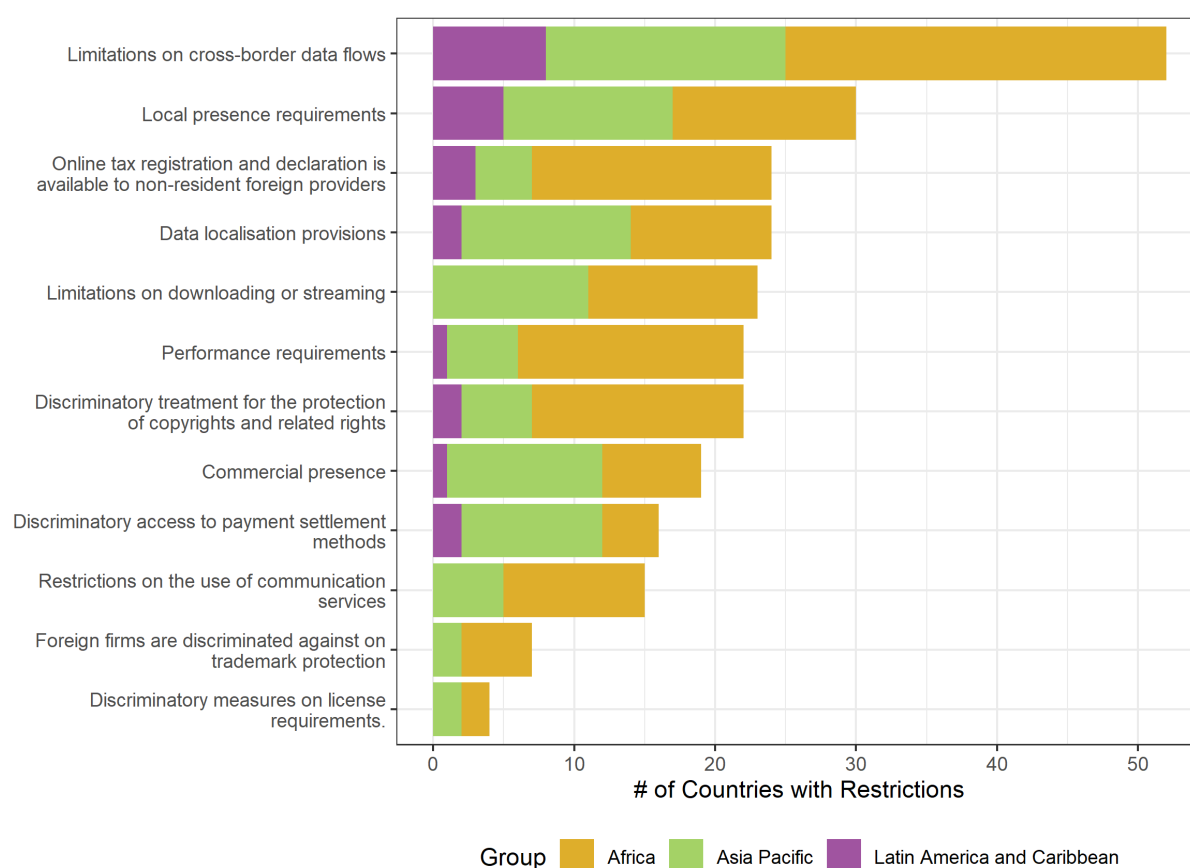
Barriers to cross-border data flows are widespread, ranging from the prohibition of transferring data abroad¹⁹ to the absence of appropriate frameworks ensuring the protection of the data transferred (usually due to the absence of any data protection regulation). Furthermore, 24 countries²⁰ impose some form of data localisation requirements in their national legislations. These requirements are sometimes sector specific (e.g. concerning financial data), but can also be more general and concern all data, “important data”, or personal data.

In Africa, other major barriers include restrictions on the use of communication services and to the impossibility of foreign providers to register and declare business taxes online. Other common barriers in the region include discrimination against foreign providers regarding the protection of intellectual property rights, in particular discriminatory treatment regarding the protection of copyright and related rights or the absence of protection of confidential information or business secrets. Some countries, such as Nigeria, Sierra Leone, or Rwanda, require foreign providers to have a commercial presence in the country to provide cross-border services. Local presence requirements are more widespread and include the requirement to designate a representative in the country. A large share of the African countries in the sample limit downloading, and condition the sharing or streaming of online content.

¹⁹ For example, China subjects any cross-border transfer of “personal information and important data” to a security assessment and a case-by-case approval, greatly restricting by this requirement the possibility of cross-border transfers of data.

²⁰ Brazil, China, Cameroon; Congo; Hong Kong, China; Indonesia; India; Kazakhstan; Kenya; Korea; Lao PDR; Liberia; Mexico; Mozambique; Malawi; Nigeria; New Zealand; Pakistan; Russia; Rwanda; Singapore; Sierra Leone and Viet Nam.

Figure 5. Common barriers to digital services trade as captured in the Digital STRI across regions, 2021



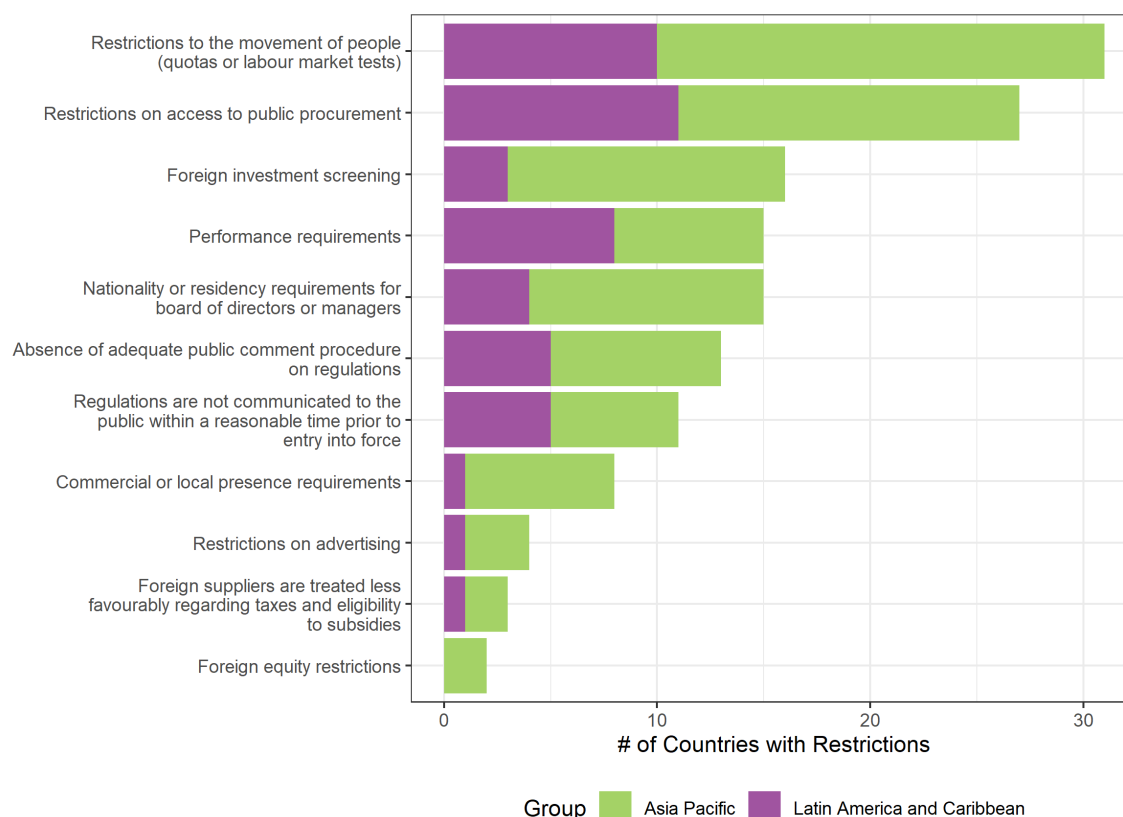
Note: Number of countries presenting restrictions in selected measures from the Digital STRI.

Source: OECD Digital STRI (2021).

In the Asia Pacific region, examples of common barriers for foreign digital services providers include the obligation to install a branch or commercial presence in the country or the requirement to have a local representative in the country. Restrictions to payment systems are important, where several countries such as Russia, India or China restrict access and use of foreign internet banking services. Moreover, limitations to downloading and streaming are common across many economies in the region. China and India impose conditions to e-commerce licensing that favour local firms over foreign ones.

In the Latin America and Caribbean region, the most important barriers remain those on cross-border data flows and data localisation. Local presence requirements are relatively common. Online tax registration and declaration is not available for foreign providers in Brazil, Chile, and Costa Rica.

Figure 6 shows common barriers to trade in computer services in the Asia Pacific and LAC regions. It shows that barriers related to the temporary movement of computer professionals remain an important issue, followed by barriers on access to procurement markets abroad and foreign investment-related limitations. Regarding the movement of computer professionals, while the COVID-19 pandemic facilitated remote work, physical travel to the customers' premise remains an important complementary services during initial installation of ICT hardware, training, maintenance and other similar services. The STRI results show that labour market tests and quotas for foreign workers remain a challenge, and are often coupled with short visa stays for foreign computer professionals.

Figure 6. Common barriers to trade in computer services across regions, 2021

Note: Number of countries presenting restrictions in selected measures from the computer services STRI.

Source: OECD Computer services STRI (2021).

In the Asia-Pacific, China and Nepal include restrictions to foreign equity shares (with different degrees of allowed maximum equity shares²¹), partially closing the computer services market to foreign firms. Other restrictions commonly identified in this region relate to foreign investment screenings, local or commercial presence requirements, and limitations on foreigners' ability to buy or lease real estate. Moreover, nationality or residency requirements for board of directors and/or management bodies are common.

In the LAC region, limitations to the duration of stay as well as quotas or labour market tests are common. Restrictions on the acquisition and use of land by foreigners are widespread. Regarding restrictions to the entry of foreign businesses, nationality and residency requirements for managers or board of directors are found in four countries²². Mexico, Paraguay, Peru, Bolivia, among others, impose performance requirements on foreign businesses.

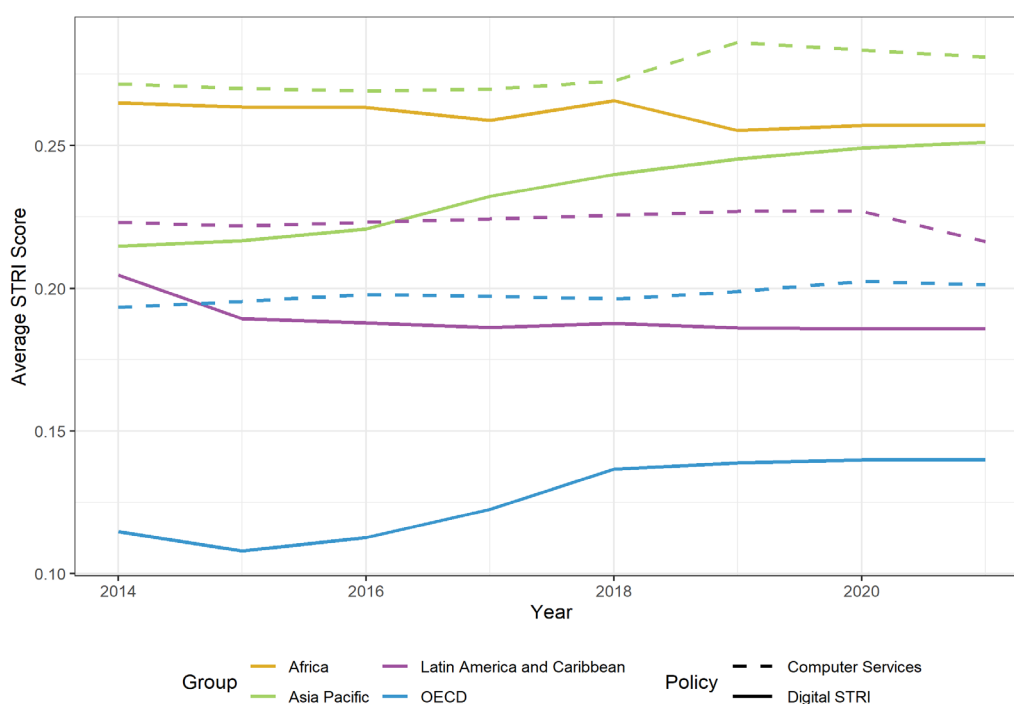
²¹ Foreign investment in computer training services is completely prohibited in Nepal and foreign investment in consultancy services is subject to a maximum foreign equity share of 51%. In China, a large degree of computer services is classified in China as value-added telecommunications services (VATS), including computer maintenance and management services and various information services activities such as data processing, cloud computing, email services, etc. The proportion of foreign equity in VATS is limited to 50%.

²² Argentina, Bolivia and Peru require residency requirements for managers and board of directors, and Bolivia also imposes nationality requirement for managers and board of directors.

5.3. What are the recent policy trends?

Looking at developments over time (Figure 7), the Digital STRI and the STRI for computer services show some dynamic changes. In the sample of African countries, for example, the average level of digital trade restrictiveness has decreased compared to the 2014 benchmark, although remains the highest of the four regions. In the LAC region, the regulatory environment has been relatively stable over time, with signs of liberalisation. The contrary is observed for the Asia-Pacific region, where the level of digital trade restrictiveness has increased over time. The same is true for OECD countries, especially for cross-cutting measures affecting all digital trade.

Figure.7. Trends in digital services trade restrictiveness



Note: Digital STRI and computer services STRI scores between 2014 and 2021.
Source: Author's calculations.

6. Mapping potential linkages between restrictiveness and digital performance

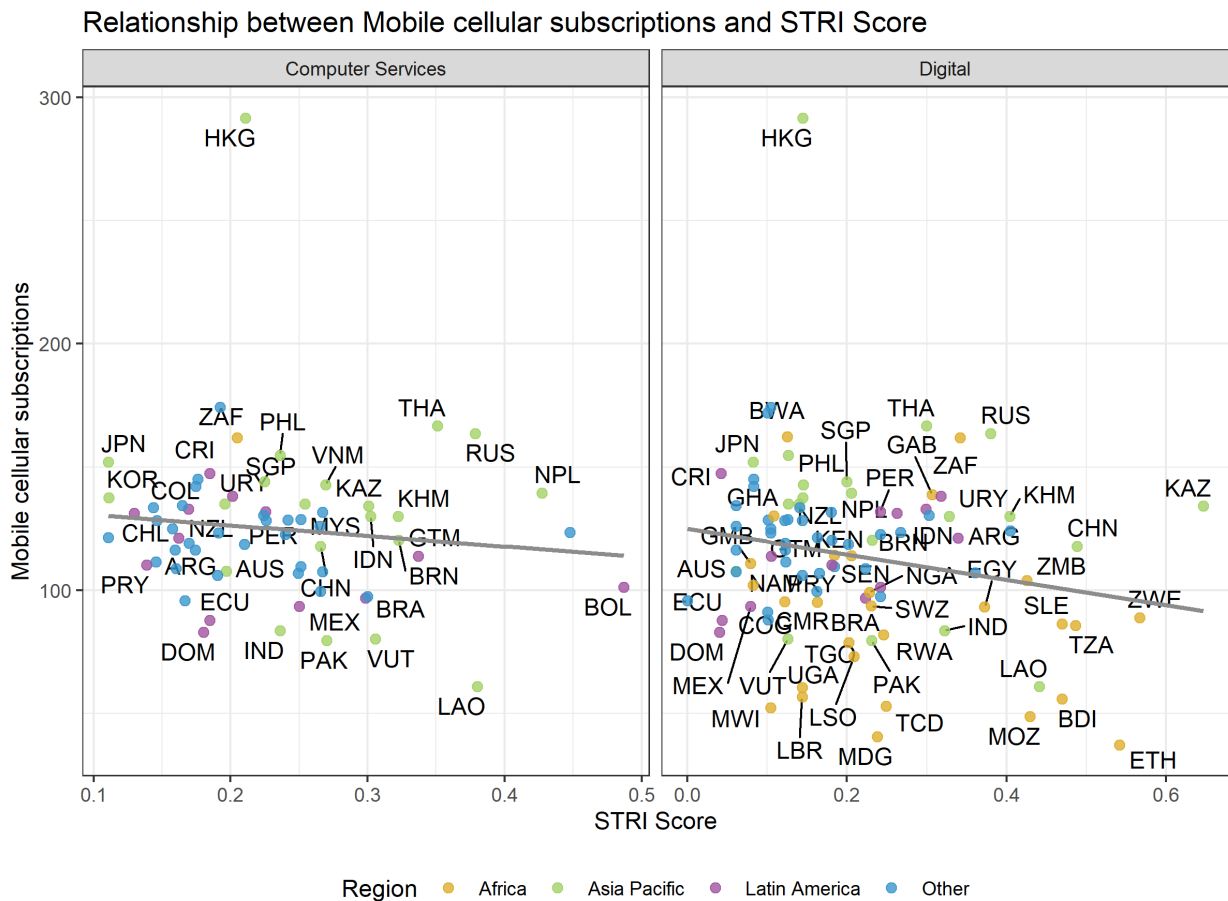
The STRIs offers a new dimension for mapping potential linkages between regulatory practices and digital performance.

This section provides a preliminary assessment of the linkages between regulatory practices and performance across three areas of digitalisation: (i) access to communication infrastructures, services and data; (ii) use of digital technologies; and (iii) market openness to digitally enabled services. Access is proxied by the number of mobile cellular subscriptions per 100 inhabitants in a country. The percentage of the population using the Internet is taken as a proxy for the use of digital technologies. Finally, market openness is captured by the share of “other commercial services” (imports plus exports) on total services trade (imports plus exports). The category “Other commercial services” is used here as a proxy of ICT-

enabled services²³. The first two variables are sourced from the World Bank World Development Indicators Database with underlying data provided by the International Telecommunication Union (ITU), while services trade data are sourced from the WTO.

As a first exercise, Figures 8, 9 and 10 plot the relationship between the selected indicators of digital performance and the STRI score for each country. Data are plotted for the latest year where both the performance indicator and the policy variable are available.

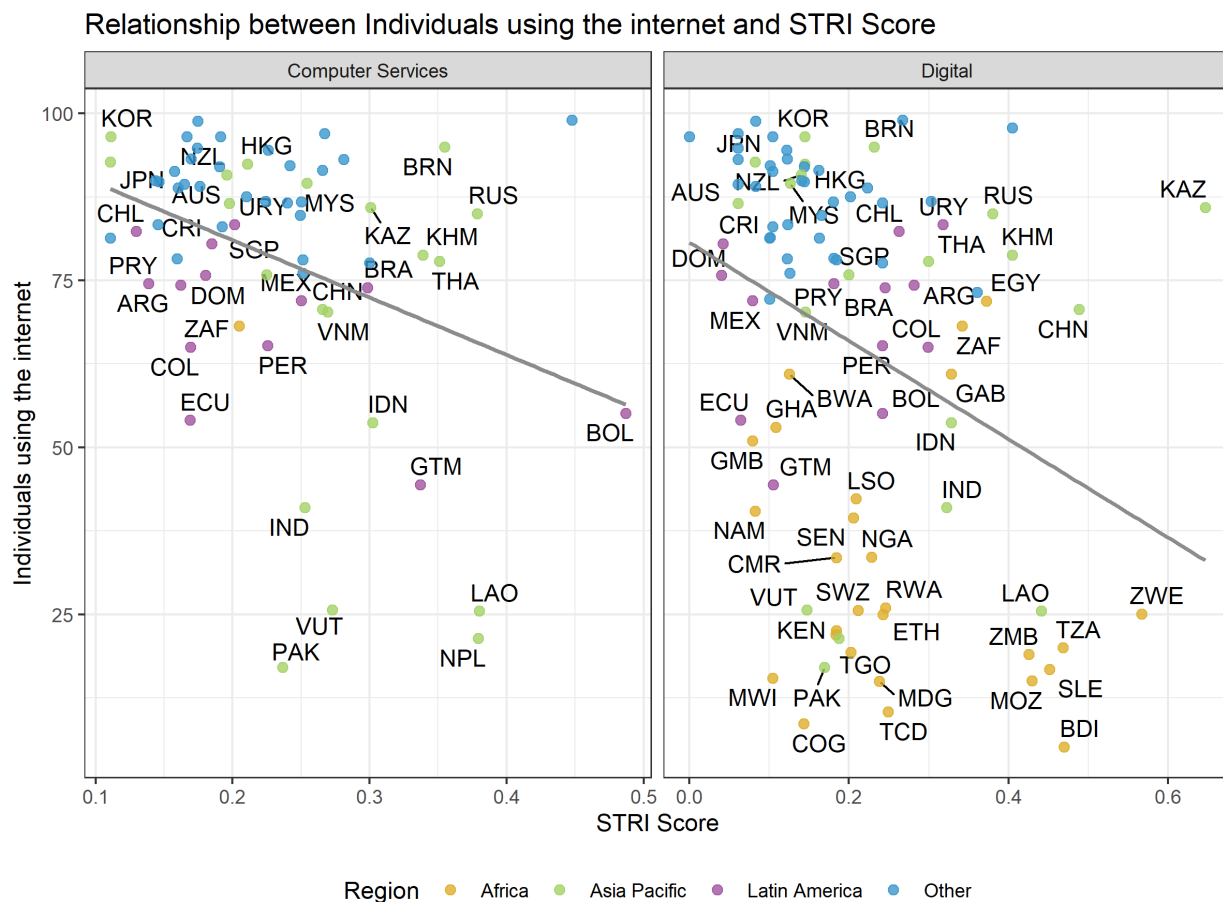
Figure 8. Restrictions to digital services trade and access



Note: The latest available year for which the number of Mobile Cellular Subscriptions (per 100 people) is observed is 2020 for most countries in the sample. It is 2017 for ETH, LBR, SWZ; 2018 for COG, MDG, NPL, NZL, PER; 2019 for KHM, LAO, MOZ, PHL, PRY, URY, USA.
 Source: STRI score from the OECD STRI database; Mobile Cellular Subscriptions (per 100 people) from the World Development Indicators Database of the World Bank.

²³ Most subgroups of “other commercial services” category (finance, insurance and pensions, telecommunications, charges for the use of property rights and other business services) are traded over the internet (Mode 1). This category also includes two subgroups (construction services, personal, cultural and recreational services) that are not considered IT enabled services. However, trade in both categories is very small compared to the rest of other commercial services, reducing a possible bias (Alvarez et al., 2021_[18]).

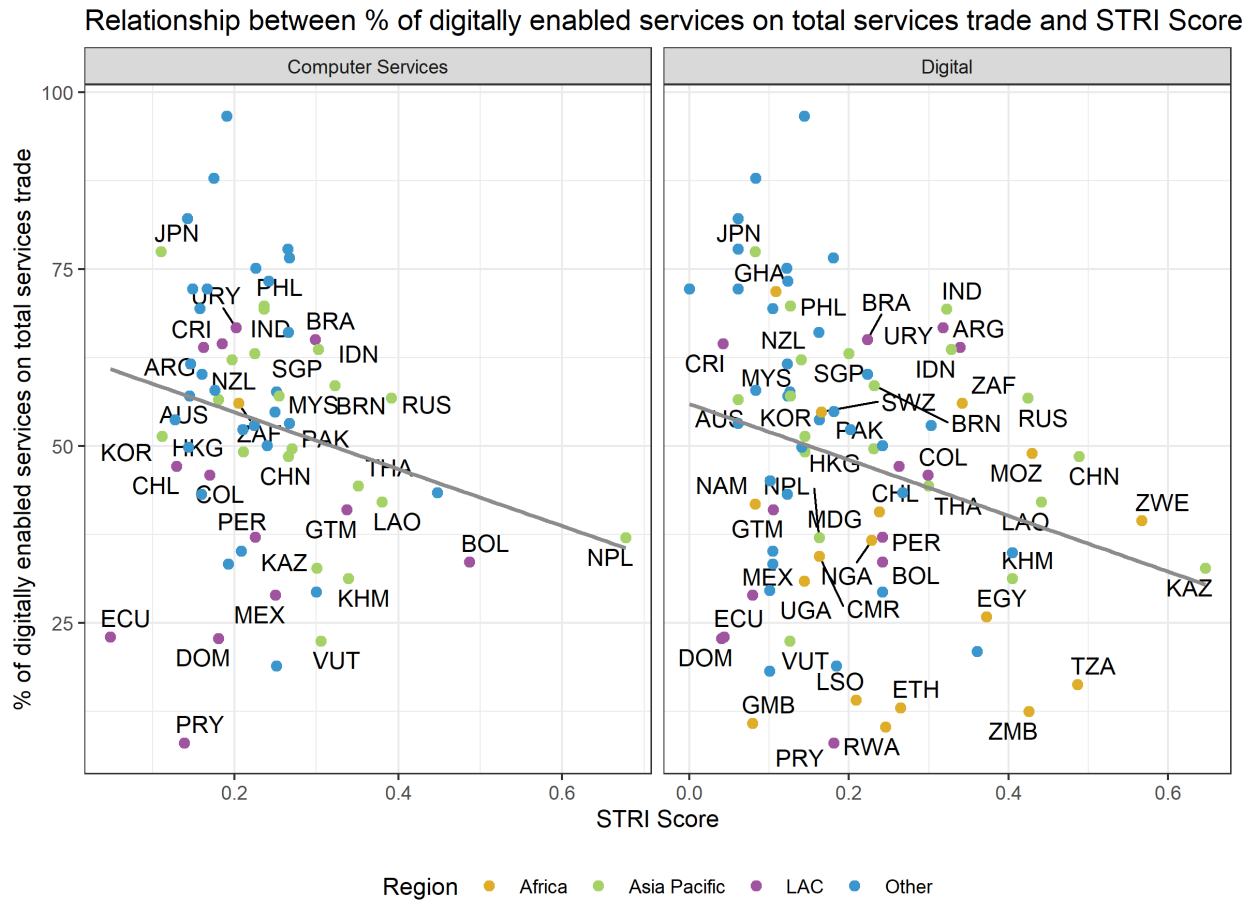
Figure 9. Restrictions to digital services trade and use of digital technologies



Note: The latest available year for which the number of Individuals using the internet (% population) is observed is 2020 for most countries in the sample. It is 2015 for SWZ; 2016 for ECU; 2017 for ARG, AUS, CHL, COG, LAO, NPL, NZL, VUT; 2018 for MDG; 2019 for BDI, BRA, BRN, BWA, CAN, CHE, CMR, COL, DOM, ETH, FRA, GAB, GHA, GMB, GTM, IND, ISL, ISR, ITA, JPN, KEN, LBR, LSO, MOZ, MWI, NAM, NGA, PAK, PHL, RWA, SEN, SLE, TGO, TZA, URY, USA, ZAF, ZMB.

Source: STRI score from the OECD STRI database; Individuals using the Internet (% population) from the World Development Indicators Database of the World Bank.

Figure 10. Restrictions to digital services trade and share of digitally enabled services



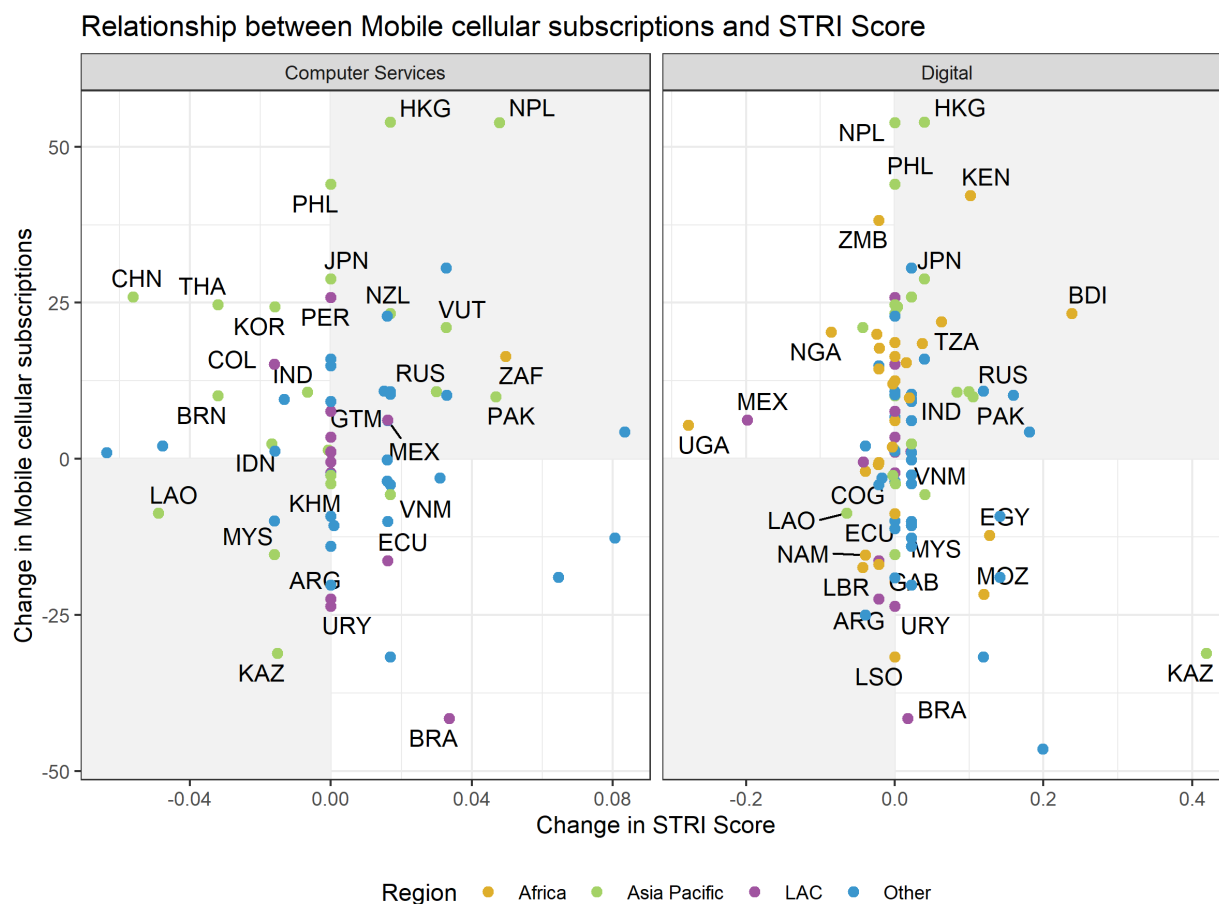
Note: The latest available year for which services trade values are observed is 2021 for almost all countries in the sample. It is 2020 for CMR and VUT. Source: STRI score from the OECD STRI database; Services trade data from the WTO database on commercial services imports and exports by main sector.

The figures show a significant heterogeneity in digital performance both across and within regions (for countries covered in the sample). Some of the lowest values of all outcome indicators are observed in the African sample, while the Asia Pacific sample tends to display the highest variation in digital performance outcomes.

In addition, policy regimes characterized by higher restrictions, as captured by the Digital STRI and the Computer Services STRI indicator (Figures 8, 9 and 10), tend to be associated with lower digital performance in terms of number of mobile cellular subscriptions per 100 people, share of population using the Internet, and share of “other commercial services” on total services trade.

Figure 11 plots the change in the number of mobile cellular subscriptions (on the vertical axis) against the change in the STRI (on the horizontal axis), both the Computer Services sectoral STRI (left panel) and the Digital STRI (right panel). Figures 12 and 13 replicate the same exercise focusing on the percentage share of population using the Internet and the share of other commercial services on total services trade, respectively.

Figure 11. Services trade reforms and changes in access



Note: Changes in each variable are computed as the difference in levels from the first to the last year for which both variables plotted in the chart are observed within the STRI sample period (from 2014 to 2021). The first value observed is always 2014. The last value is 2020 for most countries in the sample. It is 2017 for ETH, LBR, SWZ; 2018 for COG, MDG, NPL, NZL, PER; 2019 for KHM, LAO, MOZ, PHL, PRY, URY, USA.

Source: STRI score from the OECD STRI database; Mobile Cellular Subscriptions (per 100 people) from the World Development Indicators Database of the World Bank.

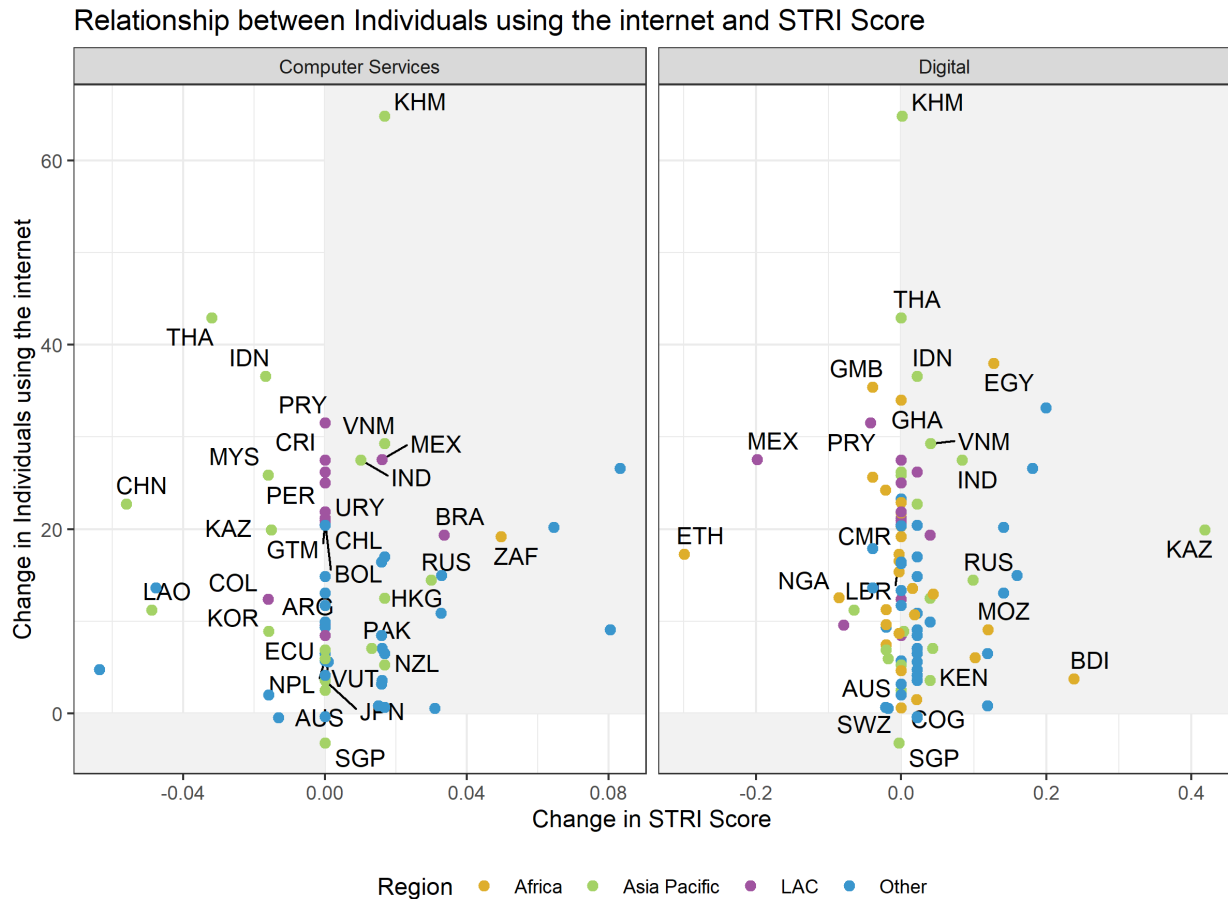
Four quadrants are highlighted in each of these graphs. The upper-left quadrant (in white) identifies countries where a decrease in policy restrictions (a negative change in the STRI) is associated with an increase in the outcome indicator. Points in the lower-right quadrant (also in white), represent those countries where the tightening of policy restrictions over the sample period is associated with a decrease in the outcome indicator. Turning to the two quadrants in grey, the upper right one identifies countries where both policy restrictions and the outcome indicator have increased, while points in the lower left panel represent countries where policy restrictions and the outcome have decreased during the sample period.

Figures 11, 12 and 13 show that quite a few countries did not implement any policy reform (many countries lie on the vertical 0 line, which denotes a 0 change between the first and last observation of the STRI variables). This pattern is a well-known regularity in STRI data, which reflects that applied services trade policy tends to be relatively stable over time for individual countries. More changes are observed in digital performance: the percentage of individuals using the Internet increased almost for all countries of the sample (Figure 12) while, by contrast, more negative changes in the number of mobile subscriptions are also observed across all regions in the data (Figure 11).

Moreover, the descriptive analysis presented in Figures 11, 12 and 13 highlights the presence of heterogeneous patterns in the way services trade policy reforms interacts with changes in digital performance across countries. This is consistent with existing evidence that shows how indeed the sign

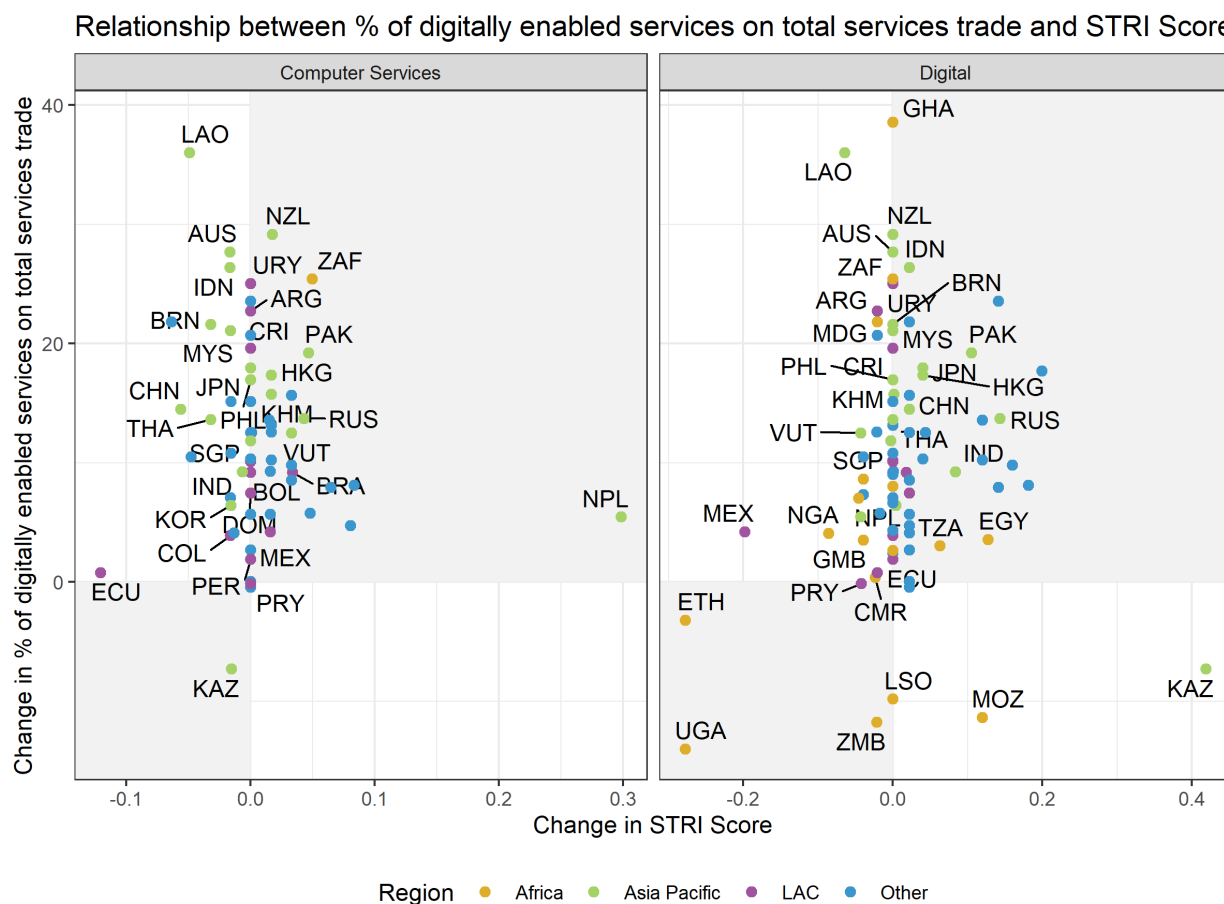
and magnitude of the causal effects of services trade policy can be conditional on other factors varying across countries and over time – such as the implementation of complementary policies, existing restrictions in other relevant sectors (e.g. telecommunication), income levels, or the quality of economic institutions (see among others (Beverelli, Fiorini and Hoekman, 2017_[17])).

Figure 12. Services trade reforms and changes in use



Note: Changes in each variable are computed as the difference in levels from the first to the last year for which both variables plotted in the chart are observed within the STRI sample period (from 2014 to 2021). The first value observed is always that of 2014 with one exception: it is 2018 for ZMB. The last year is 2020 for most countries in the sample. It is 2015 for SWZ; 2016 for ECU; 2017 for ARG, AUS, CHL, COG, LAO, NPL, NZL, VUT; 2018 for MDG; 2019 for BDI, BRA, BRN, BWA, CAN, CHE, CMR, COL, DOM, ETH, FRA, GAB, GHA, GMB, GTM, IND, ISL, ISR, ITA, JPN, KEN, LBR, LSO, MOZ, MWI, NAM, NGA, PAK, RWA, SEN, SLE, TGO, TZA, URY, USA, ZAF, ZMB. The figure does not include PHL as for this country the number of individuals using the internet is observed only for 2019 and it is therefore impossible to compute any time change.
 Source: STRI score from the OECD STRI database; Individuals using the Internet (% population) from the World Development Indicators Database of the World Bank.

Figure 13. Services trade reforms and changes in share of digitally enabled services



Note: Changes in each variable are computed as the difference in levels from the first to the last year for which both variables plotted in the chart are observed within the STRI sample period (from 2014 to 2021). The first value observed is always 2014. The last value is 2021 for almost all countries in the sample. It is 2020 for CMR and VUT.

Source: STRI score from the OECD STRI database; Services trade data from the WTO database on commercial services imports and exports by main sector.

Although not capturing causal relationships, this exercise can be used to identify cases where reductions in restrictions on digital performance have been concurrent with improvements in digital performance (upper left quadrant), as well as those where this fails to be the case (lower left quadrant). The latter might be cases where policy action could be targeted to trigger or maximize the positive effect of liberalization.

Further research to estimate the causal effect of STRI on the use and access dimensions of digital performance can continue to reveal the impact of services trade policy reforms.

7. Way forward

The global regulatory environment for digital services trade continues to evolve quickly. Updating, maintaining, and improving the Digital STRI and STRI for computer services is a priority for the OECD, and will continue to be in the future.

Continued exchanges and collaboration between the ECA, ESCAP and ECLAC and the OECD will aim to expand the current work and advance the analytical application of the new data presented in this report in order to inform relevant regional and multilateral discussions, and to foster a better understanding of existing and emerging barriers to digital services trade.

References

- Alper, E. and M. Miktus (2019), “Digital Connectivity in sub-Saharan Africa: A Comparative Perspective”, *International Monetary Fund*, Vol. 2019/210, p. 44, <https://doi.org/10.5089/9781513514604.001>. [15]
- Alvarez, M. et al. (2021), “Governance and export performance of modern services in Latin America and India”, *CEPAL*, <https://www.cepal.org/fr/node/54652>. [18]
- Andrenelli, A. and J. López González (2019), “Electronic transmissions and international trade - shedding new light on the moratorium debate”, *OECD Trade Policy Papers*, No. 233, OECD Publishing, Paris, <https://dx.doi.org/10.1787/57b50a4b-en>. [10]
- Beverelli, C., M. Fiorini and B. Hoekman (2017), “Services trade policy and manufacturing productivity: The role of institutions”, *Journal of International Economics*, Vol. 104, pp. 166-182, <https://doi.org/10.1016/j.jinteco.2016.11.001>. [17]
- CAF, ECLAC and OECD (2020), “DIGITAL TRANSFORMATION FOR BUILDING BACK BETTER”, *Latin American Economic Outlook*, <https://doi.org/9789264593466>. [16]
- ECA & IEC (2021), “Reactions and Outlook to COVID-19 in Southern Africa”, https://www.uneca.org/sites/default/files/uploaded-documents/ATPC/reactions-and-outlook-to-covid-19/COVID-19_Africa-Impact-Survey_March2021_Final_English_Release_22042021.pdf. [14]
- Ferencz, J. (2019), “The OECD Digital Services Trade Restrictiveness Index”, *OECD Trade Policy Papers*, No. 221, OECD Publishing, Paris, <https://dx.doi.org/10.1787/16ed2d78-en>. [4]
- Frederick, L. (2014), “Impact of Mobile Money Usage on Microenterprise Evidence from Zambia”, *Master’s Theses*. 92, <https://repository.usfca.edu/thes/92>. [13]
- Korinek, J., E. Moïsé and J. Tange (2021), “Trade and gender: A Framework of analysis”, *OECD Trade Policy Papers*, No. 246, OECD Publishing, Paris, <https://dx.doi.org/10.1787/6db59d80-en>. [11]
- López González, J. and J. Ferencz (2018), “Digital Trade and Market Openness”, *OECD Trade Policy Papers*, No. 217, OECD Publishing, Paris, <https://dx.doi.org/10.1787/1bd89c9a-en>. [6]
- López González, J. and M. Jouanjean (2017), “Digital trade: Developing a framework for analysis”, *OECD Trade Policy Papers*, No. 205, OECD Publishing, Paris, <https://dx.doi.org/10.1787/524c8c83-en>. [1]
- López González, J. and M. Jouanjean (2017), “Digital Trade: Developing a Framework for Analysis”, *OECD Trade Policy Papers*, No. 205, OECD Publishing, Paris, <https://dx.doi.org/10.1787/524c8c83-en>. [5]
- López González, J. and S. Sorescu (2021), “Trade in the time of parcels”, *OECD Trade Policy Papers*, No. 249, OECD Publishing, Paris, <https://dx.doi.org/10.1787/0faac348-en>. [7]
- López González, J. and S. Sorescu (2019), “Helping SMEs internationalise through trade facilitation”, *OECD Trade Policy Papers*, No. 229, OECD Publishing, Paris, <https://dx.doi.org/10.1787/2050e6b0-en>. [9]

- Lopez-Gonzalez, J. and S. Sorescu (2021), *Seizing opportunities for digital trade*, [3]
<https://www.oecd-ilibrary.org/sites/ce08832f-en/1/3/3/8/index.html?itemId=/content/publication/ce08832f-en&csp=17c2a7153f8f3e72e475ec60ee15c40c&itemIGO=oecd&itemContentType=book>.
- OECD (2020), *Getting goods across borders in times of COVID-19*, *OECD Policy Responses to Coronavirus (COVID-19)*, [8]
<https://www.oecd.org/coronavirus/policy-responses/getting-goods-across-borders-in-times-of-covid-19-972ada7a>.
- OECD (2020), "Leveraging digital trade to fight the consequences of COVID-19", *OECD Policy Responses to Coronavirus (COVID-19)*, OECD, Paris, [2]
<https://doi.org/10.1787/f712f404-en>.
- UNCTAD (2021), "Digital Economy Report 2021. Cross-border data flows and development: For whom the data flow", [12]
<https://doi.org/978-92-1-113022-5>.

Annex A. Description of the Digital STRI and STRI framework

The Digital Services Trade Restrictiveness Index (Digital STRI) framework

- *Infrastructure and connectivity*: This policy area maps the extent to which best practice regulations on interconnection among network operators are applied to ensure seamless communication. It also captures measures limiting or blocking the use of communications services, including Virtual Private Networks or leased lines. Lastly, this area covers policies that affect connectivity such as measures on cross-border data flows and data localisation.
- *Electronic transactions*: This area covers issues such as discriminatory conditions for issuing licenses for e-commerce activities, the possibility for online tax registration and declaration for non-resident firms, deviation from internationally accepted rules on electronic contracts, measures inhibiting the use of electronic authentication (such as electronic signature), and the lack of effective dispute settlement mechanisms.
- *Payment systems*: This area captures measures that affect payments made through electronic means. It includes measures related to access to certain payment methods and assesses whether domestic security standards for payment transactions are adopted in line with international standards. Lastly, it also covers restrictions related to Internet banking not covered in other areas.
- *Intellectual property rights*: This area covers domestic policies related to copyright and trademark protection that do not afford foreigners equal treatment. It also maps the existence of appropriate enforcement mechanisms to address infringements related to copyrights and trademarks, including those occurring online.
- *Other barriers affecting trade in digitally enabled services*: This area covers various other barriers to digital trade, including, among others, performance requirements affecting cross-border digital trade (e.g. mandatory use of local software and encryption or mandatory technology transfers); limitations on downloading and streaming; restrictions on online advertising; commercial or local presence requirements; and lack of effective redress mechanisms against anti-competitive practices online.

The Services Trade Restrictiveness Index (STRI) framework for computer services

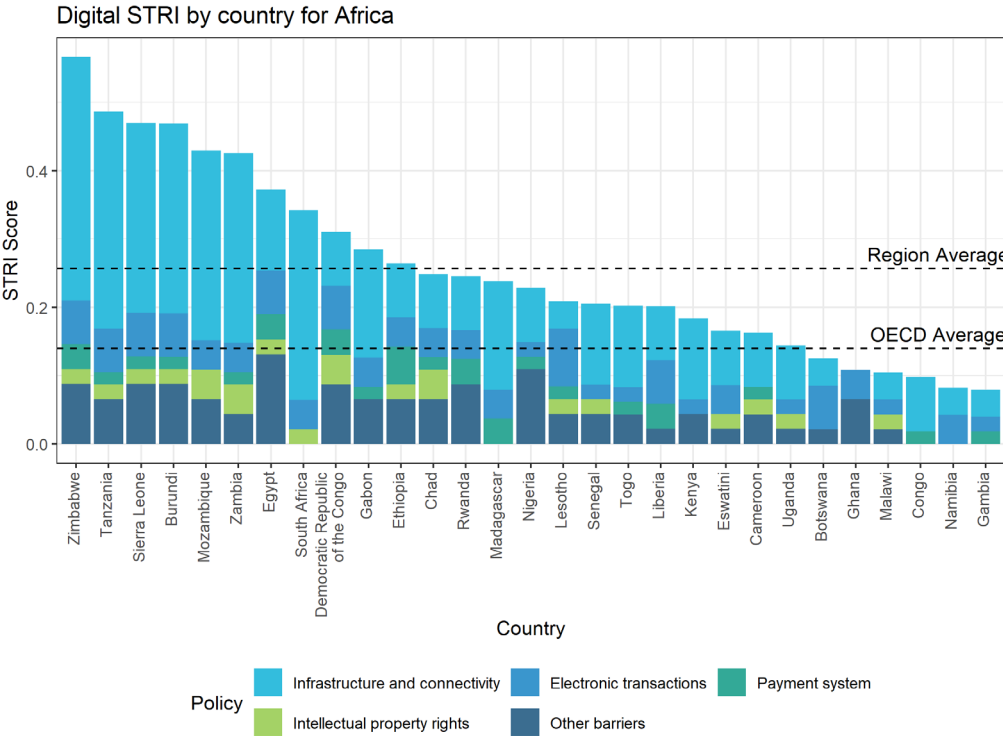
- *Restrictions on foreign entry*: This policy area includes foreign equity restrictions, limits to the proportion of shares that can be acquired by foreign investors in publicly controlled firms, restrictions on legal form and other corporate requirements that limit the possibilities for foreign companies to invest in the economy. This policy area also looks at screening requirements, limitations to the acquisition and use of land, conditions on subsequent transfer of shares, performance requirements and commercial and local presence requirements. Restrictions to the international transfer of personal data are also scored under this policy area.
- *Restrictions to the movement of people*: This area includes quotas and labour market tests to hire foreign nationals, license requirement to provide a service as well as the existence of a process to recognise qualifications gained abroad.
- *Other discriminatory measures*: This area includes discriminatory treatment regarding tax or access to public tenders. Other restrictions affecting foreign companies regarding public procurement are also scored here.
- *Barriers to competition*: This area includes measures relating to the competition framework in the economy, including the possibility for firms to have redress when business practices restrict competition in a given market, the existence of an appeal procedure against decisions from the regulatory body, as well as the existence of state owned enterprises in the sector and whether

these are exempted from the general laws on competition. Other measures such as the regulation or fees or prices or restrictions on advertising are also scored here.

- *Regulatory transparency*: This area includes diverse regulations from transparency in the legislative process to transparency in the granting business visa.

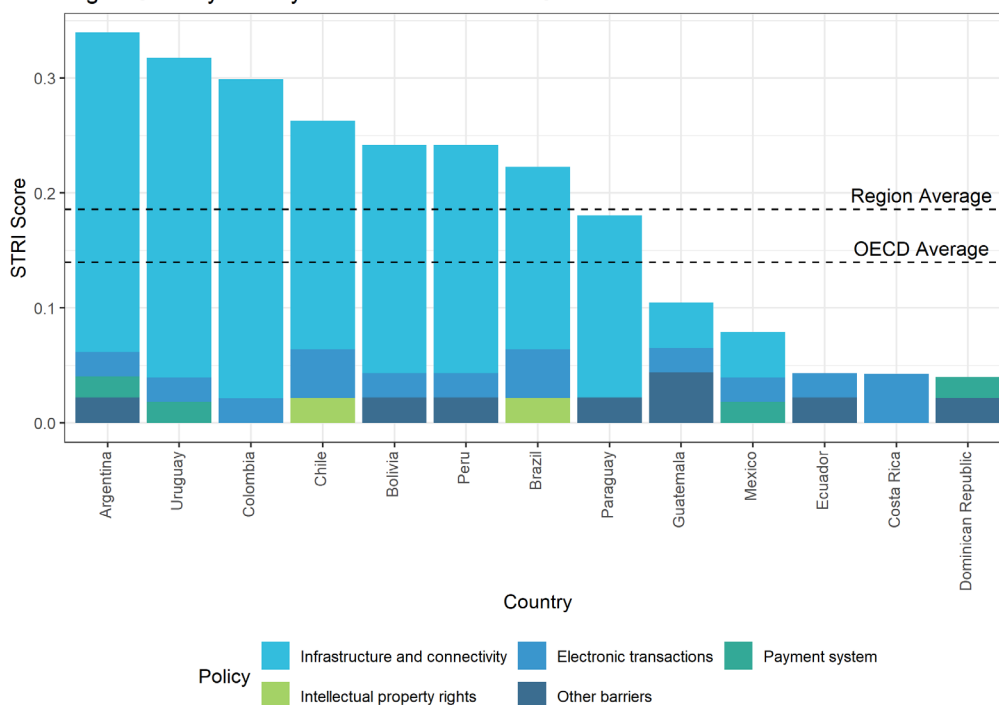
Annex B. Digital STRI and STRI results by region

Africa

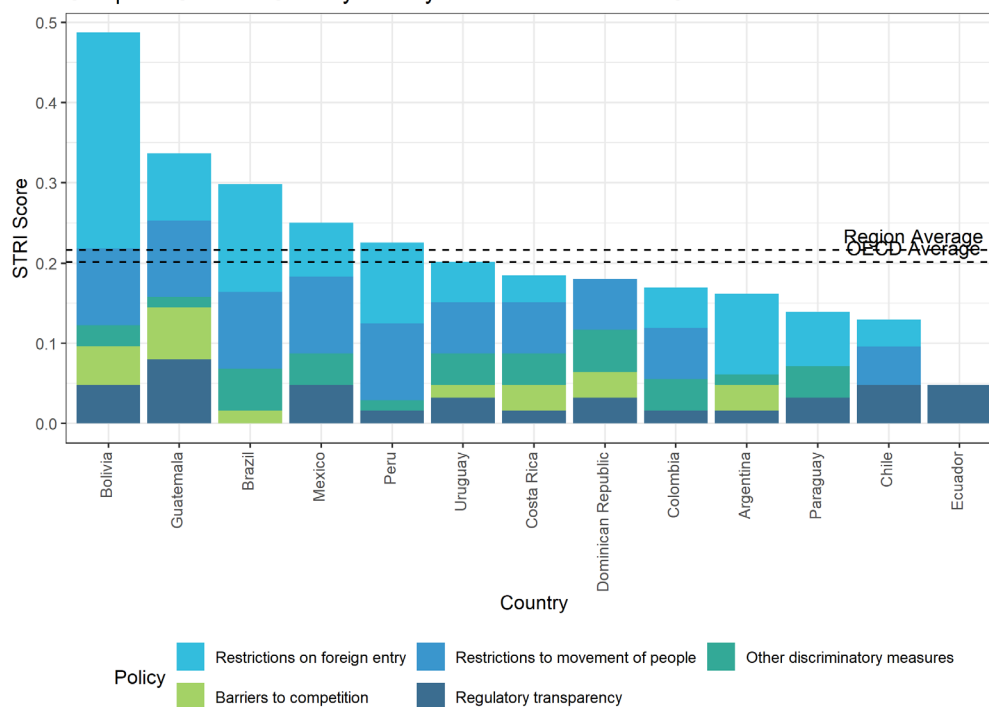


Latin America

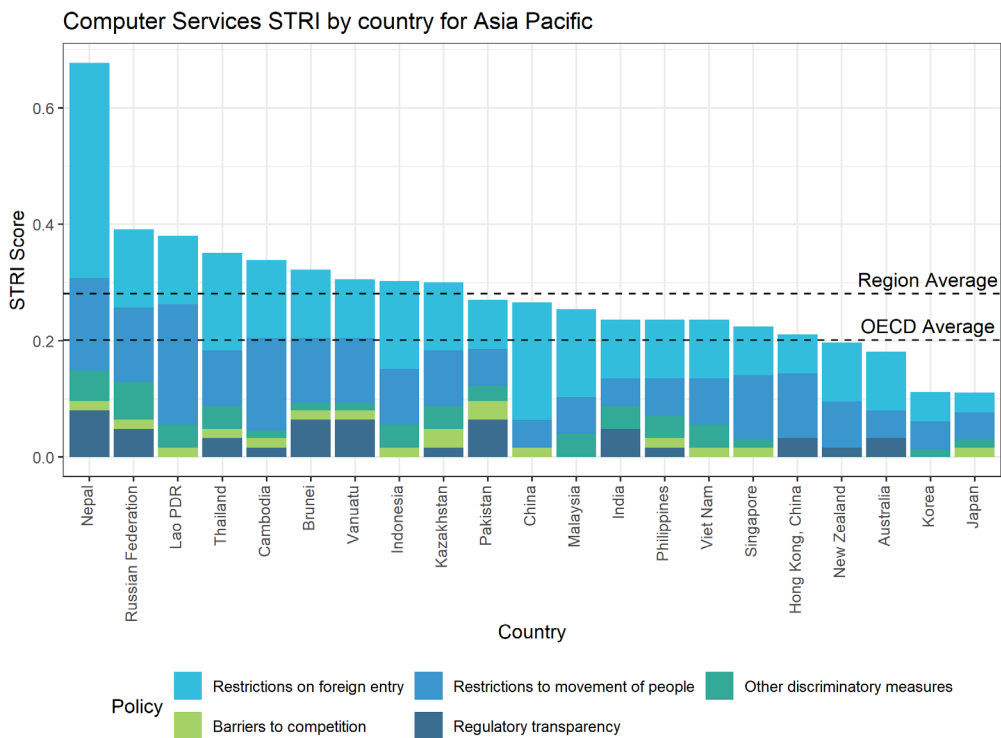
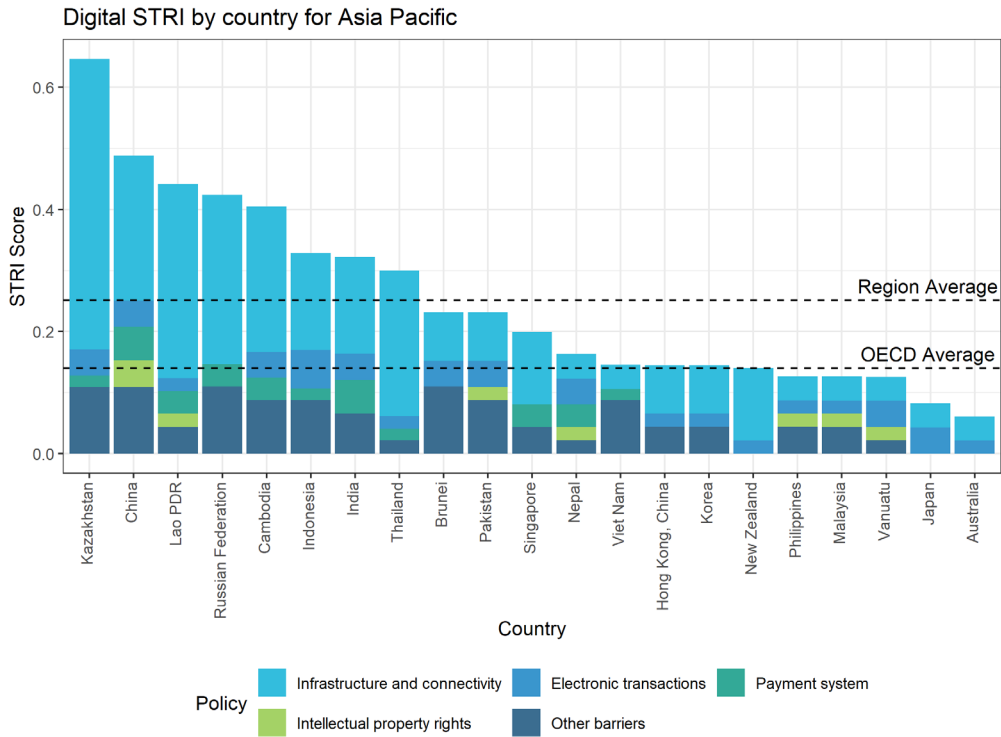
Digital STRI by country for Latin America and Caribbean



Computer Services STRI by country for Latin America and Caribbean



Asia Pacific



Annex C. Country Code List

Code	Country	Region
ARG	Argentina	Latin America
AUS	Australia	Asia Pacific
BDI	Burundi	Africa
BOL	Bolivia	Latin America
BRA	Brazil	Latin America
BRN	Brunei	Asia Pacific
BWA	Botswana	Africa
CHL	Chile	Latin America
CHN	China	Asia Pacific
CMR	Cameroon	Africa
COG	Congo - Brazzaville	Africa
COL	Colombia	Latin America
CRI	Costa Rica	Latin America
DOM	Dominican Republic	Latin America
DRC	Democratic Republic of the Congo	Africa
ECU	Ecuador	Latin America
EGY	Egypt	Africa
ETH	Ethiopia	Africa
GAB	Gabon	Africa
GHA	Ghana	Africa
GMB	Gambia	Africa
GTM	Guatemala	Latin America
HKG	Hong Kong, China	Asia Pacific
IDN	Indonesia	Asia Pacific
IND	India	Asia Pacific
JPN	Japan	Asia Pacific
KAZ	Kazakhstan	Asia Pacific
KEN	Kenya	Africa
KHM	Cambodia	Asia Pacific
KOR	Korea	Asia Pacific
LAO	Lao PDR	Asia Pacific
LBR	Liberia	Africa
LSO	Lesotho	Africa
MDG	Madagascar	Africa
MEX	Mexico	Latin America
MOZ	Mozambique	Africa
MWI	Malawi	Africa
MYS	Malaysia	Asia Pacific
NAM	Namibia	Africa
NGA	Nigeria	Africa
NPL	Nepal	Asia Pacific
NZL	New Zealand	Asia Pacific
PAK	Pakistan	Asia Pacific
PER	Peru	Latin America
PHL	Philippines	Asia Pacific
PRY	Paraguay	Latin America
RUS	Russian Federation	Asia Pacific
RWA	Rwanda	Africa
SEN	Senegal	Africa
SGP	Singapore	Asia Pacific
SLE	Sierra Leone	Africa
SWZ	Eswatini	Africa
TCD	Chad	Africa
TGO	Togo	Africa
THA	Thailand	Asia Pacific
TZA	Tanzania	Africa
UGA	Uganda	Africa

Code	Country	Region
URY	Uruguay	Latin America
VNM	Viet Nam	Asia Pacific
VUT	Vanuatu	Asia Pacific
ZAF	South Africa	Africa
ZMB	Zambia	Africa
ZWE	Zimbabwe	Africa

