Chapter 2. Enabling Digital Trade: Key Drivers and Constraints

Introduction

Digital trade holds considerable promise for driving economic growth and job creation in LAC. However, as shown in chapter 1, its relative importance in the region remains lower than in many other parts of the world. The question then naturally arises as to how LAC countries can participate more in digital trade and fully unlock its benefits. Addressing this question and designing a consistent, effective policy agenda requires identifying the factors that shape countries' abilities to engage in this growing, increasingly important trade modality. These factors include elements of the digital business environment, such as the degree of openness of relevant sectors; the availability and quality of digital infrastructure and resulting levels of connectivity; policy interventions that affect specific sources of trade costs (e.g., administrative border processing costs, information frictions); and firms' capabilities and means of operating, including digital skills and access to finance. Specifically, these factors are:

- trade regimes in backbone goods and services sectors,
- policies and regulations governing digital trade,
- digital infrastructure and connectivity,
- cross-border digital payment systems determining international financial transaction costs,
- logistic services and border agencies' procedures determining transport and administrative processing costs, including delivery and border times,
- export promotion policies determining the severity of information frictions,
- firms' capabilities and digital skills, and
- firms' access to finance.

The order in which the specific factors appear in the above list does not necessarily reflect their relative importance; rather, it corresponds to the conceptual framework used to organize and categorize them. Indeed, their relative importance is likely to vary according to each country's development stage, structural characteristics, and policy challenges.

Box 2.1 presents new empirical evidence on the role of a subset of these factors in shaping digital trade, specifically those for which consistent data are available across a large set of countries over time. This evidence indicates that digital regulations, regional trade agreements (RTAs) with services provisions, digital infrastructure, tax treaties, and skill endowments matter for trade in digitally delivered services. More

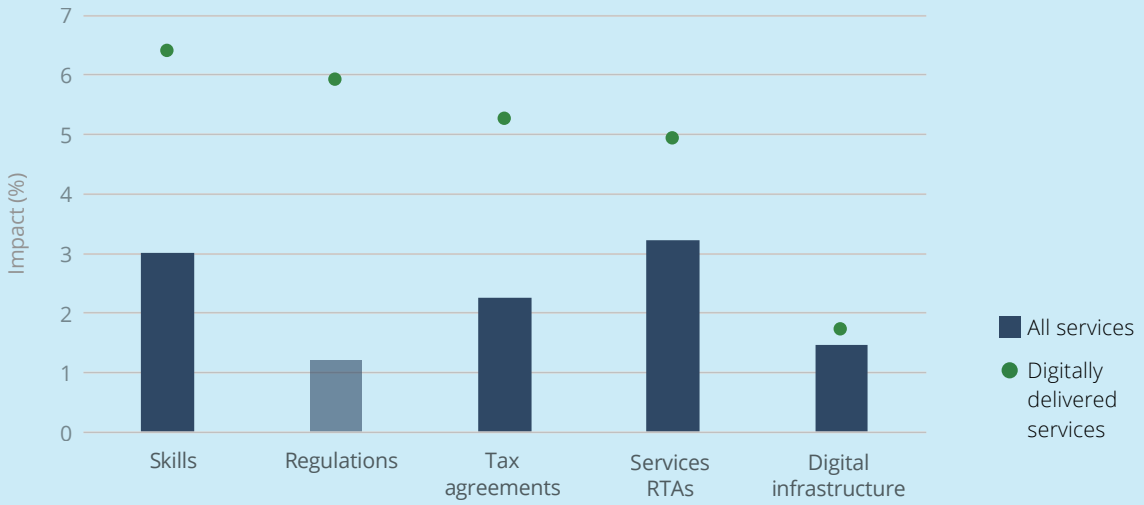
precisely, other things being equal, economies tend to export more digitally delivered services when they have more effective digital regulations, larger networks of preferential trade agreements covering services and tax treaties, better digital infrastructure, and larger shares of skilled workers.

BOX 2.1. Enabling factors for digitally delivered services trade

Factors such as regulations, trade agreements, infrastructure, taxation, and skills have been found to be critical determinants of digitally delivered services trade. A new empirical analysis covering 73 countries from 2014 to 2023 (Rocha et al., 2026) finds that digital trade regulations, including measures related to telecommunications or digital infrastructure and electronic transactions, shape services trade, including when conducted electronically. A 1% improvement in countries' regulatory scores in these areas is associated with a 5.9% increase in digital services exports. The same holds for RTAs that include services disciplines. In this case, the digital export gains associated with a 1% increase in the number of RTAs would amount to 4.9%. Enhancements in digital infrastructure can also boost services trade. Thus, a 1% increase in the number of internet servers per inhabitant is associated with a 1.5% expansion in total services trade and a 1.7% expansion in digital services trade. In the same vein, bilateral or plurilateral double taxation treaties (DTTs) are also correlated with digital trade flows, with potential export gains of up to 5.3%. These findings suggest that DTTs help support this trade by preventing income from being taxed twice, reducing compliance costs, providing legal certainty, and encouraging investment.[24] Finally, increasing the share of the population with postsecondary degrees by 1% is associated with a 3% expansion in overall services trade and a 6.5% increase in digital services trade.

24 This report does not include a discussion of DTTs. Based on the evidence provided by the analysis in box 2.1 and direct insights from the private sector, the IDB Group and the World Bank recommend strengthening DTTs and promoting international cooperation and information exchange in tax matters as important components of a digital trade strategy.

FIGURE D. Estimated average impact of select determinants on services and digitally delivered services exports (% shares)



Note: Average effects correspond to a 10-standard-deviation increase in the determinant variable. All coefficients are significant at the 1% level, except for digital infrastructure (significant at the 5% level) and regulations for all services sectors (not significant). Regulations are measured using the OECD Digital Services Trade Restrictiveness Index (a higher value denotes greater trade restrictions). Services RTAs and DTTs refer to the total number of RTAs covering services and tax agreements, respectively. Digital infrastructure is proxied by the number of secure internet servers per capita. Skills are proxied by the share of the labor force with at least a postsecondary degree. Admittedly, some determinants of digital trade identified in this chapter could not be considered in this analysis (e.g., cross-border digital payments, customs and logistics, and firm capabilities). This should not be interpreted as implying that these factors are less relevant.

The impact is pronounced particularly in the following sectors:

- financial services,
- charges for the use of intellectual property rights (e.g., patents, trademarks, licensing agreements, copyright),
- ICT services,
- audiovisual and related services, and
- other business services (e.g., R&D and professional services).

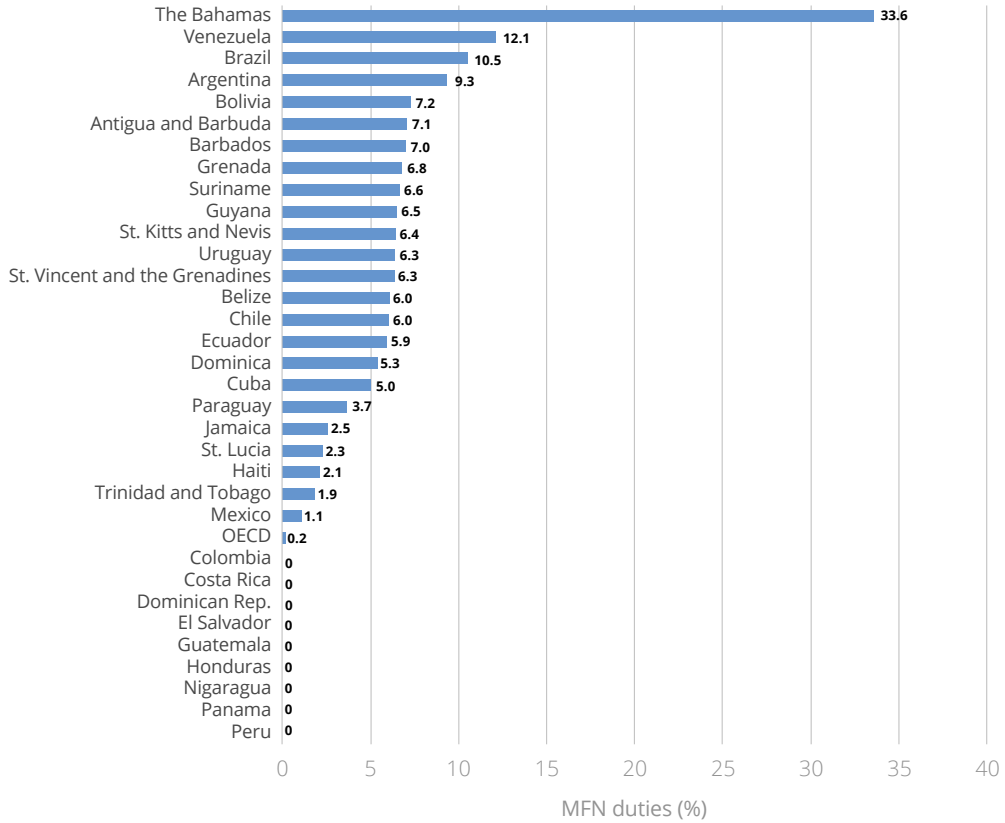
Source: Rocha et al. (2026).

Trade regimes in backbone goods and services sectors

The backbone infrastructure for digital trade comprises a wide range of ICT goods, such as computers, mobile phones, telecommunications equipment, and semiconductors, as well as telecom and computer services, and a number of other enabling services. An open trade regime can lower the costs of these goods and services, promote greater use and adoption of technology worldwide, and thus foster digital trade. The impact is even greater when this liberalization is bound in trade agreements, as these provide stronger safeguards against trade-restrictive policy reversals.

Nine LAC countries (Colombia, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and Peru) have joined the WTO's Information Technology Agreement (ITA) and eliminated (and bound) tariffs on ICT-covered goods. For the rest of the region, applied tariffs range from 1% in Mexico to more than 10% in countries such as Brazil, with most in the 4%–8% range (figure 2.1).

FIGURE 2.1. Average most-favored-nation applied duties on ICT goods in LAC, 2024 (%)

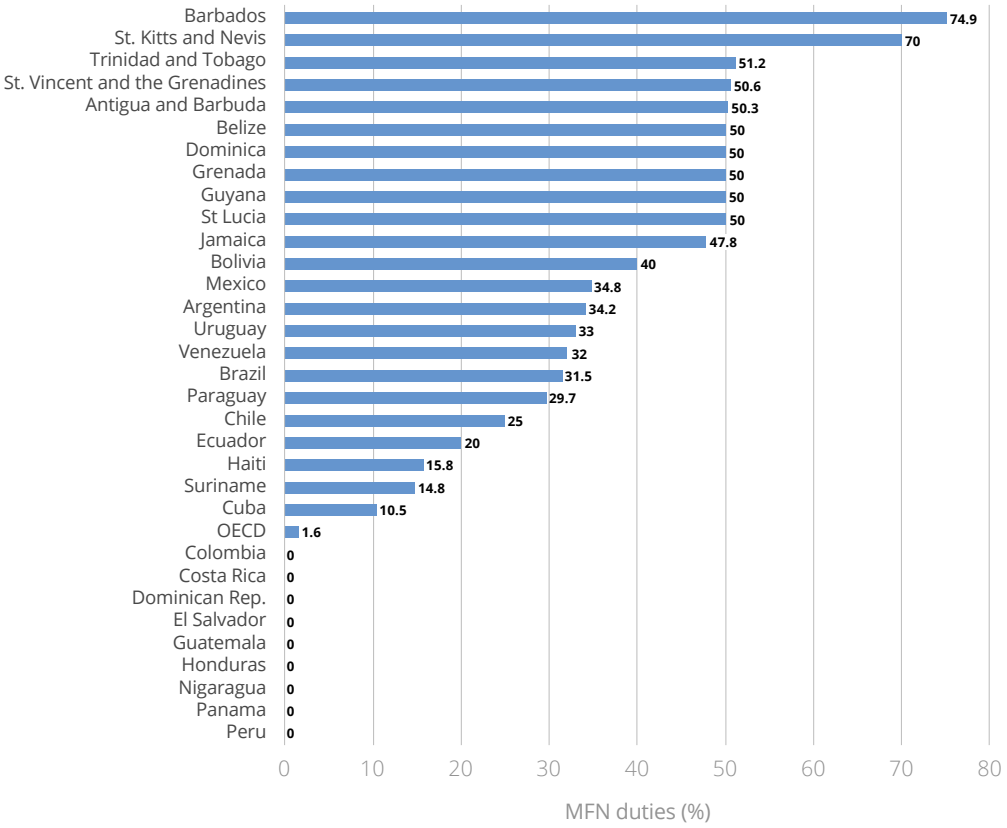


Note: ICT goods are those covered under the WTO's ITA. EU Member States are counted individually.

Source: WTO Analytical Database.

Nevertheless, most non-ITA signatories in LAC have also bound the most-favored-nation tariffs on ITA products in their respective General Agreement on Tariffs and Trade (GATT) schedules of concessions, except for Cuba, Haiti, and Suriname. By doing so, they have set an upper limit for those tariffs and increased predictability for businesses. Still, the average bound duties on ITA goods in the region are rather high, with most countries having set them at above 30% (figure 2.2).

FIGURE 2.2. Average most-favored-nation bound duties on ICT goods in LAC, 2024 (%)



Note: ICT goods are those covered under the WTO's ITA. EU Member States are counted individually.

Source: WTO Analytical database.

Services are another critical backbone of digital trade. Telecommunications, postal and courier services, distribution, computer services, financial services, and transport and logistics are some of the key sectors that support digital trade.[25] A typical digital trade "value chain" would start with a consumer accessing

25 Digitally ordered goods trade relies on rapid delivery. Although rail and especially maritime freight services do not offer fast connectivity, they remain a critical backbone of digital trade, as online distribution platforms frequently rely on inventory shipped by sea to storage and warehousing facilities in major consumer markets to fulfil international digital orders.

the internet (telecommunication services), performing an internet search (computer services), buying a product online, probably from a platform (distribution of goods and payment services), having the good physically delivered (postal, courier, transport, and logistics services), or having the product digitally delivered (telecommunication services).

Open trade regimes in backbone services have a positive impact on digital trade. Thus, for instance, open telecommunications markets that enable the entry of new firms and strengthen competition have been found to result in lower prices, higher-quality services, and higher broadband internet penetration rates (World Bank and WTO, 2023). This enables a larger number of firms and consumers to be digitally connected, thereby fostering internet use and increasing digital trade.

The World Bank–WTO Services Trade Restrictions Index (STRI) provides a synthetic measurement of the restrictiveness of applied services trade regimes. The index covers 134 economies, including 13 in LAC—Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Jamaica, Mexico, Panama, Peru, and Uruguay (World Bank and WTO, 2026). The STRI assesses policies such as discriminatory measures, quantitative restrictions, and other impediments, including inadequate regulatory or competition policies. The index ranges from 0 (completely open) to 100 (totally closed).[26]

LAC's STRIs in backbone services sectors reveal that the region generally has a more open trade policy regime than the rest of the world. For instance, in the telecommunications and computer services sectors, the average STRIs for the region are lower (i.e., more open) than the global average (figure 2.3.a), except for mobile telecommunications services. Uruguay and Ecuador are among the countries with the most liberal regimes. Nevertheless, some LAC countries' STRI scores exceed 50, indicating that substantial restrictions remain—such as nationality requirements on boards of directors or employees, screening of foreign investment, and restrictions on cross-border data flows—or that there is an absence of procompetitive rules—such as regulations on resale rates and conditions, number portability, or a specific statute on competition.

LAC's applied trade regime in postal and courier services, road, rail, and maritime freight transport is also quite open compared to both the global average and that of OECD countries. Conversely, the trade policy environment for distribution services, especially retail distribution, is more restrictive than the global average (figures 2.3.b and 2.3.c). Still, there is variation across the LAC countries covered by the index. For instance, Argentina, Chile, Brazil, Panama, and Costa Rica have relatively restricted regimes in road freight transport, whereas Jamaica and Panama are relatively more closed in rail freight transport, reflecting the presence of monopolies. Finally, the region fares comparatively well in the openness of the commercial

26 STRI database available at https://itip-services-worldbank.wto.org/default.aspx.

banking sector, which includes payment services.[27] Costa Rica and Uruguay have the most liberal regimes in LAC, while Mexico and Argentina have the least (figure 2.3.d).

FIGURES 2.3. Openness of digital trade–enabling service sectors in LAC, OECD economies, and globally, by sector

Figure 2.3.a. ICT services

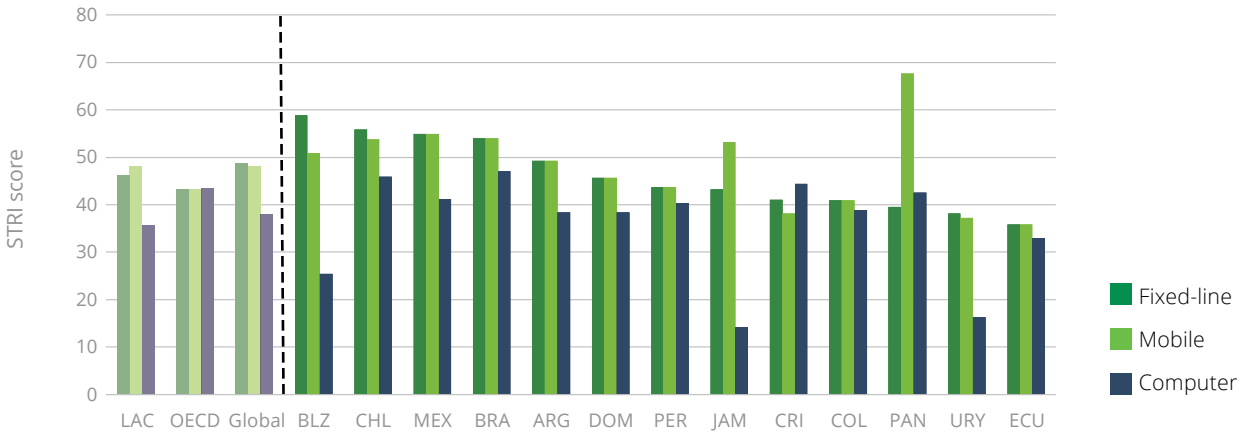
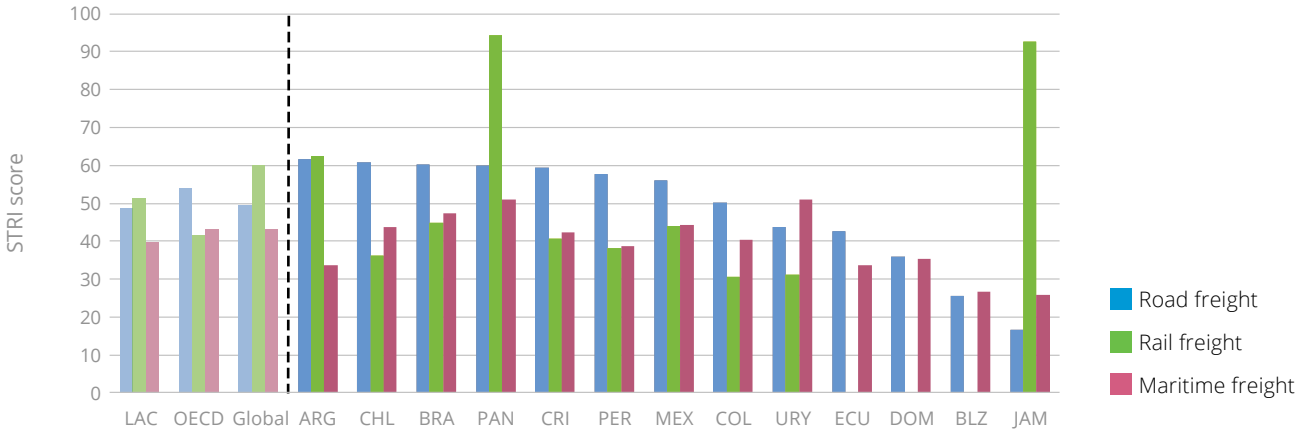


Figure 2.3.b. Freight transport services



27 For the STRI, commercial banking services includes most services supplied by banks, such as acceptance of deposits and other repayable funds from the public, lending of all types, financial leasing, guarantees and commitments, and payment and money transmission services.

Figure 2.3.c. Distribution and postal and courier services

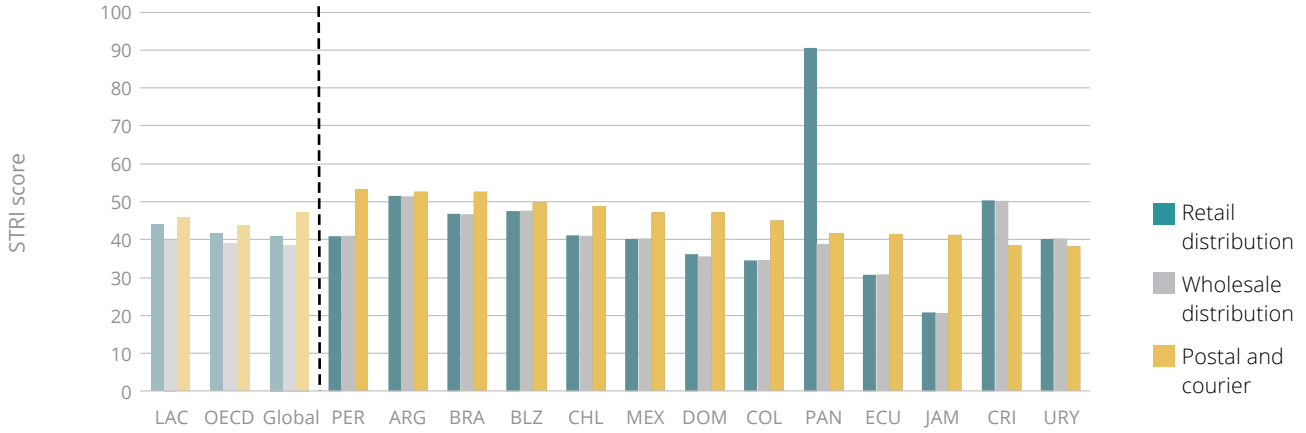
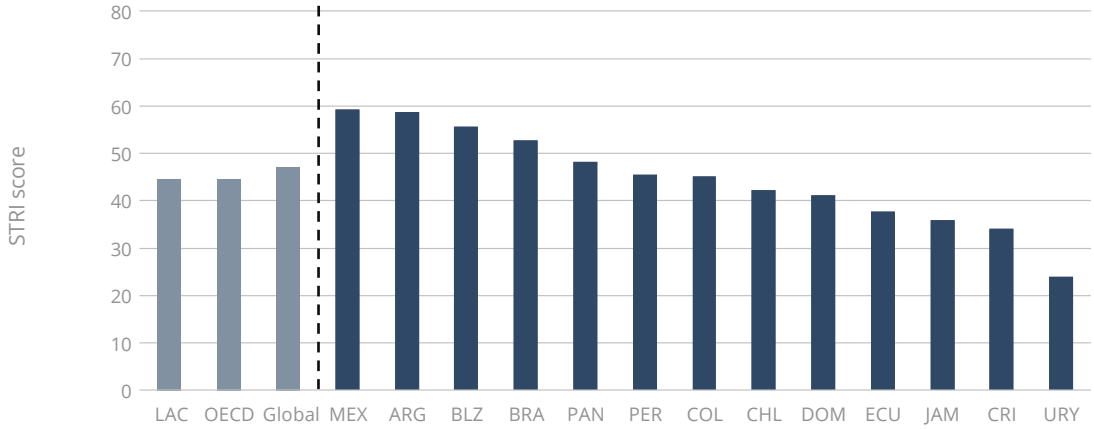


Figure 2.3.d. Commercial banking services



Notes: The global STRI is the average score across 134 economies in the World Bank–WTO database as of February 2025. STRI scores for rail freight services are not calculated for the Dominican Republic, Ecuador, and Belize.

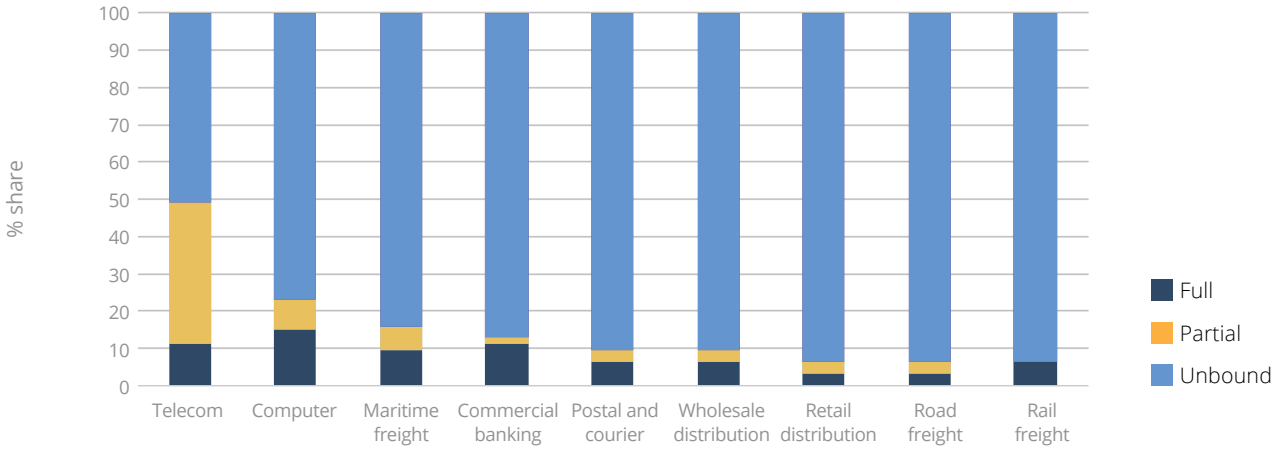
Source: Authors' calculations using the World Bank–WTO STRI. See https://itip-services-worldbank.wto.org/default.aspx.

The General Agreement on Trade in Services (GATS)[28] enables WTO Members to guarantee the conditions for services trade in the sectors they select and to the extent set out in their individual schedules of commitments, thereby ensuring that trade policies will not be made more restrictive.

However, LAC countries have generally guaranteed trading conditions under the GATS for relatively few backbone services and offered relatively low levels of access. The one exception is telecommunications services, where all but one LAC WTO Member have undertaken GATS commitments, albeit with varying degrees of binding. As figures 2.4.a and 2.4.b show, there is significant sectoral variation in the level of trade openness inscribed in the GATS schedules of LAC countries for backbone sectors, both for cross-border supply (mode 1) and for supply through the establishment of a commercial presence (mode 3).[29] Given that these two modes are by far the most commercially significant,[30] bindings in these modes can contribute to fostering competition in digital trade–enabling services, improving their availability, affordability, and quality. Overall, LAC countries have undertaken shallower commitments in road and rail freight, retail and wholesale distribution, and postal and courier services. At the same time, deeper bindings are observed in telecommunications services, computer and banking services, and, to a lesser extent, maritime freight transport services.

FIGURES 2.4. LAC's commitments in digital trade–enabling services, by sector (% shares)

Figure 2.4.a LAC's commitments in digital trade–enabling services under GATS mode 1

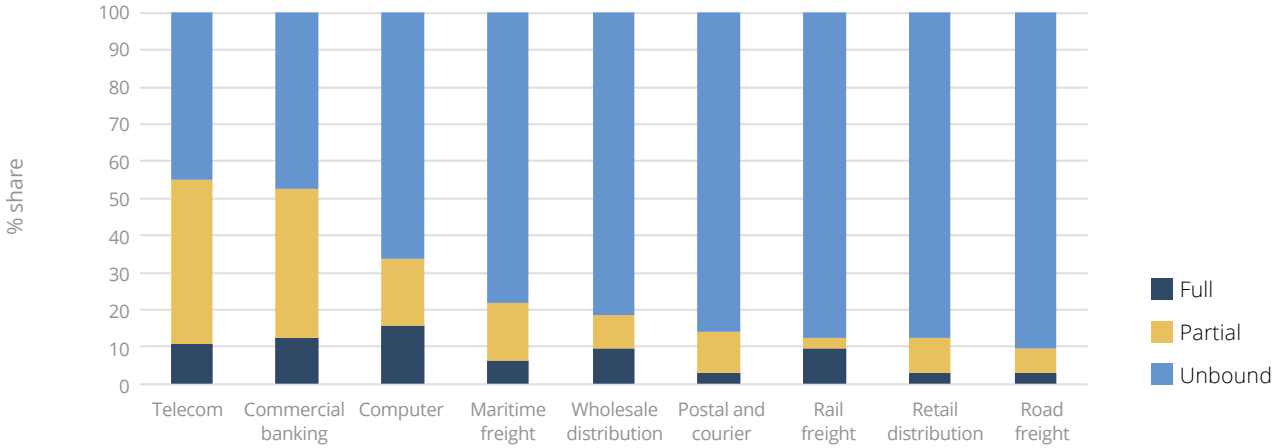


28 The GATS defines four modes by which a service can be supplied internationally: mode 1 is cross-border trade (e.g., via the internet); mode 2 is consumption abroad (e.g., through international tourism); mode 3 is the commercial presence of an enterprise (e.g., through foreign direct investment); and mode 4 is the movement of natural persons (e.g., through temporary labor mobility).

29 The analysis includes both sectors that were scheduled by LAC WTO Members and unscheduled sectors, treating unscheduled sectors as "unbound" by default.

30 According to the latest WTO estimates (2022), modes 1 and 3 account for 35% and 56% of global services trade, respectively.

Figure 2.4.b. LAC's commitments in digital trade–enabling services under GATS mode 3



Note: The level of liberalization is categorized into "full" commitments (i.e., unrestricted), "partial" commitments (with some limitations), and "unbound" commitments (no guaranteed liberalization). Shares for the three liberalization categories are calculated for each represented sector. Both scheduled and unscheduled sectors are included in the analysis, with unscheduled sectors treated as 'unbound" by default. Each bar reflects the combined entries for the given sector across all 32 LAC WTO Members.

Source: Authors' calculations based on GATS Schedules of Commitments (https://www.wto.org/english/tratop_e/serv_e/serv_commitments_e.htm).

Around half of LAC countries have subscribed to the procompetitive disciplines in the GATS Basic Telecommunications Reference Paper. This contains a set of regulatory obligations related, inter alia, to anticompetitive practices, interconnection, licensing criteria, independent regulators, the allocation of scarce resources, and transparency, which contribute to the achievement of affordable and efficient telecom infrastructure.[31] In total, around 105 WTO Members have undertaken these obligations.[32] Table 2.1 shows which LAC countries have subscribed in full or in part.

Only a handful of countries in the region have adhered to the set of Services Domestic Regulation disciplines developed recently by a group of WTO Members (see table 2.1).[33] These disciplines aim to increase the transparency, predictability, and efficiency of authorization procedures for service suppliers, including those engaged in digital trade.[34] As of December 2025, the disciplines have become legally binding for 55 WTO Members as part of the commitments set out in their GATS schedules. Of the eight LAC countries that have inscribed the Services Domestic Regulation disciplines in their GATS schedules, Brazil,

31 For analysis of the impact of these disciplines, see, for example, Blouin (2000).

32 See WTO site on telecommunications commitments: https://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm.

33 See WTO Services Domestic Regulation: https://www.wto.org/english/tratop_e/serv_e/jsdomreg_e.htm.

34 For analysis of the impact of these disciplines, see So and Bekkers (2024).

Costa Rica, Paraguay, and Uruguay will notify the date of entry into force of these new disciplines after they complete their respective domestic procedures. The disciplines are already in force in the other four countries (Argentina, Chile, El Salvador, and Peru).

TABLE 2.1. Adherence of LAC WTO Members to the GATS Telecom Reference Paper and to Services Domestic Regulation disciplines

Legal instruments	LAC WTO Members
Both Telecom Reference Paper and Services Domestic Regulation	Argentina, Chile, El Salvador, Peru
Only Telecom Reference Paper	Antigua and Barbuda, Barbados, Belize, Bolivia, Colombia, Dominica, Dominican Republic, Grenada, Guatemala, Honduras, Jamaica, Mexico, Suriname, Trinidad and Tobago, Venezuela
Only Services Domestic Regulation	Brazil, Costa Rica, Paraguay, Uruguay
Neither	Cuba, Ecuador, Guyana, Haiti, Nicaragua, Panama, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines

Source: Authors based on GATS Schedules of Commitments (https://www.wto.org/english/tratop_e/serv_e/serv_commitments_e.htm).

Policies and regulations governing digital trade

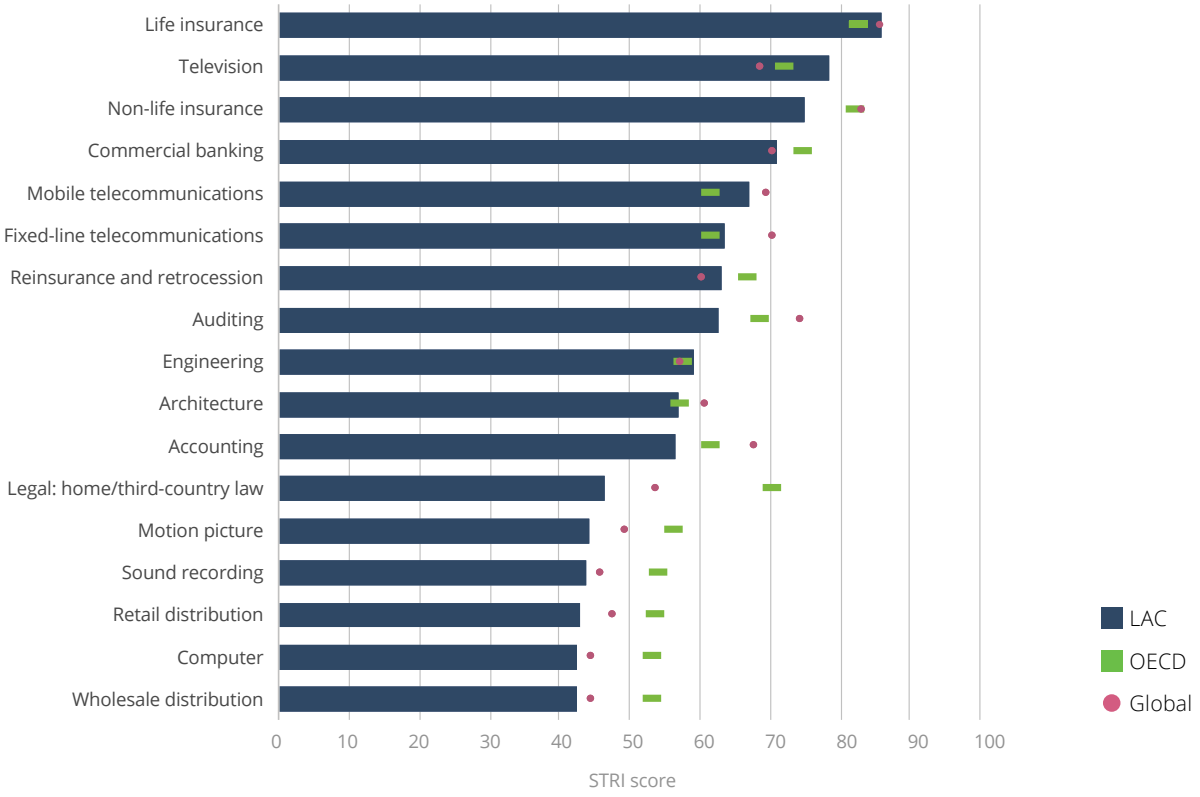
Opportunities for digital trade are shaped by policies and regulations that affect market entry and operations for services amenable to digital delivery, as well as the digital economy more generally. These are explored in the following subsections.

Trade regimes in digitally deliverable service sectors

The conditions applicable to the international, remote provision of digitally deliverable services can be gauged through the STRI for cross-border supply. Figure 2.5 presents the average mode 1 STRI scores for all the economies covered by the index, and specifically for the 13 LAC countries included in it. The figure shows that, compared to global averages, LAC has a relatively open cross-border trade regime for many digitally deliverable services. Specifically, the region is less restrictive in over half of the sectors, particularly for some professional, financial, and telecommunications services. However, LAC countries are

comparatively more restrictive than the rest of the world in sectors such as television, reinsurance and retrocession, and engineering services.

FIGURE 2.5. Average mode 1 STRIs in digitally deliverable services (LAC, OECD economies, and global average)

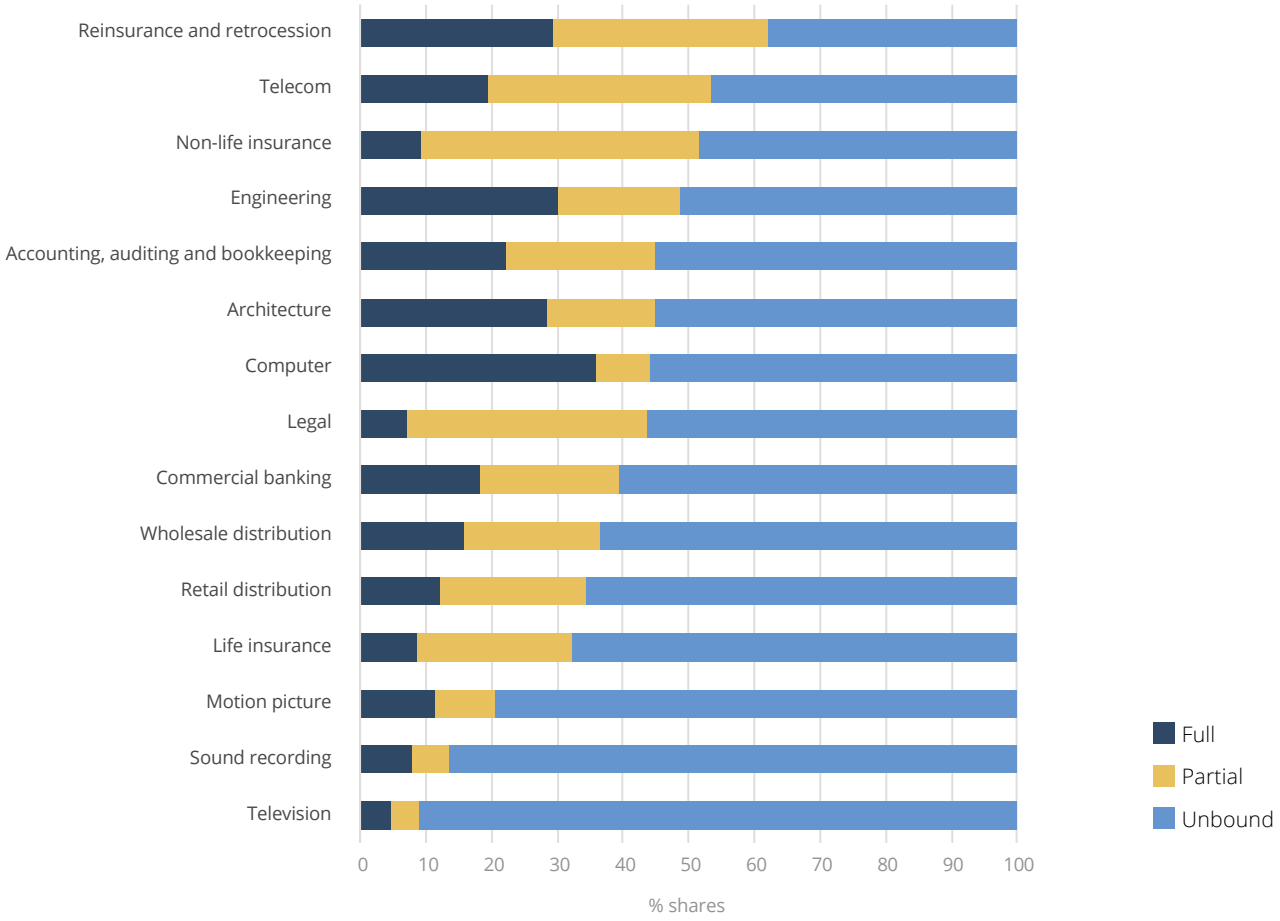


Source: Authors' calculations using the World Bank–WTO STRI (https://itip-services-worldbank.wto.org/default.aspx).

Notes: The global STRI is the average score across 134 economies in the World Bank–WTO database as of February 2025. In the case of legal services, the mode 1 STRI sector coverage is limited to legal advisory and representation services for home/third-country law. For commercial banking, the sector coverage includes acceptance of deposits, lending of all types, financial leasing, all payment and money transmission services, as well as guarantees and commitments. For television services, the coverage excludes radio.

This trade regime for digitally deliverable services is not fully guaranteed, however. At present, the level of openness that WTO Members have committed to in mode 1 is, overall, relatively shallow (figure 2.6). This affords firms limited protection against trade-restrictive policy reversals.

FIGURE 2.6. Level of GATS mode 1 commitments in select digitally deliverable services (% shares of total commitments)



Source: Authors' calculations based on GATS Schedules of Commitments (https://www.wto.org/english/tratop_e/serv_e/serv_commitments_e.htm).

Note: The level of liberalization is categorized into "full" commitments (i.e., unrestricted), "partial" commitments (with some limitations), and "unbound" commitments (no guaranteed liberalization). Shares for the three liberalization categories are calculated for each represented sector. Both scheduled and unscheduled sectors are included in the analysis, with unscheduled sectors treated as "unbound" by default. Each bar reflects the combined entries for the given sector for all 166 WTO Members.

The WTO moratorium on the application of customs duties to electronic transmissions

Since 1998, WTO Members have periodically agreed to extend a prohibition on the imposition of customs duties on electronic transmissions—the so-called Moratorium, which has been repeatedly renewed at WTO Ministerial Conferences.[35] Some WTO Members, however, have expressed concerns about the

35 The Moratorium lapsed at the closure of the 14th Ministerial Conference on 30 March 2026, although WTO Members came close to agreeing to its renewal and efforts continue towards finding a way forward.

opportunity costs of the Moratorium, notably in terms of forgone customs revenue, and have argued against its renewal. 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% and 0.33% of overall government revenue on average for developing economies, with higher losses for a handful of economies (IMF et al., 2023).

Value-added tax (VAT) or goods and services tax (GST) emerge as alternative approaches for generating revenue from digital trade (IMF et al., 2023). VAT offers higher revenue potential, is less distortive to trade flows, and applies uniformly to both domestic and foreign suppliers based on the location of consumption. It ensures fair revenue collection and avoids imposing a tax burden on intermediate inputs, making it particularly suitable for the digital economy. While tariffs and VAT are not mutually exclusive, evidence shows that VAT could generate higher revenue than customs duties for most economies, provided tax administrations have adequate resources, especially for collecting VAT from nonresident sellers (Hanappi et al., 2023; WTO, 2016).

Regulatory frameworks for digital trade

Regulations play a crucial role in enabling or hindering the growth of digital markets and digital trade. An effective regulatory framework promotes digital trade by enabling cross-border transactions, building consumer trust through data protection and privacy, and providing operational guidelines for digital actors (World Bank, 2025a). This includes essential tools like electronic documents, e-signatures, and rules for managing cross-border information transfers.

However, regulations can also create challenges for digital trade by introducing measures that raise data transfer costs, impose burdensome procedures, or increase fragmentation. At the same time, some of these regulations may pursue legitimate public policy objectives, such as cybersecurity or privacy. Emerging technologies and the digital transformation pose new risks and challenges for governments and societies, confronting policymakers with the need to balance security considerations with data protection and privacy without limiting cross-border transactions unnecessarily.

In this context, countries can be considered ready for digital trade in regulatory terms when they have laws and rules in place across several areas that provide effective solutions to the challenges of digital trade, ideally in alignment with international standards. These areas include electronic transactions, digital identities, data protection, cybersecurity, and platform governance. Countries' readiness across these areas can be measured through the World Bank's Digital Trade Regulatory Readiness (DTRR) indicators (World Bank, 2025a), which assess how specific regulations and policies address over 100 issues ("regulatory solutions") related to the governance of cross-border digital trade.

In terms of regulatory readiness, LAC countries are generally in line with high- and upper-middle-income economies and thus above the global average.[36] Almost all countries in the region have rules on electronic documents. Regulations on e-signatures, digital ID, and data protection are also widespread. The same holds for rules on cross-border data and on paperless trade. However, regulations on clarifying the legal liability of platforms for content or products offered by their users ("intermediary liability") are scarce in the region. Only five countries have such frameworks (Jamaica, Mexico, Panama, Brazil, and Chile), and they are limited in scope.

Significant variations can be seen at the country level, but patterns are similar in all three LAC subregions (the Southern Cone, the Andean countries, and Central America and the Caribbean).[37] In general, trust-building regulations vary widely, and regulations that specifically affect platforms ("platform regulations"), especially intermediary liability, are substantially underdeveloped in all three subregions. Regulations on electronic transactions, in contrast, are fairly well developed across all three subregions (figure 2.7). LAC performs better than the OECD average on several aspects of electronic transactions and slightly below the OECD average on trust-building and platform regulations.

36 The DTRR database captures a selection of 118 countries at different levels of development that are broadly distributed around the world. However, the selection is not statistically representative of the distribution of countries in terms of income or location. High-income OECD countries, especially EU Members, are likely to be underrepresented in the sample.

37 Country groupings used in this report are based on available data. See figure 2.7 for coverage.

FIGURE 2.7. Digital trade regulation readiness: country scores by LAC subregion



Source: World Bank (2025a).

Note: The color and size of bubbles represent regulatory readiness in each country or grouping by category, based on the share (in quintiles) of positive answers in that category, ranging from 0 to 100%. Data as of March 2024.

The OECD average includes Australia, Czechia, Estonia, France, Israel, Japan, Korea, Latvia, Lithuania, New Zealand, Norway, Slovenia, Switzerland, Türkiye, the United Kingdom, and the United States.

Paperless trade is covered in the section on trade facilitation.

Regulations on electronic transactions

The regulatory framework that governs electronic transactions must ensure that contracts made remotely by electronic means are as valid and enforceable as in-person agreements. In particular, it must provide the regulatory tools for remote—including cross-border—contracts to be effective, such as recognizing electronic documents and e-signatures (World Bank, 2025a).

1. Electronic documents

Business-to-business (B2B) transactions often involve customizing products and services or periodic delivery over extended periods, which in turn require detailed, tailored contracts. A robust, reliable framework for e-contracts is essential for business. Being able to conclude or amend digital contracts securely and reliably across borders is crucial for providing certainty, reducing costs, and expediting business operations.

LAC countries have strong electronic document regulations grounded in best practices. All LAC countries except Brazil have adopted general legislation on electronic documentation along the lines of the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Commerce of 1996. These rules give electronic contracts the same legal effect as paper documents and allow electronic documents to be admitted as evidence in legal proceedings. However, only Belize and Paraguay have passed regulations on electronic transferable documents.[38]

2. Electronic signatures and digital IDs

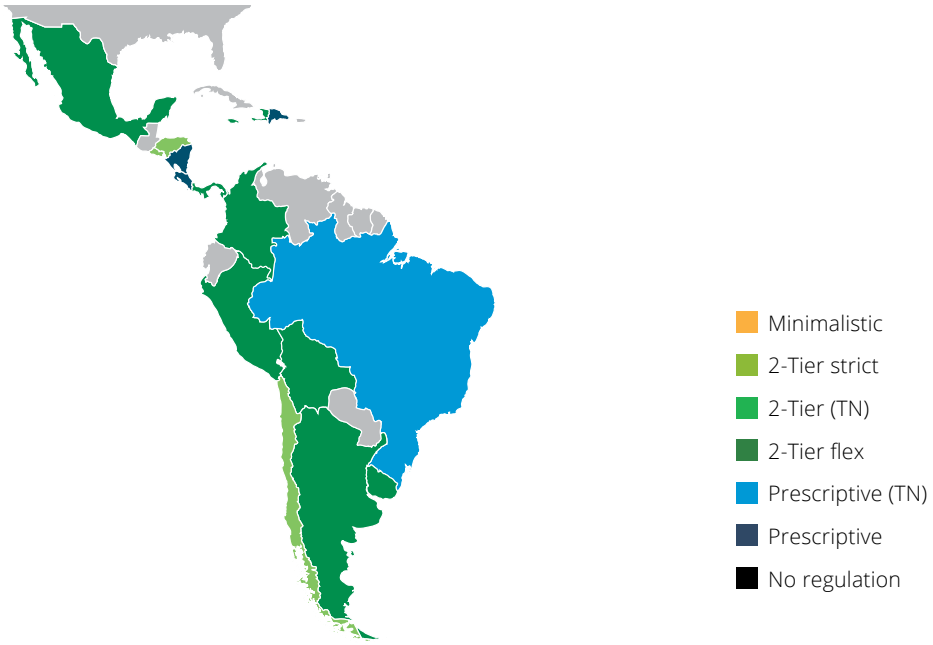
Concluding legally binding contracts remotely relies heavily on the ability to securely and reliably document the parties' agreement. Digital identities, which consist of electronically captured and stored attributes that uniquely describe a person in a given context, facilitate electronic transactions by verifying real-life identities online (World Bank, 2016).

E-signature regulations are a crucial tool for cross-border transactions. These regulations guarantee the authenticity and integrity of digital signatures, allowing parties to conclude or amend contracts remotely. They are also necessary for processing imports and exports of goods at the border, as they allow economic operators to present documents remotely and securely.

38 ICC, MLETR Tracker: Cross-Border Paperless Trade Database, https://www.digitalizetrade.org/mletr.

Most LAC countries operate a two-tiered regime for e-signatures that aligns with modern standards. This approach, adopted in Mexico and all Andean and Southern Cone countries except Brazil, recognizes simple (i.e., nonsecure) electronic signatures, such as a checkbox in a written email, as well as secure digital signatures, which have the same status as written signatures. Most countries with a two-tier system have adopted a flexible regime ("2-tier flex") that allows digital signatures to be issued by public or private bodies. This makes it easier for businesses to adopt and use e-signatures in different contexts (figure 2.8). Some countries take a "technology-neutral" approach: that is, a signature model that provides actors with the flexibility to choose the technological solution that best meets the requirements of that signature.

FIGURE 2.8. Types of e-signatures in LAC



Source: World Bank (2025a).

E-signatures vary across Central American and Caribbean countries. The prescriptive approach admits only secure digital signatures, limiting available options (figure 2.8) and making it less flexible and more challenging for businesses to implement. The range of approaches across Central American and Caribbean countries limits mutual recognition or other forms of collaboration, thereby disincentivizing the use of electronic signatures for cross-border contracts and increasing transaction costs.[39]

39 "Minimalist" e-signature approaches allow parties to determine the signature features, which often spurs broad adoption but does not guarantee legitimacy. These approaches are not used in LAC.

Anecdotal evidence suggests that, regardless of the specific e-signature model, effective implementation of these regulations is often lacking, limiting the actual use of digital signatures in the region. This includes failure to appoint bodies that may issue digital signatures or to implement a framework that focuses on the use of e-signatures in government services.

Trust-building regulations

1. Online consumer protection

Rules governing online consumer protection are crucial for addressing information asymmetries between vendors and consumers. Online consumer protection laws aim to ensure the same level of protection as for offline commerce (UNCTAD, 2017). These laws build on traditional consumer protection principles and mechanisms, extending and adapting them to digital markets to mitigate the challenges of online buying and selling (OECD, 2000). They are particularly significant for international digital trade, where consumer trust is often lower.

Most LAC countries have adopted explicit regulations on online consumer protection, reflecting their participation in RTAs that include e-commerce provisions (see the section on RTAs in chapter 3) (World Bank, 2025a). This is not the case in the Andean countries covered in the DTRR analysis, where only Colombia has specific rules for online transactions. In Central America and the Caribbean, rules on online consumer protection vary widely, even among neighboring countries. The Southern Cone countries have some degree of harmonization in online consumer protection, and all of them have relatively advanced frameworks.

Despite significant progress, some online safeguards are absent or have only been partially implemented in the region. For instance, protections against spam have been adopted by only four countries or fewer. Rules prohibiting "dark patterns" (i.e., making it harder to reject an offer than to accept it, such as allowing a single click to share personal data but requiring multiple clicks to protect it) are absent in LAC (World Bank, 2025a).

2. Data protection and cybersecurity

Safeguards for personal data and cybersecurity rules aim to ensure that individuals and businesses can safely engage in digital activities in the knowledge that their personal information is protected, used and shared only for its intended purpose, and that measures are in place to prevent and respond to cyber threats such as hacking, phishing, and other forms of cybercrime, which can undermine trust in digital systems.

Most LAC countries have adopted robust data protection rules. More specifically, with the exception of Bolivia, El Salvador, Haiti, and Honduras, the LAC countries covered by the DTRR have introduced data protection regimes that ensure personal data is handled responsibly and that mechanisms are in place to address data breaches and misuse.

However, despite this progress on data protection, the development and enforcement of cybersecurity regulations for personal data are less advanced and show greater variation across LAC as well as within its subregions (figure 2.9).

Platform regulation

1. Cross-border data regimes[40]

Establishing a coherent framework that aligns with international standards is crucial for protecting personal data while also enabling the seamless flow of information needed for digital growth in the region.

Within LAC, regulations for cross-border data transfers vary widely. Thus, for example, Brazil, Colombia, Peru, Argentina, Uruguay, Costa Rica, and Panama have adopted a conditional framework for cross-border data transfers based on the adequacy of safeguards, thus allowing data to be transferred to countries that feature protections for personal data substantially equivalent to the those of the "home" country (usually called an "adequacy" approach). By contrast, the Dominican Republic requires the data subject to provide explicit consent for data transfers. Mexico is the only country in the sample that follows an "accountability" approach, in which no specific conditions are laid out for data transfers, but they are allowed based on the assessment of, and eventual liability for, the firms controlling such data (World Bank, 2021). Finally, while no cross-border data rules are in force in Chile and Bolivia, general rules may apply, while Honduras has no cross-border data rules at all (World Bank, 2025a).

All LAC countries in the sample share an important good practice: none impose broad, discretionary requirements for prior government approval of cross-border data transfers (World Bank, 2025a). They tend to prioritize facilitating data sharing for business purposes over government control (World Bank, 2021), thereby favoring digital trade as a channel for integration with global markets.

40 While cross-border regulatory regimes cover more than platform governance, they are particularly sensitive to data regulation as their global intermediation business model depends on the ability to transfer data across borders. Cross-border regulatory regimes thus fall under the Platform Regulation pillar of DTRR.

2. Data localization requirements[41]

As the global economy has become more reliant on digital trade, data storage has become increasingly important. Data localization requirements mandate that data be stored, processed, and/or accessed within a country's borders. They are often adopted to facilitate regulatory monitoring and ensure national security. However, such measures can reduce the efficiency of digital trade by increasing operational costs, hindering the seamless flow of international data, and adding complexity for businesses that must comply with local data storage mandates.

Data localization requirements in LAC countries are limited. Chile, El Salvador, and Honduras have adopted local storage requirements for financial data, while Brazil and Panama maintain data storage requirements for national security-related data. Brazil extends this requirement to both data processing and data access (OECD and WTO, 2025).

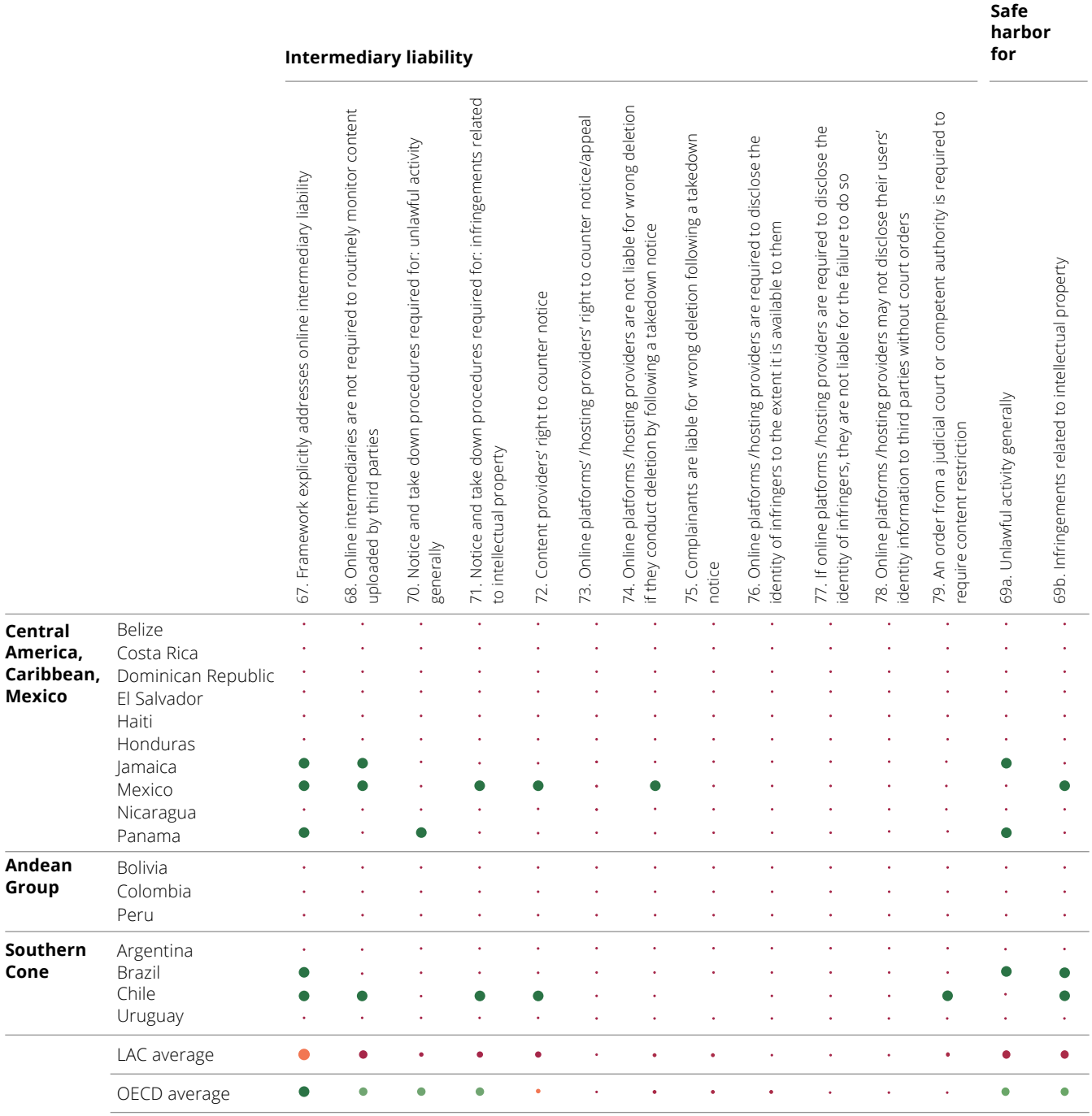
3. Intermediary liability

Building trust in the digital space requires taking action against illegal content. This includes content relating to civil or criminal offenses, such as a defamatory post or the uploading of racist videos, as well as intellectual property violations, such as uploading bootlegged videos or music or offering counterfeit products for sale. Intermediary liability rules determine the extent to which online platforms are responsible for user-posted content and how they should handle it. A balanced regime that exempts platforms from liability when taking adequate measures to ensure the lawfulness and legitimacy of their content reduces costs for online platforms and firms operating on them, helping to build greater trust in online markets.

Only five LAC countries have rules on intermediary liability: Jamaica, Mexico, Panama, Brazil, and Chile. In line with good practices, these provisions limit the liability of intermediary platforms by requiring them to follow procedures for removing offending content, known as safe harbor provisions. Thus, in the areas where LAC countries have adopted regulations, they generally match or exceed the OECD average. However, because intermediary liability frameworks in LAC are limited in scope and only offer partial remedies, the region's overall performance remains well below the OECD average (figure 2.9). Overall, the lack of comprehensive rules addressing issues such as counterfeit goods, fraudulent activities, and other illegal content might potentially diminish consumer confidence in online marketplaces in LAC countries.

41 Data localization refers to statutory requirements to store, process, or access data only within the jurisdiction of the country concerned. Restrictions on cross-border data flows also include mandates requiring government authorization before data is transferred internationally. See OECD and WTO (2025).

FIGURE 2.9. Intermediary liability requirements in LAC countries



Note: For individual countries, bubbles indicate whether regulatory measures exist in the relevant category. Green represents positive regulatory measures, and red indicates regulatory restrictions on digital trade.

Source: World Bank (2025a).

Institutions and enforcement of digital trade regulations

A properly functioning regulatory framework for digital trade requires effective institutions to implement laws and regulations, foster compliance, and enforce them when they are not followed. To establish whether and to what extent this is the case requires careful assessment of existing institutions and the regulations they oversee that affect digital trade. One such evaluation is provided by the World Bank's Global Regulations, Institutional Development, and Market Authorities Perspective (GRIDMAP) Toolkit. It focuses on consumer protection and data governance and covers domestic institutions and regulations governing traditional and digital trade.[42] GRIDMAP identifies a minimum set of institutional arrangements, regulations, and practices intended to serve as benchmarks for creating reliable, safe, competitive markets (World Bank, 2024a and 2024b).

In the context of consumer protection, consumer protection authorities (CPAs) need adequate powers, resources, and intervention tools to encourage compliance, implement regulatory frameworks, and ultimately enforce them to stop unlawful business conduct. According to the GRIDMAP assessment, on average, LAC countries have established the basic institutional arrangements required to implement their consumer protection frameworks (discussed above), but there is significant scope for improvement, particularly in addressing complaints, conducting investigations, and resolving disputes. There are also gaps in implementation: no data are available on consumer education and awareness campaigns or on CPAs' activities, including the number of complaints received and investigated and the sanctions imposed. There is a need to improve frameworks for self- and co-regulation mechanisms, including engaging stakeholders in developing regulations.[43]

Data protection authorities (DPAs) play a key role in implementing data governance. On average, according to the GRIDMAP assessment, LAC countries' institutional arrangements for data governance are significantly better than the global average. Most DPAs in the region have a wide variety of roles and powers to promote and ensure compliance with legal, regulatory, and policy frameworks. However, LAC's implementation and enforcement scores are below the global average. Some 30% of DPAs in the region lack

42 The two GRIDMAP modules described in this chapter cover the following DTRR regulatory areas described in the previous section: (1) consumer protection, and (2) data governance, including intermediary liability, data protection, cross-border data flows, cybersecurity, and data localization. Two types of authorities tend to have jurisdiction over these: consumer protection authorities for consumer protection and part of intermediary liability, and data protection authorities for data protection, cross-border data flows, and data localization. In some countries, jurisdiction is distributed among several authorities. In LAC, the GRIDMAP sample includes the following countries for consumer protection: Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Panama, Paraguay, Peru, and Uruguay; and the following countries for data governance: Argentina, Brazil, Chile, Costa Rica, Colombia, Ecuador, Jamaica, Mexico, Panama, Peru, and Uruguay.

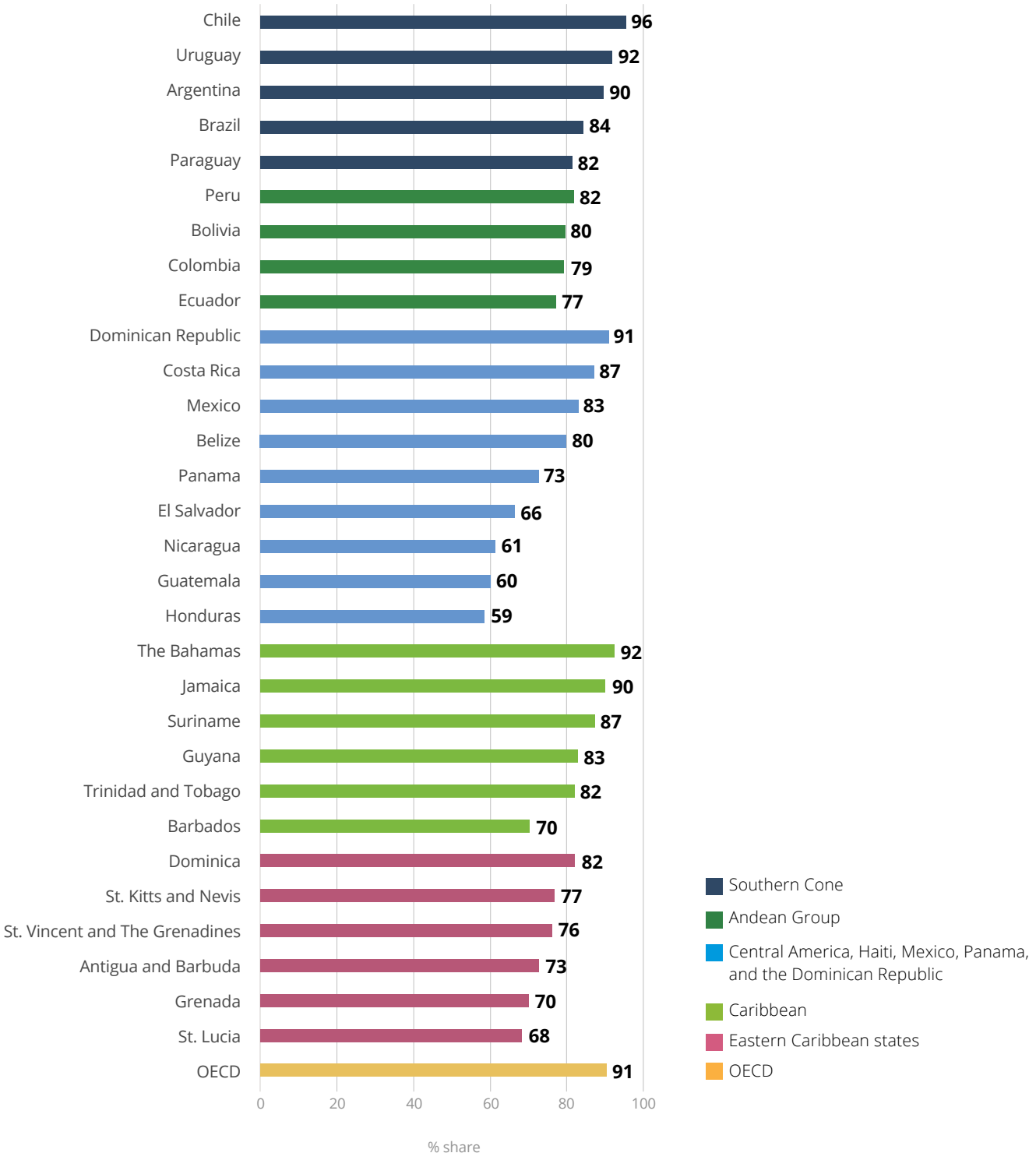
43 Self-regulation refers to voluntarily rules or codes of conduct developed by organizations such as private enterprises or professional groups to regulate or guide the behavior, actions, and standards within the group. Co-regulation involves the private sector creating or administering a regulatory framework in active collaboration with governments.

standardized procedures for at least some of the tasks they perform, while 20% have not used any of the persuasion tools or sanctions tracked in the GRIDMAP survey in the past 12 months. As with CPAs, there is a lack of publicly available information on the number of complaints received, investigated, and sanctioned, as well as on consumer education and awareness campaigns. Some 40% of LAC DPAs have no arrangements to cooperate with domestic or foreign authorities or regulators. Finally, none of the surveyed DPAs in LAC countries strongly agree or agree that their budget is sufficient, compared with 29% of DPAs in Europe and Central Asia and 21% in Africa.

Digital infrastructure and connectivity

Digital connectivity is the backbone of digital trade. While the number of internet users is growing rapidly, LAC countries still exhibit gaps in internet coverage and usage. As of 2024, the share of the population using the internet exceeded 90% in Chile, Uruguay, Dominican Republic, The Bahamas, and Jamaica. Internet usage was below 80% in most Andean countries, most Central American countries, and many Caribbean countries (particularly in the Eastern Caribbean) (figure 2.10).

FIGURE 2.10. Percentage of population using the internet in LAC countries, 2024 (% share)



Source: ITU (2025a).

This section provides a snapshot of where LAC countries stand on digital connectivity, including data transmission infrastructure (optical fiber networks and antennae), mobile networks, and data centers.

Fixed and mobile telecom networks provide the essential infrastructure for voice and data services and internet access. High-speed broadband connections facilitate interactions between firms and consumers, notably across borders, and support digital trade.

The evidence suggests that improving LAC's broadband connectivity would reduce the cost of trade in goods and business and professional services across the region (see box 2.2 on trade cost simulations).

Fixed networks

Fixed broadband can be delivered via various technologies, including digital subscriber line (DSL), cable, satellite, and fiber-optic. Fiber-optic and cable connections are the most suitable for modern digital applications and trade for multiple reasons. Fiber-optic is the fastest of these technologies and can transmit data with high capacity and minimal delay. Cable also offers faster speeds, lower latency,[44] and greater reliability than DSL. Unlike DSL, both fiber and cable are scalable for evolving online services because they can handle high data traffic volumes.

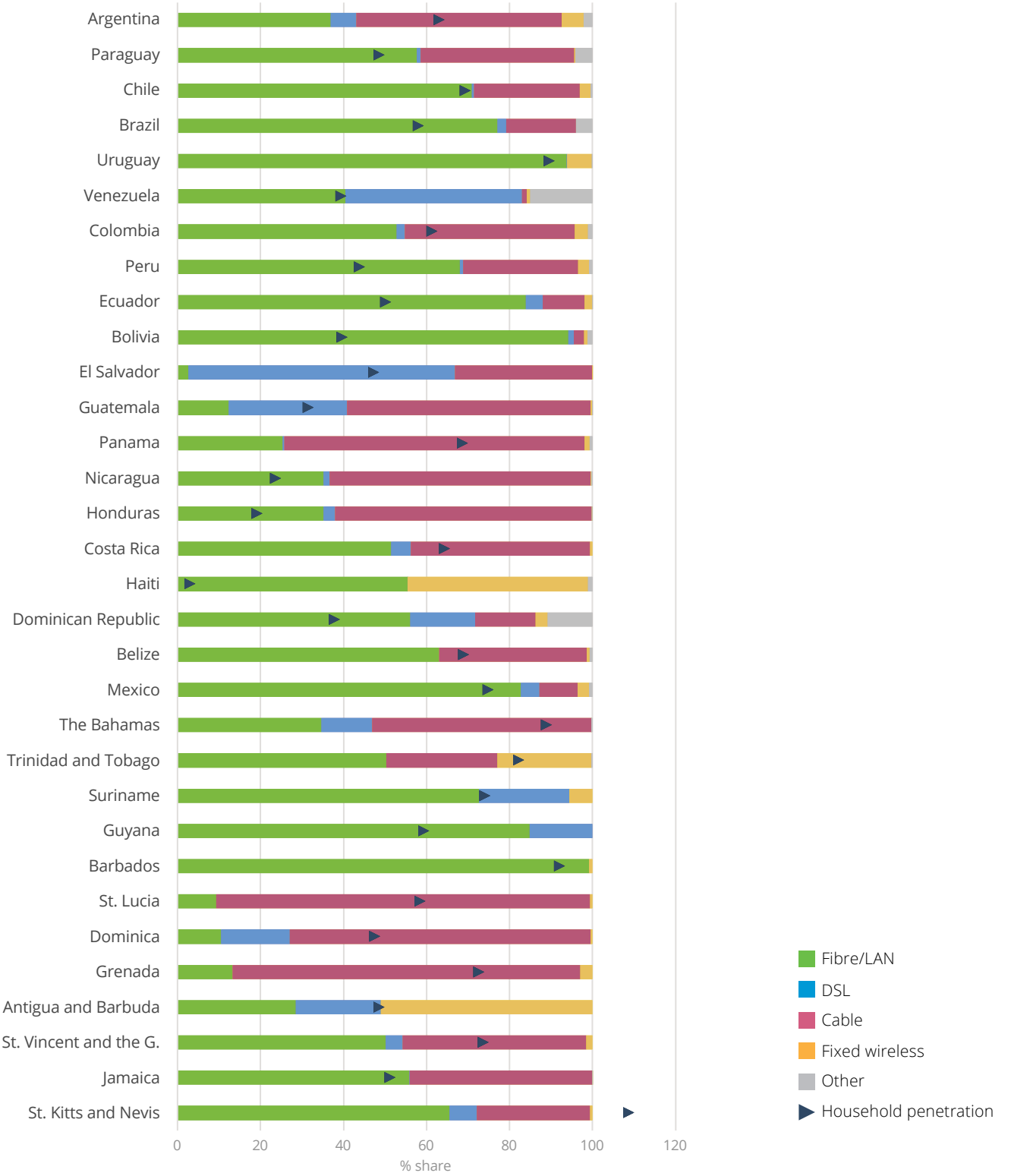
The development and quality of these networks vary significantly across LAC countries, with urban areas generally having access to more advanced technologies. Broadband penetration exceeds 80% in St. Kitts and Nevis,[45] Barbados, The Bahamas, Trinidad and Tobago, and Uruguay. Barbados and Uruguay also top the ranking for high-speed fiber-optic connections.[46] Mexico, Suriname, St. Vincent and the Grenadines, Grenada, Chile, Belize, and Panama show 70% to 75% coverage, though the share of high-quality connections varies. In contrast, Haiti, Honduras, Nicaragua, and Guatemala have both low coverage and limited access to faster technologies. Some countries—like Grenada, St. Kitts and Nevis, and Panama—have broad coverage but rely more on lower-quality networks, while others—including Bolivia, Haiti, and Ecuador—have better technologies but low overall household access.

44 Latency is the time it takes for data to travel between a source and a destination, measured in milliseconds.

45 In St. Kitts and Nevis, household penetration is higher than 100%—in other words, there are more fixed broadband lines than households. This implies that a household can have more than one subscription, such as when people use separate lines for personal or work purposes or when there is more than one family in a household.

46 In figure 2.2, fiber/LAN refers to local-area networks using fiber-optic cabling to connect devices within a limited geographic area, such as a building or office.

FIGURE 2.11. Fixed broadband household penetration and distribution of technologies in LAC countries, 2024 (% shares)



Sources: TeleGeography Data Navigator (https://datanavigator.telegeography.com/dashboard).

The cost of fixed internet access as a percentage of per capita gross national income (GNI) has decreased in recent years, but significant disparities persist across LAC. Haiti had one of the highest fixed broadband prices in 2024 (38% of per capita GNI), followed by Argentina (14%) and Honduras (11%),[47] while Mexico and Guyana have the most affordable prices (under 2%) (ITU, 2025c).

Mobile networks

Higher-speed, more reliable mobile connectivity allows firms to engage in real-time communication, connect to supply chains, reach customers more efficiently, and enable customers to have better access to online platforms, mobile banking services, including digital payments, and many other digitally delivered services. In particular, in countries where fixed networks are underdeveloped, mobile networks are a vital enabler of digital trade that provide more accessible and affordable internet options.

The share of the population covered by 4G networks and mobile subscriptions is steadily increasing, but significant gaps remain. In nearly all LAC countries, over 90% of the population was covered by 4G networks in 2024. This translated into relatively high mobile subscription coverage, with unique mobile subscribers reaching 70% or more of the population in Chile (70%), Uruguay (74%), and Costa Rica (79%). Most other countries in the region were in the 50%–68% range.[48] 5G—which can facilitate further expansion of digital trade thanks to its lower latency, higher bandwidth, and capacity for real-time data exchange—is still in its early stages of development in many countries. The Dominican Republic is the only country where more than 70% of the population is covered by such technology.[49]

Mobile data package prices vary significantly across LAC countries. Haiti had the highest prices for mobile data and voice high-consumption baskets, at 21% of per capita GNI, followed by Honduras at 10%. The lowest prices were observed in Brazil, Chile, Costa Rica, and Mexico, all below 1%.[50]

47 The mobile-data "high-consumption basket" is the cheapest plan offering at least 5GB of monthly high-speed data (256Kbit/s or higher) from the operator with the largest market share in each economy.

48 The following countries were below the 50% range: Guatemala (47%), Dominica (47%), Jamaica (45%), Grenada (40%), and Haiti (27%).

49 The data refer to unique mobile internet subscribers at the end of the period, expressed as a percentage share of the total market population (GSMA, 2025).

50 The mobile usage basket assumes a monthly minimum of 140 voice minutes, 70 SMSs, and 2GB of data using at least 3G technology (ITU, 2025c).

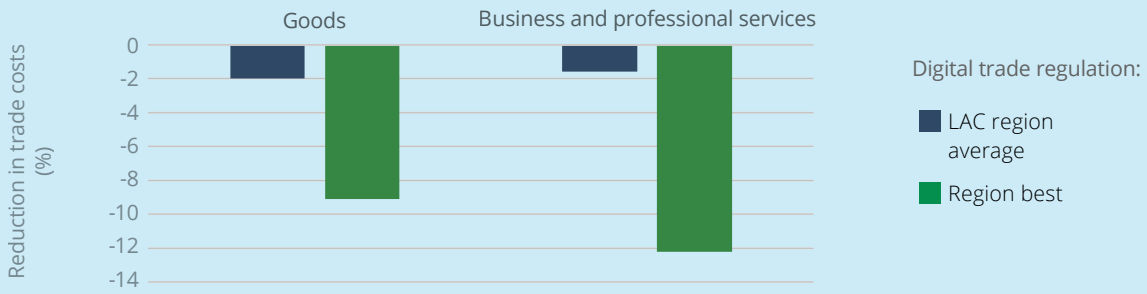
BOX 2.2. The impact of digital infrastructure and regulation on trade costs in Latin America and the Caribbean

Improving LAC's digital infrastructure and regulatory environment will increase trade by reducing the costs associated with cross-border business.

- Digital technologies reduce the importance of physical proximity and face-to-face interaction for business relationships.
- Access to the internet, e-commerce platforms, and electronic payments reduces transaction and information costs for cross-border commerce.
- When services can be delivered digitally, their cross-border tradability increases.
- Digital technologies facilitate trade in goods through enhanced logistics, tracking systems, and automated port and airport activities, as well as customs efficiency, resulting in shorter transit times and lower costs for administrative and regulatory compliance.

Estimates based on the WTO Trade Cost Index, which captures all impediments that make international trade more difficult or more costly than domestic trade, show that improving digital connectivity reduces trade costs for both goods and services (Bellucci et al., 2025). This is especially true for digitally delivered services, such as business and professional services.

FIGURE E. Estimated average reduction in trade costs in LAC (%)



Note: The figure shows the estimated average reduction in trade costs in LAC under a scenario in which all countries improve their mobile broadband access to at least the 75th percentile of the global distribution. The two columns show estimates under different digital trade regulation regimes.

Source: WTO calculations based on Bellucci et al. (2025).

Importantly, the reduction in costs is magnified in an open regulatory environment. If all countries in the region improved their mobile broadband connectivity to at least the 75th percentile of the global distribution, trade costs would fall by 2% for the average LAC economy. If all countries in the region improved their digital trade regulations to the same level as the best-performing countries (Costa Rica, Dominican Republic, and Ecuador), trade costs would fall by 9% for goods and 12% for business and professional services (figure E).

Source: Bellucci et al. (2025).

Data centers

Data centers are the core infrastructure for storing, processing, and transmitting the data generated by digital economic activitie. They house the infrastructure and servers that enable businesses to offer and access cloud-based services, manage inventories, maintain customer data, and process payments—all essential elements for digital trade. By ensuring fast, reliable data and secure access to it, data centers help businesses reduce latency, enhance customer experience, and expand their reach to international markets.

Countries do not need to set up domestic data centers to engage in digital trade. With an appropriate regulatory environment that facilitates cross-border data flows, firms can access remote data storage and computing facilities.[51] However, the presence of data centers in a country can be seen as a proxy for a dynamic digital environment, as this type of infrastructure requires reliable connectivity and advanced digital skills.

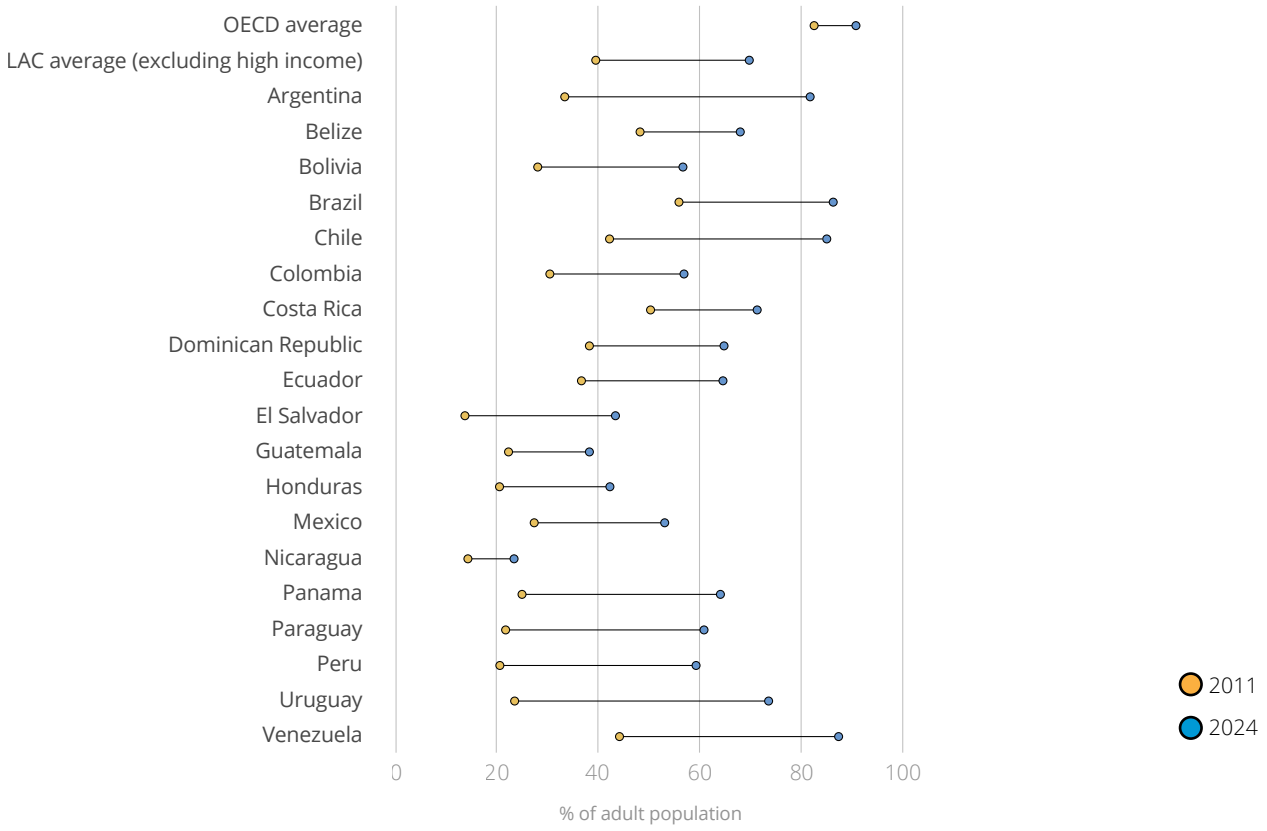
Data centers face several challenges in LAC countries, including regulatory complexities, connectivity issues, and energy concerns. These affect their development and operations and might impact their ability to support the region's growing digital economy and trade. The number of data centers in the region varies by country and broadly reflects the relative maturity of each country's economy. Brazil hosts the most data centers (152), followed by Chile (52) and Mexico (47), while most LAC countries have fewer than 10 (TeleGeography, 2025). These numbers are significantly below the world leaders: the United States (5,381), Germany (521), Great Britain (514), China (449), Canada (336), France (315), Australia (307), the Netherlands (297), Russia (251), and Japan (219) (Fleck, 2025).

51 While data centers can provide advantages for digital trade, whether every country should build them depends on several factors including economic scale, resources, and strategic priorities.

Digital payments, including cross-border payments

Digital payments are crucial for remote transactions that support digital trade. As of 2024, 70% of adults (aged 15+) in LAC (excluding high-income countries) had a transaction account, a significant increase from a decade ago (figure 2.12). Moreover, 59% of adults made or received a digital payment in 2024. Rates of uptake and use of digital payments for online purchases vary widely across the region. In Guatemala, only 1% of adults reported making an online merchant payment in 2024, compared to 40% in Brazil.[52] As for businesses, according to Enterprise Surveys, an average of 69% of formal firms' payments in LAC are made electronically, with little variation across firm size or sector. This share is above the global average of 59%, and, compared to other regions, below only Europe and Central Asia (85.6%) and North America (74.2%).

FIGURE 2.12. Adults in LAC with a transaction account, 2011–2024 (%)



Source: World Bank, Global Findex Database.

52 World Bank, Global Findex Database 2025, https://www.worldbank.org/en/publication/globalfindex.

The introduction of fast payment systems (FPS)[53] across more than a dozen LAC jurisdictions (such as SINPE Movil in Costa Rica and Transferencias 3.0 in Argentina) has substantially improved the speed, convenience, and affordability of digital payments, but person-to-business (P2B) use cases for FPS remain underdeveloped, except for Pix in Brazil (World Bank, 2025c). Box 2.3 focuses on regional FPS in Central America.

BOX 2.3. Strengthening subregional cross-border payment infrastructure in Central America

The *Sistema de Interconexión de Pagos* (SIPA) is a subregional payment infrastructure for Central America established in 2011. It is hosted by the Dominican Republic, and participants include the central banks of Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. Despite more than a decade of continuous operations, SIPA has not yet achieved its full potential. Recent developments have shown that appropriate national-level payment policies and infrastructure reforms can have a significant impact on the system's adoption. During its initial decade of operations, SIPA transactions grew at a moderate pace, held back by a lack of participant diversity, insufficient automation, poor user experience, and limited promotions. From its launch in 2012 to 2022, SIPA processed approximately 38,000 transactions for a total value of US$1.4 billion. By comparison, in 2024 alone, SIPA registered almost 43,000 transactions. This shift coincided with the launch of Transfer365 CA-RD in El Salvador, a payment solution for regional cross-border payments to/from El Salvador that leverages SIPA as its technical platform. El Salvador's RTGS upgrade and a new set of rules and regulations issued by the central bank facilitated these developments, which have the potential to unlock new use cases and further promote the use of SIPA for cross-border retail payments and international remittances.

There remains significant scope to further leverage SIPA to support regional economic integration and digital transformation. This includes reforms to its pricing and operational model, further alignment with domestic fast payment systems, improved promotion and branding, and expanded country participation.

Source: World Bank (2026).

53 Fast payments—also known as instant or immediate payments—involve real-time receipt of funds in the payee's account and around-the-clock service.

Coordinated efforts to enhance cross-border payments are critical to facilitating digital trade. When the payee's and payer's financial intermediaries operate under divergent regulations, or when financial data are not immediately interoperable between the entities involved, transactions become slow and costly, limiting opportunities to expand digital trade. Recent evidence suggests that progress has been made in ISO 20022 implementation and harmonization and the interlinking of FPS (Financial Stability Board, 2024).[54] In LAC, the FPS of Brazil (Pix) and Paraguay (SPI) use ISO 20022, while Peru's CCE also accommodates ISO 8583, given the limited market adoption of ISO 20022. While the cost of P2B payments decreased in LAC (from 3.3% to 2.7%), it remained relatively high, and only about 40% of B2B cross-border payments are completed within one business day.

Trade regimes in payment services are also important determinants of digital trade. According to the STRI for commercial banking services, which include payment services (figure 2.3.d), LAC countries are generally more open than the global average.[55] However, this openness is not always guaranteed multilaterally, as relatively few trade bindings exist for the sector in the WTO (figure 2.4).

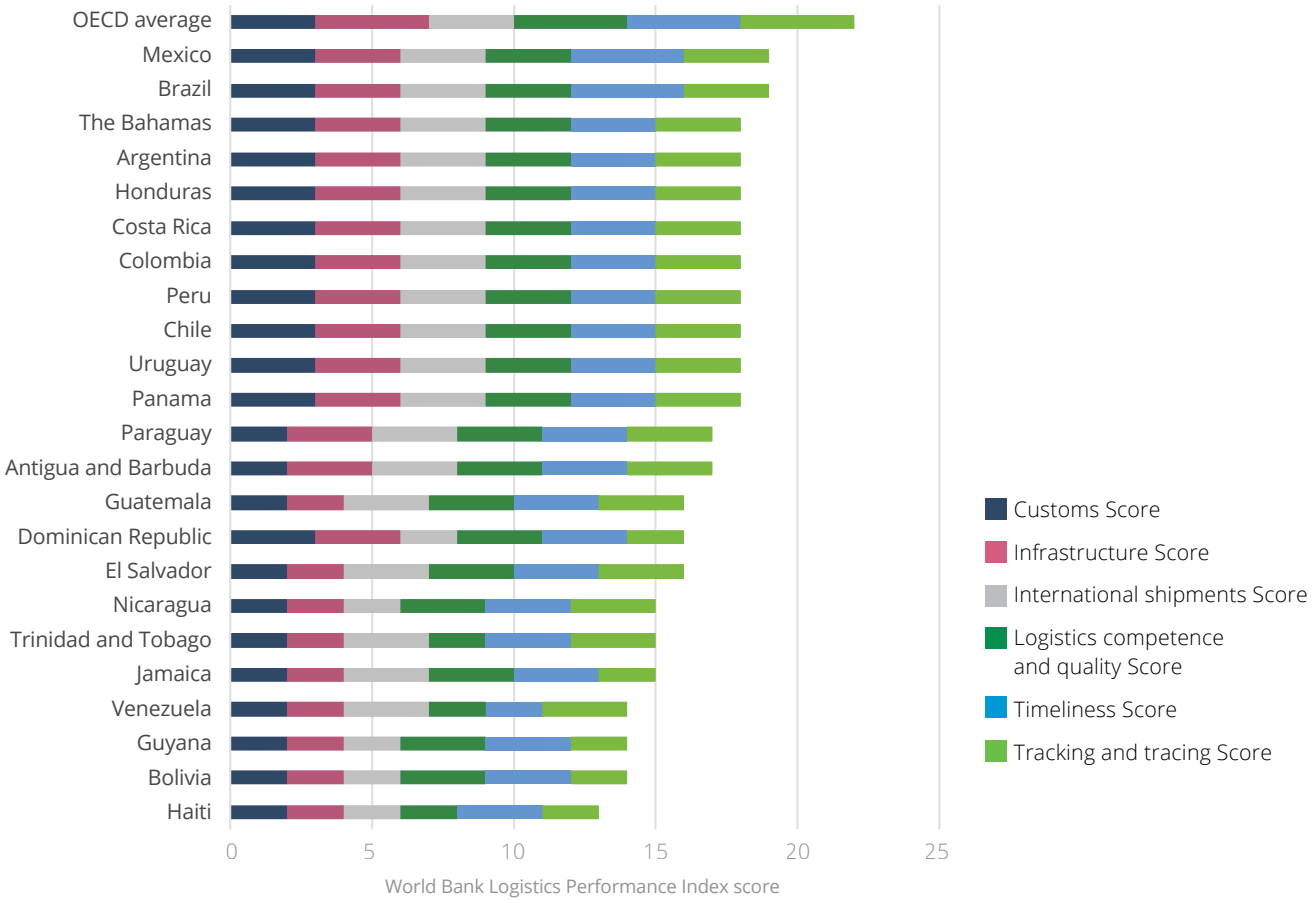
Logistics, customs, and other border processes for e-commerce

Digitally ordered goods trade requires logistics, customs, and other border processes to support fast, just-in-time shipping. The quality of LAC logistics infrastructure and services still trails that of OECD nations in critical areas for digital sellers, such as transport infrastructure, ease of arranging competitively priced shipments, competence and quality of logistics services, and the ability to track and trace consignments (figure 2.13). Postal services in LAC, which firms rely on to ship parcels—the hallmark of B2C e-commerce—also show uneven performance in e-commerce-related metrics such as end-to-end delivery and traceability (Universal Postal Union, 2024). These long-standing gaps increase costs for online sellers and their customers (Mesquita Moreira and Stein, 2019, chapter 7).

54 ISO 20022 is an international standard for exchanging electronic messages between financial institutions. It has the potential to allow more consistent and structured data transfer during payment processing. To this end, the harmonization requirements of the Bank for International Settlements' Committee on Payments and Market Infrastructures provide payment system operators and participants in both the public and private sectors with guidance on how to implement ISO 20022 consistently, to help facilitate faster, cheaper, more accessible, and more transparent cross-border payments ("the G20 targets"). They set out specific data requirements for ISO 20022 messages to increase the efficiency of cross-border payments.

55 For the purpose of the STRI, the scope of commercial banking services includes most services supplied by banks, such as acceptance of deposits and other repayable funds from the public, lending of all types, financial leasing, guarantees and commitments, and payment and money transmission services.

FIGURE 2.13. LAC countries' logistics performance scores



Source: World Bank Logistics Performance Index.

An important issue in this regard is how open the trade regime is and to what extent it facilitates and promotes firm entry in the freight transport, postal, and courier services sectors. More open regimes tend to promote stronger competition and lower prices for these services, thereby favoring the expansion of digital trade in goods. As the STRI for these sectors indicates (figures 2.3.b and 2.3.c), the applied trade regime in LAC is comparatively open, although there are significant variations at the country level. Still, this access is not fully secure because LAC countries have undertaken few WTO commitments in these sectors, leaving scope for trade-restrictive policy changes (figures 2.4a and b).

Other key factors affecting digital trade in goods are the design of administrative procedures established by customs and other relevant border agencies (e.g., sanitary and phytosanitary agencies), along with the means available to firms to complete them and thus comply with applicable regulations. They determine

how easy, fast, and predictable it is for shipments to cross borders, thereby significantly impacting a firm's ability to participate in and expand its activities in international markets (Volpe Martincus, 2016). Thus, long customs processing times negatively affect firms' exports, especially new sales to new foreign buyers (Volpe Martincus et al., 2015). Processing times and resulting costs specifically undermine smaller firms in time-sensitive supply chains as they seek to meet customer demands for low lead times (Carballo et al., 2025). Crucially, these challenges reverberate across the economy.

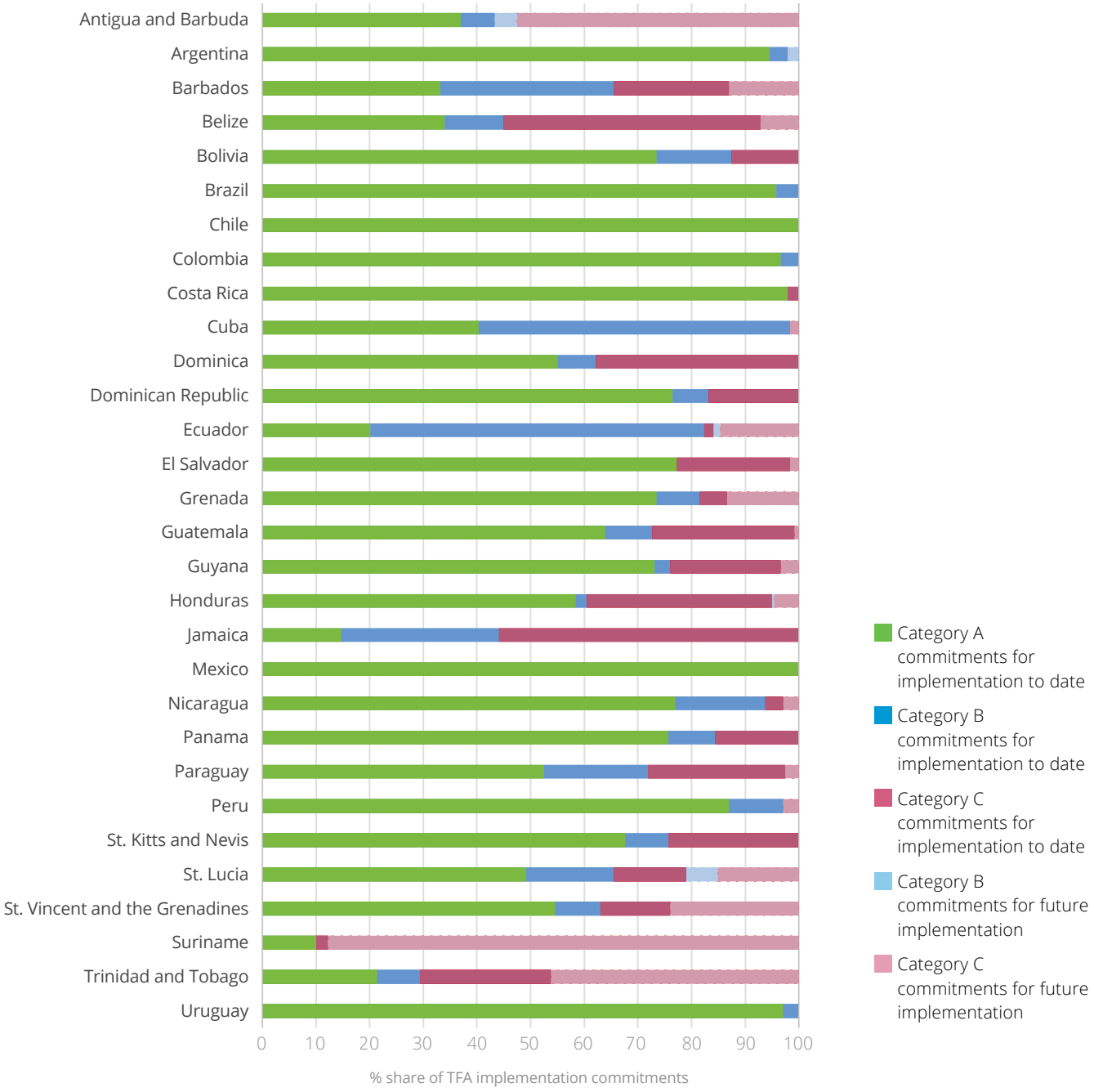
Countries in the region have implemented important trade facilitation initiatives that streamline and digitalize border procedures. These initiatives have had significant positive effects on international trade for firms and countries (Volpe Martincus, 2016).

More formally, most LAC countries have signed the WTO's Trade Facilitation Agreement (TFA), which contains provisions to expedite the movement, release, and clearance of goods, thereby benefiting digital trade activities that rely on quick delivery. All LAC WTO Members except Haiti and Suriname have ratified the agreement. For some countries, full implementation is already complete; for others, it is scheduled to be completed no later than 2038 (see table 2.2).[56] It is worth noting that developed countries had to implement the TFA by the time it entered into force (2017).

While figure 2.14 shows TFA implementation commitments as notified by WTO Members, other indicators measure and assess trade facilitation implementation through surveys or additional metrics. These efforts suggest that burdensome administrative border procedures, along with insufficient digitalization, may still constitute significant bottlenecks to LAC trade in goods, especially digitally ordered goods. For example, such indicators show that many Caribbean and Central American countries are still behind advanced economies in the digitalization of border processes, paperless trade, transparency of trade processes, and coordination among border agencies within and across LAC countries (figure 2.15).

56 Suriname has not yet ratified the TFA but has voluntarily submitted its category A and C commitments, as well as its indicative and definitive implementation dates for its category C commitments. As mentioned in its notification to the WTO (WTO document G/TFA/N/SUR/1), Suriname intends to implement the provisions of the TFA by 2030. Chile and Mexico implemented all measures in the TFA upon its entry into force. Haiti and Venezuela did not submit notifications of TFA implementation categories: whereas Haiti has yet to ratify the TFA, Venezuela committed to full implementation of the TFA upon ratification in 2024.

FIGURE 2.14. LAC countries' current rate of implementation commitments of the WTO, TFA (%)

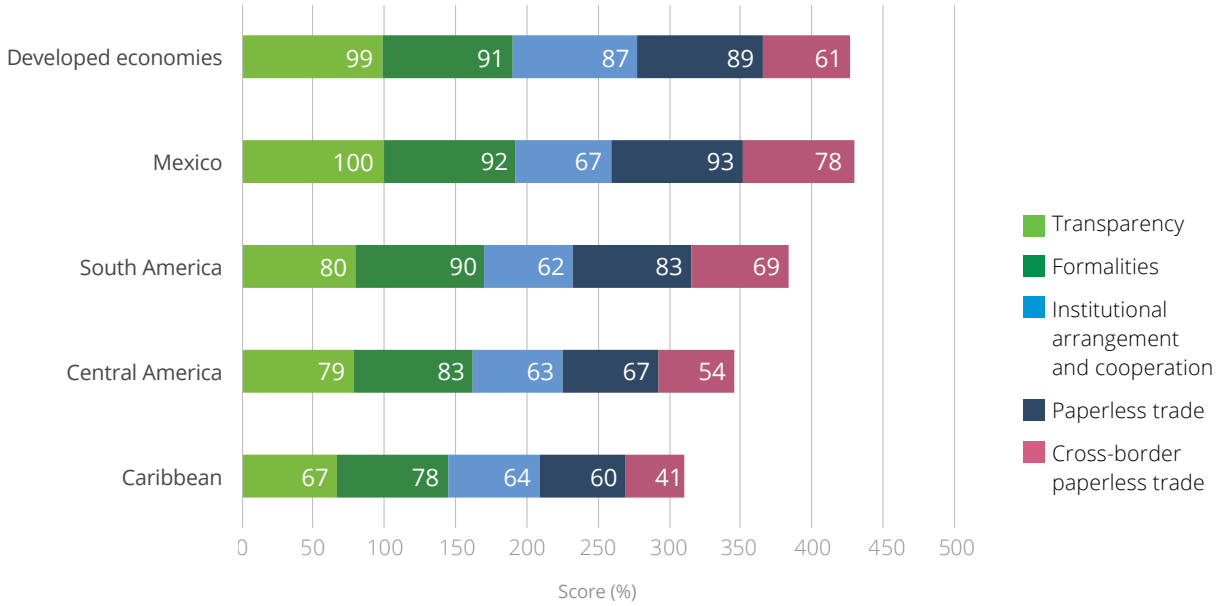


Source: World Trade Organization TFA Database (as of December 2025).

Notes: *Category A* refers to provisions that a Member committed to implement by the time the TFA entered into force on February 22, 2017, (or, in the case of a least-developed-country Member, within one year of entry into force on February 22, 2018). *Category B* refers to provisions that a Member has committed to implement after a transitional period following the TFA's entry into force. *Category C* refers to provisions that a Member has committed to implement after a transitional period following the TFA's entry into force and which require technical assistance and support for capacity building.

In line with the provisions of the TFA, developed Members are not eligible to benefit from the flexibilities to implement the Agreement contained in Section II (categories A, B, and C, described above). As a result, developed Members were to implement the entire TFA by the time it entered into force (i.e., by February 22, 2017).

FIGURE 2.15. UN trade facilitation scores in LAC countries and developed economies, 2023 (composite score, maximum = 500%)



Source: United Nations, UN Global Survey on Digital and Sustainable Trade Facilitation (https://www.untfsurvey.org/world).

These gaps are particularly important because trade in digitally delivered goods has increased the number and variety of shipments entering and leaving LAC. This expansion is placing additional pressure on the region's customs agencies to secure trade, detect customs fraud and other regulatory violations, and collect applicable duties, taxes, and fees.

Information frictions and export promotion policies

Despite technological progress, information frictions continue to have a significant impact on exporting. Firms that trade across borders must search for information about prevailing demand and entry conditions in foreign markets, specifically to find and assess potential business partners and customers (Volpe Martincus, 2010).

Online platforms can reduce information barriers, thereby favoring firms' exports (Carballo et al., 2022). However, in the digital realm, firms must understand marketplaces and online channels to engage in digital trade, particularly to optimize their marketing and sales to cater to foreign customers (Suominen, 2021). Moreover, large numbers of participants in online markets can affect the functioning of existing mechanisms, making it difficult to find high-quality sellers (Bai et al., 2022).

Importantly, information gathered through proactive efforts tends to spill over to other firms, thereby indirectly benefiting them and potentially reducing the returns for first movers. Investments to acquire relevant business information are therefore generally suboptimal, leading to underexporting, both overall and by destination, product, and service (Volpe Martincus, 2010).

Unlike variable trade costs (such as tariffs or shipping), information-related barriers are largely fixed: firms must invest upfront in market research, compliance, and relationship-building before making their first sale abroad. These costs are particularly daunting when firms are first entering international markets, expanding to new destinations, or introducing new export products, or when they are small and less experienced firms and therefore lack the resources and networks of larger firms (Volpe Martincus and Carballo, 2008, 2010; Volpe Martincus et al., 2012; Lederman et al., 2016).

The evidence consistently suggests that, by reducing these fixed information costs, export promotion services in Latin America have been effective in helping firms to start exporting, increase the number of markets they serve and products they export, and to continue exporting (Volpe Martincus and Carballo, 2008, 2010, 2012; Cruz, 2014; Lederman et al., 2016).

When it comes to digital trade, export promotion agencies face new challenges, including the need to design and implement programs to help firms overcome the specific obstacles of this trade modality. Consistently, many agencies now also promote digital exports, assisting firms in selling through online platforms and supporting digital service providers in serving global buyers. Initiatives like the IDB's *ConnectAmericas* platform, which provides firms with capacity-building and matchmaking services, and partnerships with online marketplaces offer additional opportunities to scale access to international markets and overcome information asymmetries.

Firms' capabilities and skills for digital trade

A country's digital exports can be driven by the capabilities of domestic firms and foreign firms operating in its territory, with the latter typically contributing with knowledge, skills, and technology from abroad.[57] All aspects are generally relevant for both digitally traded goods and services.

57 See chapter 1 for a discussion of the role of FDI in digital trade.

Capabilities

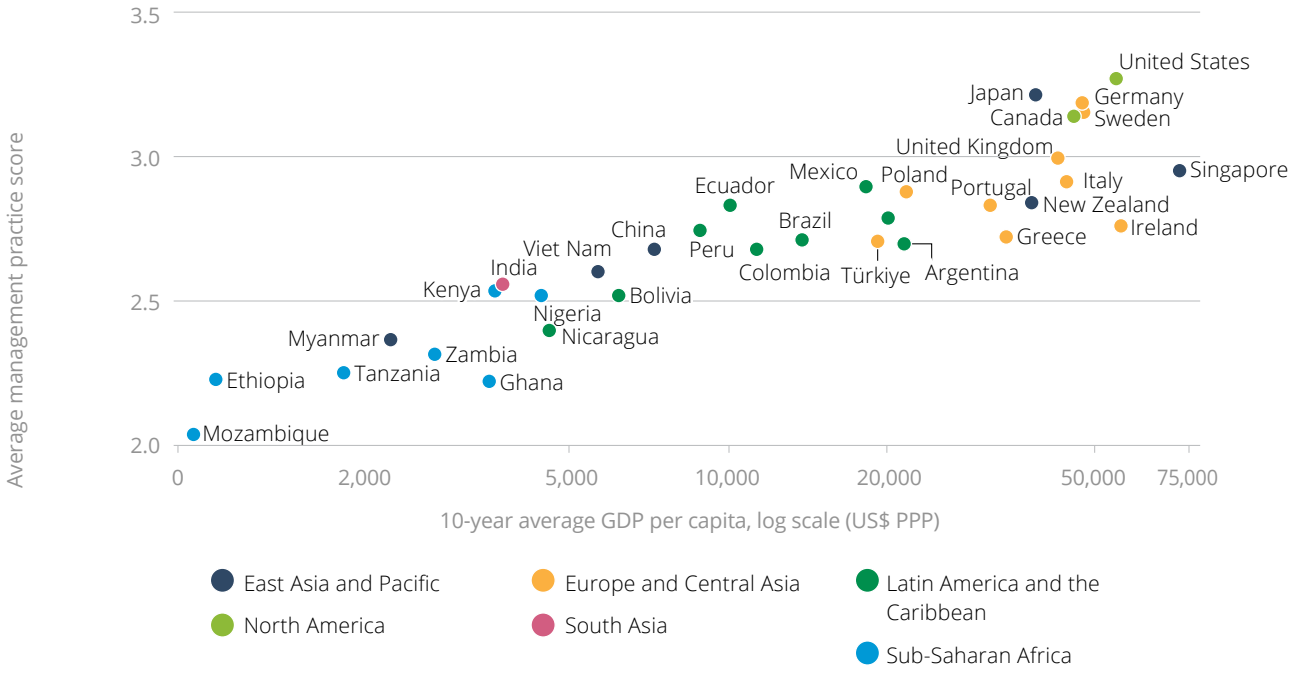
The LAC region lags in firm-level capabilities, which are a key determinant of its ability to innovate and participate in international trade. A country's technological absorption capacity depends on its level of basic, technical, managerial, and entrepreneurial capabilities, along with supporting nonmarket, knowledge-related institutions such as universities and public research entities. These enable firms to understand new technologies, evaluate their profitability relative to existing alternatives, finance and implement them over a long gestation period, and manage risk and potential failure (Cirera and Maloney, 2017; Maloney et al., 2025).

Within-firm capabilities are determined by human capital—both managerial practices and the technical skills of the workforce. In LAC, firms led by managers with a university degree who have studied abroad and/or have experience working at large companies or suppliers to global value chains tend to adopt and use more sophisticated technologies (Maloney et al., 2025). Better-educated managers are more able to identify knowledge, assess risk, employ higher-quality workers, and implement the management practices and organizational structures needed to adopt and use complex knowledge. Exposure to international technologies and managerial practices further enhances their ability to make informed decisions.[58]

Firms in LAC exhibit lower average management quality than would be predicted by their income levels (see figure 2.17). The World Management Survey has documented that developing country firms are lagging across a wide range of capabilities critical to growth. Among LAC countries included in the World Management Survey, only Mexico has management scores that exceed the level its per capita GDP would predict, while Argentina, Brazil, and Chile significantly underperform. On average, LAC firms perform well below frontier (leading global) firms on management aspects, including monitoring, the adoption of just-in-time processes, internal feedback mechanisms, long-term planning and goal stretching, and human resource policies. In general, LAC firms tend to use fewer of the structured management practices that are important for firm performance and for managing R&D projects (Bloom and Van Reenen, 2007).

58 The rise of the LAC unicorns (firms with revenues exceeding US$1 billion) reflects the emergence of high-quality entrepreneurs, but also the importance of international experience in their formation and global sources of venture capital, which are hard to replicate locally (Maloney et al., 2025).

FIGURE 2.16. Managerial capabilities and income levels in LAC and globally, 2004–2022

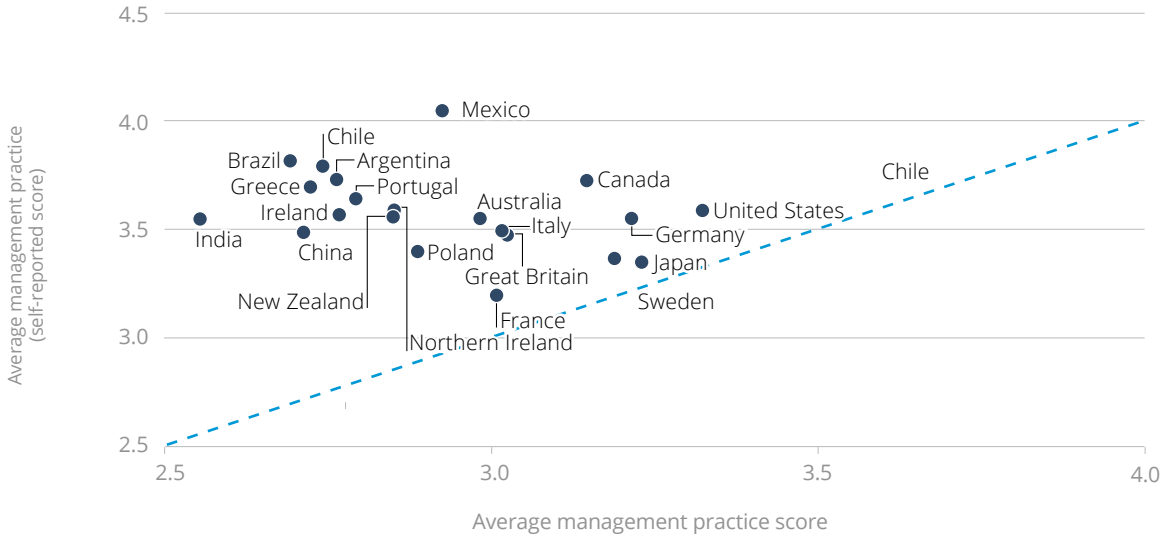


Sources: Maloney et al. (2025), modified from Bloom et al. (2014b), based on data from the World Management Survey (https://worldmanagementsurvey.org/) and the World Bank World Development Indicators (https://databank.worldbank.org/source/world-development-indicators).

Notes: The y-axis shows average country-level management scores across manufacturing firms; for each firm, an average score is computed across multiple management practices. Data years: 2004–2022; GDP per capita is the average for 2012–2021. PPP = purchasing power parity.

Evidence from around the world suggests that management skills can be taught to existing firms, with positive effects on firm performance that can be long-lasting (Bloom et al., 2020; Iacovone et al., 2022; Bianchi and Giorcelli, 2019; and Atkin et al., 2017). Why, then, does management quality remain relatively low? Evidence from the World Management Survey comparing managers' self-assessments of their firms' management practices with expert evaluations shows that LAC firms overestimate the quality of their management (figure 2.18). This gap suggests that a more proactive approach to helping firms improve their managerial capabilities may be warranted.

FIGURE 2.17. Comparison of self-reported and externally evaluated management practices in LAC and global firms



Source: Cirera and Maloney (2017), based on Bloom and Van Reenen (2007), using World Management Survey data.

Digital capabilities are also critical for participating in global value chains, where large businesses increasingly require suppliers to meet a range of digital, data management, and cybersecurity requirements.[59] Digital capabilities vary by firm size and sector. Around half of the firms in LAC countries included in the COVID-19 Enterprise Surveys reported starting or increasing online business activity since the pandemic.[60] Firms were more likely to start or expand online activity if they (i) operated in the service sector, which typically requires less investment and logistics; (ii) were medium-sized, and thus may have a sufficient capability base to support new business models or initiatives; and (iii) were foreign-owned, which can provide links to more distant markets and access to managerial capacity, business models, and technologies that facilitate digitalization.[61] The private sector can help build firms' digital capabilities. For

59 In a 2024 Nextrade Group survey of 250 Mexican and Costa Rican suppliers in the automotive, electronics, apparel, and food processing sectors, over 80% of firms that had diversified their customers by 10% or more in the past three years had also put in place data encryption, regular data audits, and cybersecurity practices, while over 70% had third-party risk management practices and traceability systems in place.

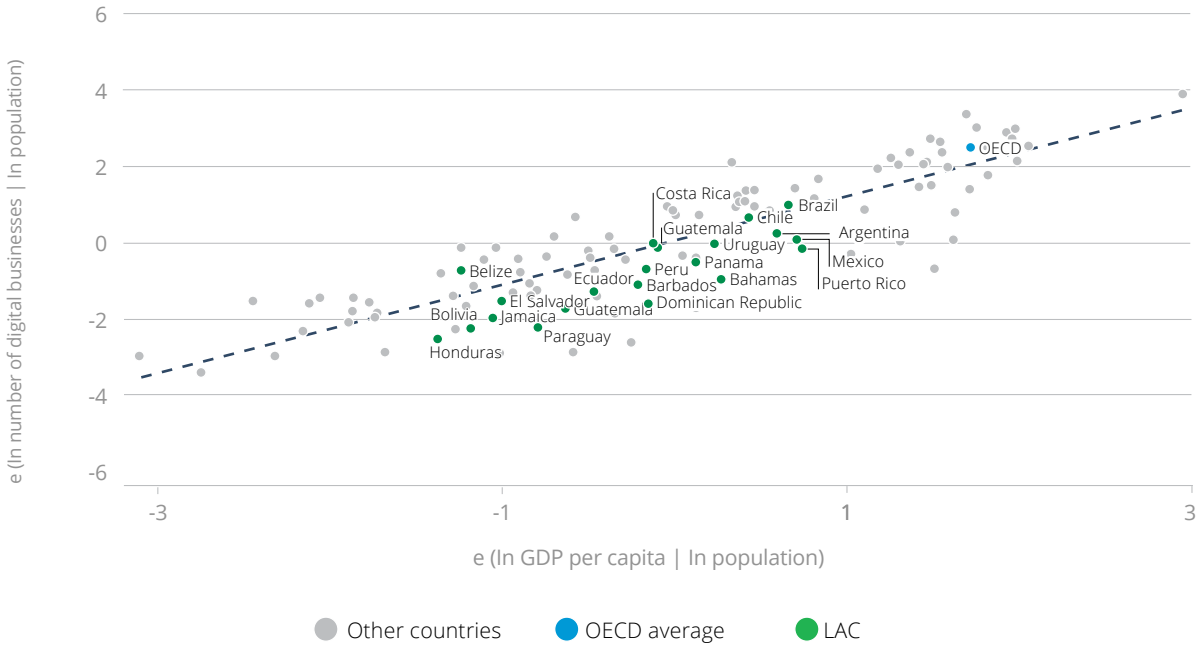
60 Enterprise Surveys COVID-19 Surveys (conducted in 2021 and 2022), https://www.enterprisesurveys.org.

61 Additionally, a survey of more than 2,000 Central American firms (IFC, 2021) found that a higher share of firms in services sectors—business process outsourcing and financial services—use digital technologies compared to firms in the more traditional export sectors like agriculture and light manufacturing. There is also large variation in technological sophistication and adoption within firms in the same sector, arguably because of heterogeneous costs and benefits of the different available technologies across business functions.

example, Mastercard's Center for Inclusive Growth operates the Strive Colombia initiative, which aims to digitally transform small businesses in the country. The program works with organizations like Fundación Capital and NYU's Financial Access Initiative to support more than 80,000 micro and small businesses in accessing new markets and developing digital sales channels. MercadoLibre also provides support to MSMEs entering online marketplaces.[62]

Regarding more advanced digital capabilities, LAC has fewer businesses operating in digital sectors than would be expected given its current level of economic development (Zhu et al. 2022). This not only affects firms that can engage directly in digital trade but also limits the ecosystem of digital businesses that enable other firms to digitize (figure 2.19).

FIGURE 2.18. Number of digital businesses relative to GDP per capita in LAC, 2022–2024



Note: N = 832,433.

Source: World Bank FCI Digital Business Database.

62 Colombia Mastercard Strive, "Boosting the resilience of small businesses and giving them more opportunities to grow and succeed," https://strivecommunity.org/country/colombia; MercadoLibre, "Iniciativa Impulso al emprendimiento femenino," https://sustentabilidadmercadolibre.com/iniciativas/impulso-al-emprendimiento-femenino.

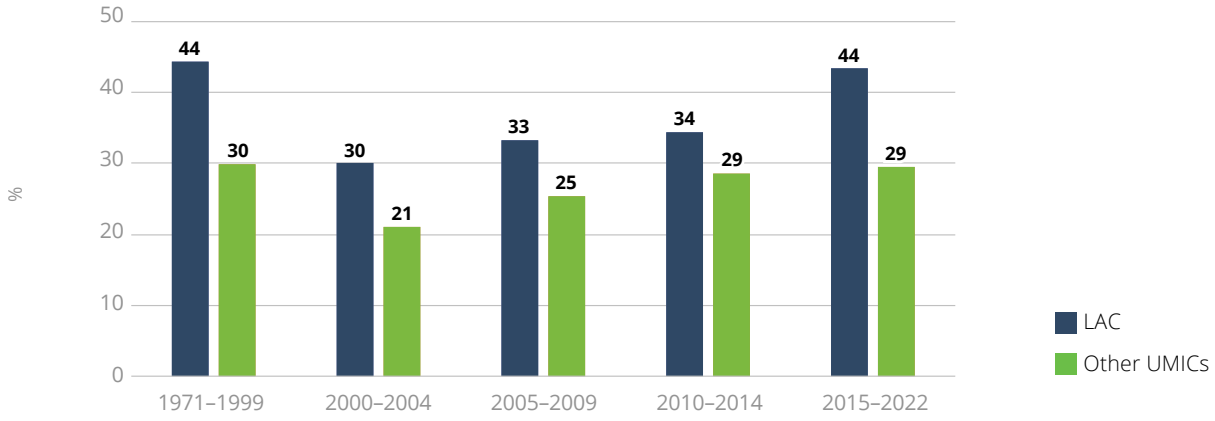
Digital firms are concentrated in the largest LAC economies: Brazil, Mexico, Argentina, Colombia, and Chile, which account for 85% of observations of digital businesses[63] and are the only countries in LAC with more than 1,000 digital businesses. The leading subsectors by number of observations of digital businesses are online sales, fintech, and marketing tech (around 12% each) and business management tech (just under 10%), followed by software as a service (SaaS) and web services (7%–9%), and the creative economy, including digital media and entertainment tech (9%). More advanced subsectors, such as big data analytics and artificial intelligence/machine learning (AI/ML), each represent around 4% of digital business observations.

Based on the number of firms that have received investment, LAC seems to be relatively successful in consumer-facing subsectors such as online distribution, fintech, and travel tech ("applied tech") but is falling behind in artificial intelligence, machine learning, and the Internet of Things ("deep tech") (figure 2.20). This pattern is consistent with the data on the number of digital businesses. Since 2000, a growing proportion of the world's applied tech companies receiving investment has been located in LAC: they accounted for over 40% in 2015–2022 and remain above the average for upper-middle-income countries (UMICs). While LAC as a whole led other UMICs in the number of funded deep tech businesses from 2000 to 2009, this advantage shifted during 2010–22, when other UMICs' deep tech sectors were becoming more developed (figure 2.20).

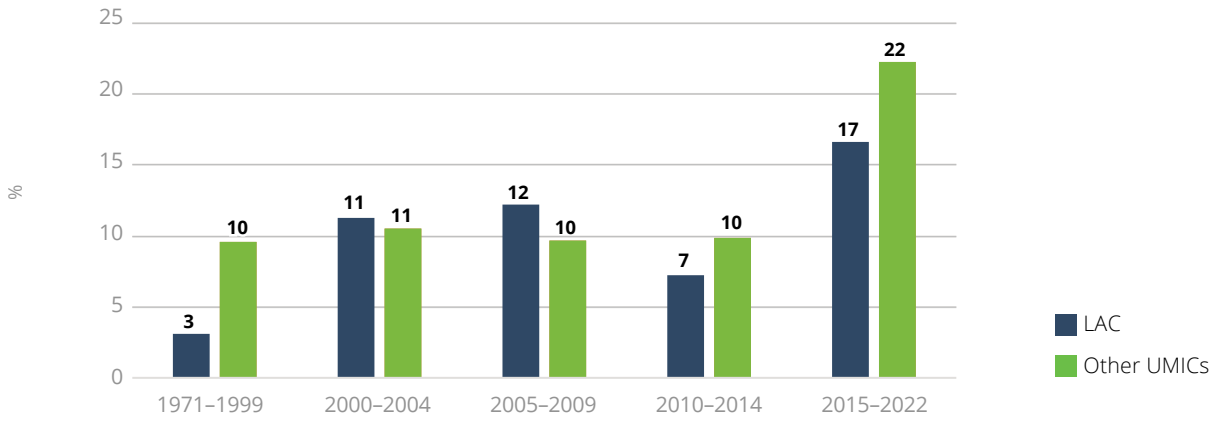
63 The World Bank's Digital Business Database defines digital businesses as businesses operating in digital sectors that have received equity investment that appears in international sources. It draws from four databases that capture investments made worldwide: CB Insights, Pitchbook, Crunchbase, and BriterBridges. CB Insights is a tech market intelligence platform that analyzes data on venture capital, startups, patents, and other data points to provide insights into private companies, investor activities, and emerging industry trends. PitchBook is a private capital market intelligence platform that provides data, research, and news on venture capital, private equity, and mergers and acquisitions, helping investors and other market participants make informed decisions. Crunchbase is a platform that provides business intelligence and insights on both public and private companies, focusing on investment, funding, leadership, mergers and acquisitions, and news, primarily serving entrepreneurs, investors, and market researchers. BriterBridges is a business intelligence and research platform focused on underserved and emerging markets. A firm may be in more than one sector. "Observations of digital businesses" counts each firm-sector pair as one observation, so if a firm is present in multiple sectors, it will have multiple observations.

FIGURES 2.19. Funded businesses in applied tech and deep tech in LAC and UMICs, 1971–2022 (%)

Funded businesses in applied tech



Funded businesses in deep tech



Source: World Bank Digital Businesses Database.

To understand the reasons behind LAC's relatively low participation in digital sectors, it is helpful to examine innovative activity in the region. At both the regional and individual country level, LAC invests less than advanced economies in innovation of all types (Maloney et al., 2025). LAC firms take less advantage of international partnerships and technology licensing than other regions. LAC countries do well in the adoption of relatively accessible and inexpensive technologies (such as ERP and CRM systems) but lag in advanced production technologies. Furthermore, after companies have adopted such technologies, there are also gaps in their productive use: while nearly 100% of firms in Brazil and Chile have internet access, only 50%–60% of firms have adopted advanced digital technologies, and only 23%–25% use them intensively (Maloney et al., 2025).

Skills

Another challenge firms face is limited technical skills for the digital economy. Firms with staff who have technology-related degrees and/or a track record in tech companies are better positioned to adopt technologies and engage in digital trade than firms with staff who have not had prior exposure to these technologies. However, these skills are still scarce. In a survey of Central American firms, small, medium, and large firms stated that the lack of highly trained professionals in the country was the primary constraint on hiring workers able to leverage and build on new technologies (IFC, 2021). IT talent is the hardest to access and pay for; it has the highest turnover and the most in-demand profile among businesses in the sector (World Bank, 2023). Small firms may also be at a competitive disadvantage against large companies in accessing top talent.[64]

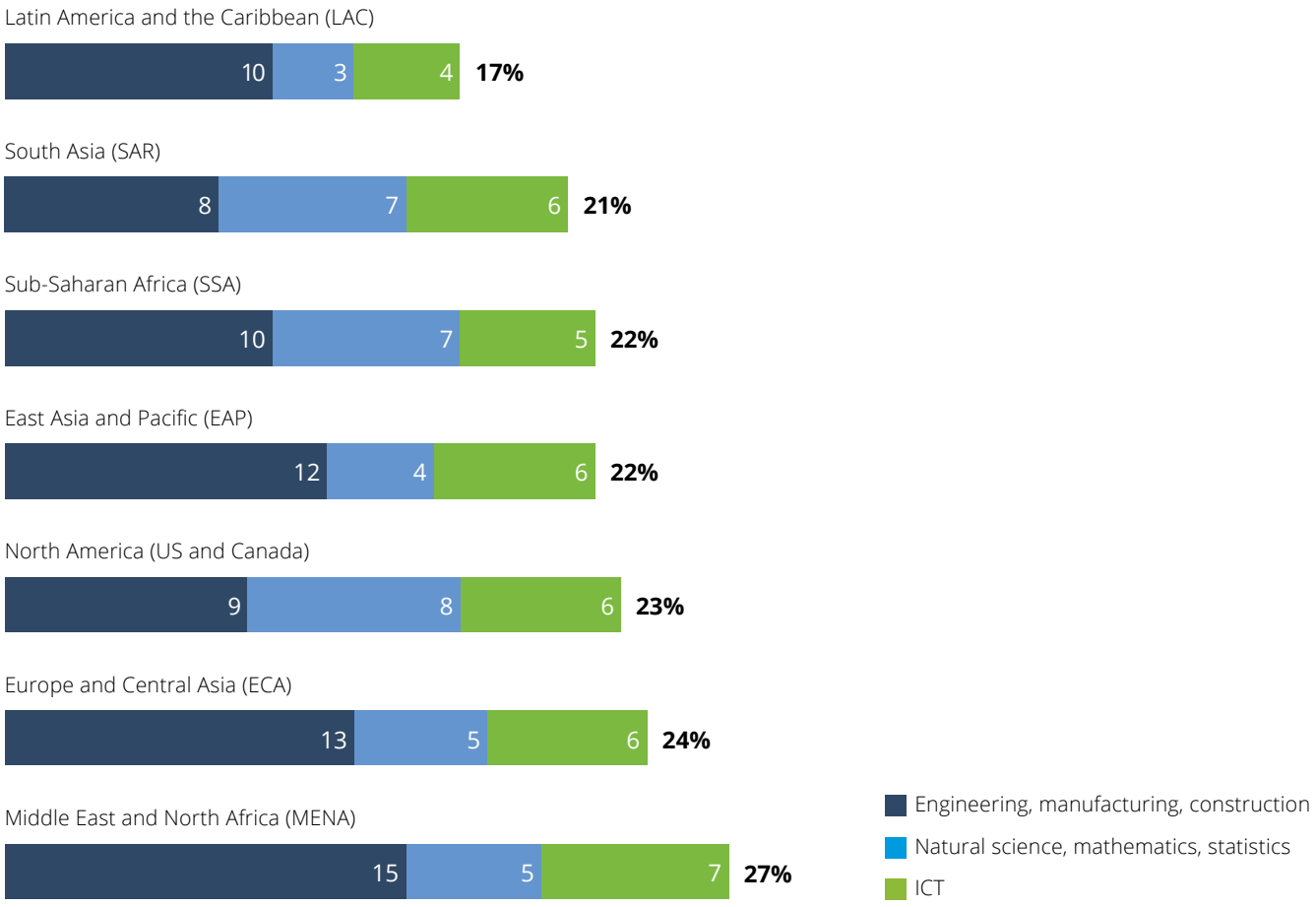
Surveys and recruiter reviews suggest strong demand for diverse occupations related to running a firm engaged in digital trade. The occupations and digital skills in demand in LAC include the following (Cuesta Partners, 2024):

- digital marketers using data analytics of customer segments and AI-driven methods to promote engagement and retention,
- data scientists who derive actionable information from data,
- operations managers who oversee specific areas of fulfillment and customer service,
- software engineers and back-end and front-end developers,
- content creators who develop engaging content,
- user experience and user interface experts who professionalize and develop appealing customer experiences,
- cybersecurity managers who identify and test against vulnerabilities and develop secure networks,
- cloud computing experts, including cloud infrastructure management, cloud-native applications, and knowledge of cloud platforms, and
- DevOps (continuous integration and continuous delivery pipelines to help teams test and deploy applications).

64 For example, in a World Bank Group survey, Guatemalan companies said they cannot compete for talent given the pay that larger companies offer to potential employees (IFC, 2021).

In addition to these technical skills, softer skills such as communication, collaboration, and problem-solving are required for the digital economy. Frameworks for assessing digital skills at the country level and for framing initiatives to increase such skills include the EU's DigComp 2.2 (updated in 2022) and UNESCO's expansion of it, which are used as benchmarks in several studies (Vuorikari et al., 2022). The DigiComp 2.2 framework examines information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. UNESCO's Digital Literacy Global Framework builds on this and adds two skills: fundamentals of hardware and software, and career-related competencies.

FIGURE 2.20. Share of STEM graduates among tertiary graduates, LAC and global regions, (%)



Source: IDB (2021).

On the supply side of skills, the share of tertiary graduates in science, technology, engineering, and mathematics (STEM)—individuals well positioned to innovate and adopt technologies across different use cases—is low in most LAC economies compared to OECD countries and to economies at similar levels of development (figure 2.20).[65] Colombia, El Salvador, Mexico, and Trinidad and Tobago outperform some economies at the same level of development in producing STEM graduates. LAC outperforms only South Asia and North America in the broad engineering, manufacturing, and construction category.

At the other end of the spectrum, some countries lag in basic digital skills for both digital entrepreneurship and employment in digital-related jobs. As shown in the section on connectivity, in many LAC countries, fewer than 80% of households use the internet. On average, 6% of households in the region say they are not connected to the internet because they lack digital skills, with the highest rates (8%–9%) in Uruguay, Chile, Mexico, and Brazil. Given that these countries also have comparatively strong digital sectors (as discussed elsewhere in this report), these figures may point to inclusivity challenges: even in countries with strong overall digital economies, some segments of the population remain excluded (World Bank and UNDP, 2022).

Finally, supporting institutions such as universities and research institutions play a key role in the innovation ecosystem, particularly for STEM. Higher education contributes to innovation through three channels: first, it can develop skills by educating students and training professionals, managers, and technicians who will adopt or produce innovations. Second, it can produce new knowledge—the bedrock of innovation—through research. Third, it can exchange knowledge with industry to innovate and develop new products and production methods. These missions are accomplished when higher education institutions are closely connected to enterprises and employers to gauge demand for labor-market skills and knowledge in the business sector and to collaborate in producing them.

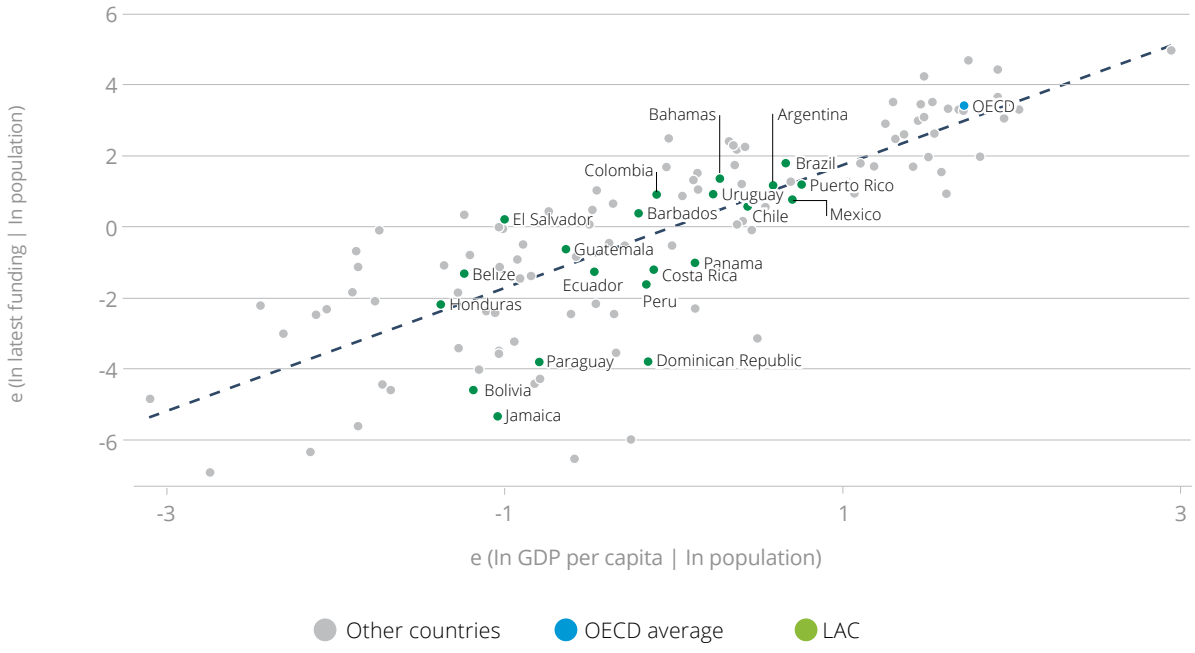
In LAC, linkages between research efforts at academic and research institutes and private-sector needs and applications are weak (Maloney et al., 2025). While most R&D in the United States is funded by industry, in LAC, most is publicly funded and channeled through universities. Further, STEM fields receive a lower share of R&D spending in LAC than in Spain or the US (Maloney et al., 2025). When universities are ranked by industry income (obtained from industry contracts and used to measure knowledge exchange), only 1% of the top 500 higher education institutions in the world are from LAC—lower than any other region (Maloney et al., 2025).

65 UNESCO UIS Education Survey, https://uis.unesco.org/uis-questionnaires. On STEM graduates and innovation, see Winters (2017).

Access to finance for digitally oriented firms

Firms operating exclusively digitally may face particular difficulties accessing financing, and this can prevent them from growing and effectively participating in digital trade. These firms may have newer, more innovative business models that banks perceive as riskier or for which they may not have developed credit assessment capabilities. These firms may also tend to have more intangible assets than traditional collateral. Furthermore, digital entrepreneurs may not have access to seed, scale-up, and risk capital for early-stage business development (rather than commercial bank lending). Unfortunately, little data is available on firms' access to bank financing (loans) in the digital economy, but access to finance in LAC is generally low. For instance, only one in four Mexican trading firms receives any credit (not just trade finance) from local banks, and only 8% of Mexico's goods trade benefits from trade finance, a lower share than in West Africa or Asia. Similarly, surveyed firms in Central America cited financing gaps as one of the main obstacles to adopting new technologies (IFC, 2021).

FIGURE 2.21. Equity investment in digital firms, LAC, 2022–2024 (millions of US$)



Note: N = 123,365. X = population.

Source: World Bank, FCI Digital Business Database.

In terms of equity investment in exclusively digital firms, performance across countries is mixed. Some LAC countries demonstrate investment levels higher than would be expected given their GDP per capita (Uruguay, Brazil, Colombia, El Salvador, Belize, and several others). Investment is below the expected level for their development status in Jamaica, Bolivia, Paraguay, and the Dominican Republic, as well as in countries with a more developed digital economy, such as Mexico and Chile (figure 2.21).

Nearly half of equity investment in LAC digital-only businesses is destined for fintech and online distribution. Of the investments made in 2022–2024, 29% went to fintech and 14% to online distribution. Business services such as digital solutions for logistics, marketing, and business management occupied third, fourth, and sixth place, with 5%–7% of investment each. Digital solutions for specific sectors dominated the other top sectors, including insurance, mobility, health, food, entertainment, travel, education, and utilities technology (in descending order), which each represented 3%–5%. Blockchain, crypto and software, and SaaS each received 4% of the equity investment in the region.

Conclusion

Firms' and countries' engagement in digital trade is shaped by a range of factors: trade policies affecting digitally enabling and enabled products; regulations governing digital markets; digital infrastructure and connectivity; digital payments; logistics and border procedures for the rapid movement of digitally ordered goods; information frictions; firms' capabilities and digital skills; and access to finance. With the exception of applied trade regimes for the 13 LAC countries covered by the World Bank–WTO STRI and regulatory frameworks, and to varying degrees across countries, LAC economies tend to underperform on most dimensions relative to both developed countries and globally. Realizing the region's potential for digital trade to support income growth and create jobs therefore requires addressing these constraints and strengthening the underlying drivers. Given that countries' relative positions vary across these factors, country-specific strategies are needed to promote digital trade and leverage its benefits. Chapter 3 presents recommendations and discusses how collaboration with development partners and within the region can support these efforts.

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