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Indirect taxation on the digital economy and its potential revenue in Latin America

Leveling the playing field in times of crisis

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MINISTERIO DE ECONOMÍA Y FINANZAS
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In memory of
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Content

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1 Executive Summary

The digital economy is the result of a transformation process generated by the development of information and communication technologies (ICT) that, through the significant advances in recent decades, have managed to reduce the costs of adopting these new technologies, improve business processes and reinforce innovation in all sectors of the economy (ECLAC, 2019).

The digital economy is constantly evolving, hence the importance of analyzing all prospects and possible advances to determine its impact on tax systems. Even though this rapid change makes it difficult to predict future progress with a minimum reliability index, any outlook should be closely monitored as it may trigger subsequent challenges that those responsible for fiscal policy will have to face in a near future (OECD, 2017).

The digitalization of the economy has led to important changes in business models and in the value-creation processes of companies (ECLAC, 2019). That is why, from a fiscal point of view, a series of challenges arise for fiscal policy and taxation (De Mello and Ter Minassian, 2020), since the tax systems, designed for another era and other circumstances, present a series of weak points that favor the erosion of the tax revenues from these new models.

In this framework, and taking into account the need for the governments of the region to strengthen their tax revenues in the short term and ensure proper taxation of the digital economy in relation to the value-added tax (VAT) in the medium and long term, this report proposes to prepare an economic study with the available data, in order to analyze the tax options of the digital economy in the field of indirect taxation and its potential impact on the collection of this tax in the countries of Latin America.

Digitalization has allowed that some companies may actively participate in certain economic sectors in various countries without necessarily having a significant physical presence in them. On the side of value-added tax (VAT), which is the subject of this report, the difficulty arises in taxing operations at the place of consumption, especially in the case of digital services and intangible goods, since the seller resides in another jurisdiction.

The crisis unleashed by the 2020 pandemic has had a double effect on the digital economy and its possible taxation: on the one hand, the pandemic has implied, through an important change in the consumption patterns, a significant expansion of some segments of this sector. On the other hand, the impact of the pandemic on the fiscal accounts and the need to obtain income makes it urgent to tax these sectors through the implementation of VAT (and income tax too) on the goods and services that are traded digitally.

One of the consequences of the pandemic and its associated containment measures has been the growth of consumption via digital platforms, which in some countries is not yet taxed or, at least, not to the desirable extent. This not only has a significant collection cost but is also creating strong unfair competition with traditional sectors, especially against the small companies, precisely those most affected by the crisis (Barreix, Garcimartin, and Verdi, 2020).

The countries currently face the challenge of taxing cross-border digital services with VAT in two ways. One is establishing unilateral mechanisms, generally making use of withholding systems on means of payment (such as credit cards or transfers of funds abroad) in operations carried out in favor of selected and authorized entities.

The second way consists in the application of the proposed measures regarding consumption taxes generated around the BEPS project, which seeks in a few words that those highly technical companies that operate without a physical presence in a country collect the tax and transfer it to the country using a direct and simple scheme that includes a simplified registration mechanism, limited processes for obtaining and sending information on the operations carried out and making the payment of the taxes collected also from abroad and without physical presence.

In view of the accelerated growth of the digital economy and cross-border operations, it is crucial that countries adapt their VAT laws to tax intangible goods and services acquired abroad by resident companies and consumers while considering adequate collection and registration mechanisms of taxpayers. This is key, both for obtaining tax revenues and for “leveling the playing field” with local suppliers so that they compete under equal conditions. If not, the loss of tax revenue will be increasingly important, not only due to the expansion of this sector but also because companies from the traditional

sectors will seek a way to migrate to the digital sector and operate from abroad, with the consequent damage to the employment, economic growth, and the development of the local digital economy.

Against this background, some Latin American countries have incorporated digital services into the VAT tax base and have begun to collect the tax, although the rates, the collection mechanism, the obligation of the provider to register and other characteristics of the tax varies among countries.

Although the OECD recommendation regarding business-to-consumer (B2C) transactions is that the foreign supplier company should be registered as a VAT taxpayer, through a simplified process, in the buyer's jurisdiction and is responsible for collecting, declaring, and paying the tax, countries with smaller markets may face difficulties in forcing foreign companies to register and to penalize them in case of non-compliance.

Faced with this difficulty, some Latin American countries have chosen to collect VAT on the digital services purchased abroad, through withholding systems in the means of payment, an approach that also has problems and limitations, as detailed in the document.

From the collection point of view, the countries of the region have obtained tax revenues for this concept that are between USD 20 and USD 120 million per year, depending on the size of the digital economy of each country, which is equivalent to a value between 0.02% and 0.04% of GDP. However, in some cases, such as Chile, these values correspond to the first six months of VAT application, so when the collection of a full year is obtained, this indicator would be close to 0.08% of GDP. In the case of the European Union, according to the OECD (2018), revenue collection in the first year of operation of the simplified compliance regime exceeded 3 billion euros in 2015, a result of implementing the international guidelines about VAT.

From the review of the incipient specialized literature, the recommendations of international organizations, and the comparative experiences, we can conclude that the best suggestion for the countries of the region that have not yet implemented measures to tax cross-border digital services with VAT, is to opt for the compulsory VAT registration system for non-resident suppliers, combined with the withholding of the tax in the means of payment only in transactions with suppliers that fail to comply with the obligation to register.

For this, it is essential that the tax administrations carry out a detailed and exhaustive identification of the companies that potentially should be registered, a list that must be updated periodically. This list will be necessary to request the voluntary registration from suppliers and, if this does not occur, inform the issuers of means of payment on which companies the withholding should be made. If it is necessary to apply a withholding, it is also important to establish effective and expeditious procedures to refund the VAT in those cases where it was wrongly withheld.

Regarding the definition of digital services in the regulations, it is recommended to use a broad concept of digital services, without prejudice to the fact that some of them may be exempted by virtue of the general exemptions provided by the VAT legislation at the national level. Additionally, in the case of establishing specific exemptions to certain digital services, to grant certain incentives, it is important to ensure that such exemptions are also extended to national providers, so as not to encourage any unfair competition, as well as to periodically evaluate the effectiveness and continuity of these tax incentives.

Regarding VAT, the general recommendation is to tax completely at the place of consumption, which means that the commissions charged by the administrator of a digital platform must be one hundred percent taxed with VAT. But, in addition, any digital service that is consumed in a country must be taxed with VAT.

Additionally, it is suggested to facilitate the registration of non-resident suppliers through a web platform and a simplified procedure, which does not require the physical presence of company representatives. In addition, the supporting information should be provided so that it allows providers to easily determine if they are required to register, how to do it, and how to comply with the declaration and payment.

Regarding the periodicity of the declaration, all Latin American countries have chosen to request quarterly declarations, while for the payment it is important to offer all the alternatives that are possible, such as online payments by internet or international transfers, giving the option to pay in dollars or national currency.

Regarding the estimates included in the report, it can be observed that the potential collection in terms of GDP would be like the levels achieved by other Latin American countries that already tax these activities: between 0.02 and 0.06% of GDP annually and once the tax is fully in force. According to the degree of penetration of these technologies, the size of the countries, and the VAT rate, the annual resources that could be obtained in countries where the tax is not yet applied range from USD 6 million in Nicaragua to USD 113 million in Peru.

Finally, it is important to highlight two elements that have not been considered in the estimates and that would amplify the effect on the potential revenue.

In the first place, it has not been measured here how much VAT collection would fall in those countries that do not modify the legislation and continue without taxing cross-border digital services. The fact that these services continue to expand and do not pay the tax prevents competition under equal conditions, implies increasing damage to tax revenues, the economic activity of resident companies that are taxpayers, in addition to affecting the employment and the informal economy. The negative impact on the income of local companies will clearly affect future collection levels, an effect that will be even greater if local companies or companies from traditional sectors look for a way to move towards the digital sector and operate from abroad, which would increase the collection loss even more. Although the quantification of this type exceeds the scope of this study, requiring the application of a general equilibrium model and different assumptions of agent behavior, the negative effects of not taxing these activities are significant and will increase over time.

The second element that allows us to suppose a greater effect on collection earnings is related to the intermediary platforms of accommodation and transport services (such as Airbnb and Uber), since only the VAT that would be generated by the service of these intermediaries has been included in the estimates, that is, for the commissions that these digital companies charge to their clients or users. However, since in many countries the platforms share with the tax agencies the information on the owner or lessor of the property and the driver, as well as the income they receive, this will also strengthen the VAT collection for accommodation and transportation services, and income tax of the hosts and driving partners.

2 Purpose and Scope

The digital economy is the result of a transformation process generated by the development of the information and communication technologies (ICT) that, through significant advances in recent decades, have managed to reduce the costs of adopting these new technologies, improve business processes and reinforce innovation in all sectors of the economy (ECLAC, 2019).

The digital economy is constantly evolving, hence the importance of analyzing all prospects and possible advances to determine its impact on tax systems. Even though this rapid change makes it difficult to predict future progress with a minimum reliability index, any outlook should be closely monitored as it may trigger subsequent challenges that those responsible for fiscal policy will have to face in a near future (OECD, 2017).

The digitalization of the economy has led to important changes in business models and in the value-creation processes of companies (ECLAC, 2019). That is why, from the fiscal point of view, a series of challenges arise for fiscal policy and taxation (De Mello and Ter Minassian, 2020), since tax systems, designed for another era and other circumstances, present a series of weak points that favor the erosion of tax revenues from these new models.

Digitalization has allowed some companies to actively participate in certain economic sectors in various countries without necessarily having a significant physical presence in them. On the side of value-added tax (VAT), which is the subject of this report, the difficulty arises in taxing operations at the place of consumption, especially in the case of digital services and intangible goods, since the seller resides in another jurisdiction.

The crisis unleashed by the 2020 pandemic has had a double effect on the digital economy and its possible taxation: on the one hand, the pandemic has implied, through an important change in the consumption pattern, a significant expansion of some segments of this sector. On the other hand, the impact of the pandemic on the fiscal accounts and the need to obtain income makes it urgent to tax these sectors through the implementation of VAT (and income tax too) on goods and services traded digitally.

One of the consequences of the pandemic and its associated containment measures has been the growth of consumption via digital platforms, which in some countries is not yet taxed or, at least, not to the desirable extent. This not only has a significant collection cost but is also creating strong unfair competition with traditional sectors, especially against small companies, precisely those most affected by the crisis (Barreix, Garcimartin, and Verdi, 2020).

The objective of this report is to collaborate in the development of mechanisms that allow the collection of the value-added tax (VAT) generated by transactions with non-resident subjects that operate in the digital economy and to estimate its potential impact on collection in those countries that have not yet implemented it.

These types of activities can focus on the sale of small value goods (*Amazon, eBay, Alibaba*), on the provision of services provided in electronic media (*Spotify, Netflix, Apple TV, Amazon AWS, etc.*), intermediation platforms oriented to the collaborative economy (*Airbnb, TaskRabbit, Upwork, etc.*),sale of digital assets and electronic books (*Amazon, Apple, etc.*), music and audiovisuals (Amazon, Apple, Google), software (*Microsoft, Setapp, Adobe,* and many more companies), digital advertising (*Google, Facebook, Instagram, etc.*), among others.

Countries currently face the challenge of taxing cross-border digital services with VAT in two ways. One of them is establishing unilateral mechanisms, generally making use of withholding systems on means of payment (such as credit cards or transfers of funds abroad) in operations carried out in favor of selected and authorized entities.

The second way consists in the application of the proposed measures regarding consumption taxes generated around the BEPS project, which seeks in a few words that those highly technical companies that operate without a physical presence in a country collect the tax and transfer it to the country using a direct and simple scheme that includes a simplified registration mechanism, limited processes for obtaining and sending information on the operations carried out and making the payment of the taxes collected also from abroad and without physical presence.

Regarding this last approach, the OECD, together with the IDB, the World Bank, and CIAT, are developing a set of “toolkit” application guides for Latin American and Caribbean countries that facilitate

the implementation of the recommendations proposed by the OECD on this matter. For its part, CIAT, with financial support from NORAD - in cooperation with Norway- will develop a computer tool that will allow the administrations of countries that wish to use it, the effective implementation of this approach.

In this framework and considering the need for the governments of the region to strengthen their tax revenues in the short term and ensure proper taxation of the digital economy in relation to value-added tax (VAT) in the medium and long term, this report proposes to prepare an economic study with the available data, to analyze the tax options of the digital economy in the field of indirect taxation and its potential impact on the collection of this tax in Latin America.

With these objectives in mind, the report is organized as follows. First, a brief contextualization is made regarding the digital economy in the region and in the world. Then, the new forms of business that have emerged with the implementation of these technologies are summarized, to review the economic effects and tax problems derived from the digital economy. The following section presents the main challenges of the digital economy, particularly for VAT. Subsequently, the initiatives implemented to face the challenges of taxing the digital economy with VAT are reviewed. Next, the effective collection achieved by those Latin American countries that implemented a VAT on the digital economy is presented. Then a methodology for estimating the potential collection of VAT on digital services is explained in those countries that have not yet applied this tax to the sector such as Bolivia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, and the Dominican Republic, together with the results disaggregated by main types of services. Finally, the main conclusions of the report, the central lessons, the potentialities, and challenges of the possible reform options are summarized.

3 The digitalization of the economy in Latin America, the Caribbean, and the world: brief contextualization

Measuring the digital economy and the creation and capture of the associated value is fraught with difficulties, as there is no generally accepted definition of what the digital economy is and no reliable statistics are available, especially in countries where the digital economy is developing. Depending on the definition adopted, estimates of the volume of the digital economy range between 4.5% and 15.5% of world GDP (UNCTAD, 2019).

Beyond the limitations and difficulties to measure it, the following is an estimate of the digital economy in Latin America and the Caribbean, by subregion and considering the following sectors[1]: electronic commerce market for physical goods (eCommerce); electronic services market (eservices); digital advertising; digital media (digital video content, digital music, digital games, e-books, newspapers, etc.); Smart Home and FinTech (Financial Technology, although only the digital payments segment is included)[2].

According to this methodology, it is estimated that the income of the digital economy in the region would grow 28% annually in 2021, reaching USD 359.4 billion, equivalent to 8.1% of GDP, compared to 11.2% GDP for OECD countries[3]. As seen in the following table and figure, the digital economy has become increasingly important in Latin America and the Caribbean. Electronic commerce of goods would reach 1.7% of GDP in the region in 2021, which added to electronic commerce of services would give a total of 2 points of GDP, while the digital payments market would represent 5.5% of GDP. Latin America and the Caribbean represent approximately 3.4% of global revenues from the digital economy in 2021, while Latin American e-commerce of goods participates with 2.8% of global sales.

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1 For more details on the segments included in each sector, see https://www.statista.com/outlook/digital-markets

2 A recent work published by the IDB (see Del Carmen and others, 2020) quantifies the digital economy in the region of Central America, Panama, and the Dominican Republic (CAPARD), based on these same data and sectors, but without including Smart Home and with two additional segments: online mobility services (flights, ground transportation, etc.) and online travel reservations (booking tickets, vacation packages, hotel stays, vacation rentals, cruises). Unfortunately, no figures were available for the latter two.

3 This OECD value corresponds to an estimate for 2020 published by the IDB (Del Carmen and others, 2020).

Table 1. **Latin America and Caribbean. Size of the digital economy by sub-regions- 2021-** *USD Millions and percentages*

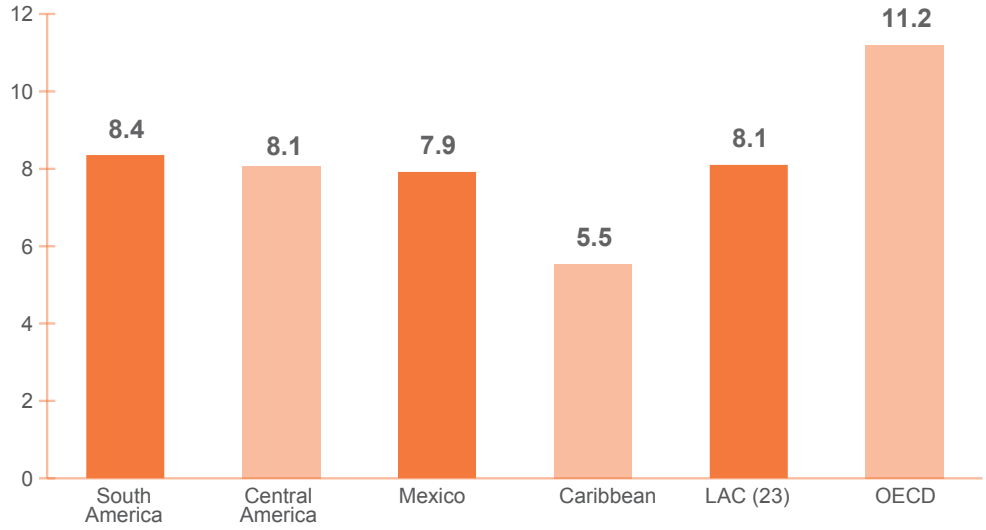
	South America	Central America	Mexico	Caribbean	LAC			2020-2021 Interannual growth
					Millions USD	% GDP	% World	
Digital media	9.319	665	4.376	447	**14.807**	**0.3**	**5.1**	**17.9**
Digital advertising	8.367	613	2.812	427	**12.219**	**0.3**	**3.1**	**17.6**
E-Commerce	49.347	3.027	21.209	1.732	**75.315**	**1.7**	**2.8**	**15.4**
E-Services	7.816	199	3.140	95	**11.250**	**0.3**	**4.7**	**24.2**
Smart Home	1.953	118	977	64	**3.112**	**0.1**	**3.1**	**46.4**
Fin Tech*	162.827	17.209	54.186	8.473	**242.695**	**5.5**	**3.6**	**32.5**
Total	**239.629**	**21.831**	**86.700**	**11.238**	**359.398**	**8.1**	**3.4**	**27.7**
Interannual growth	**27.4**	**34.5**	**26.6**	**30.5**	**27,7**			

Source: Own elaboration based on Statista- https://www.statista.com/outlook/digital-markets

Notes: * / Consider only digital payments.

The following countries are included. South América: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, and Uruguay. Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama) Caribbean: Cuba, Dominican Republic, Haiti, and Jamaica.

Figure 1. **Latin America, the Caribbean and OECD. Income of the digital economy by subregions. 2021** *Percentage of GDP*

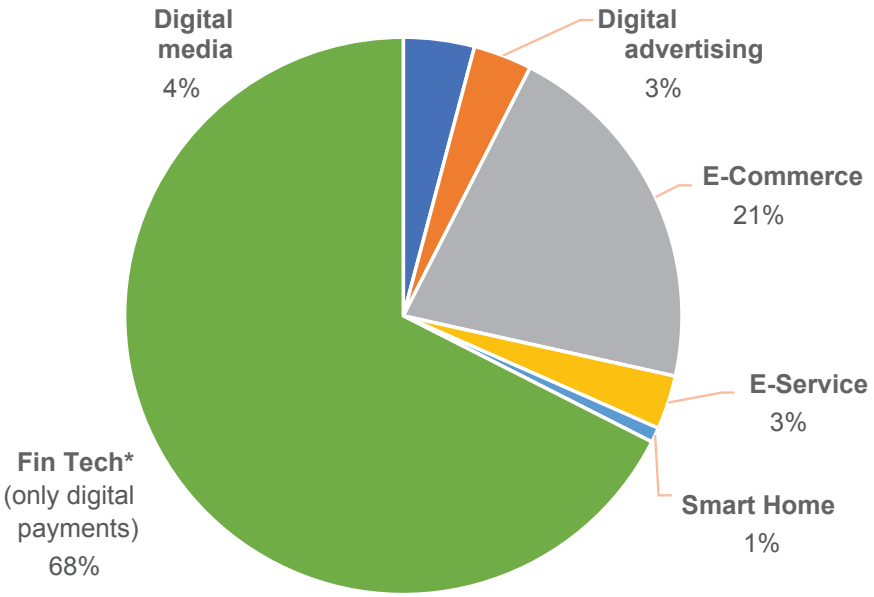


Source: Own elaboration based on Statista- https://www.statista.com/outlook/digital-markets, IMF and ECLAC for GDP and IDB data (2020) for the OECD figure.

Note: The OECD value corresponds to 2020.

In all subregions, the FinTech sector (which includes digital payments) is the main source of income from digital services (Figure 2). In the regional average it represents 68% of the total, followed by eCommerce (21%), digital media (4%) and digital advertising and e-services (with 3% each).

Figure 2. Latin America and the Caribbean. Composition of the digital economy income by sectors- 2021. *In percentages*



Source: Own elaboration based on Statista- https://www.statista.com/outlook/digital-markets

Regarding the e-commerce sector, UNCTAD elaborates the B2C electronic commerce index (B2C: business to consumer) that classifies countries according to their readiness for online purchases, which receive a score based on access to web servers. Safe Internet, the reliability of postal services and infrastructure, and the proportion of the population that uses the Internet and has an account with a financial institution or mobile money service provider[4].

As seen in the following table, after Africa, Latin America and the Caribbean has the lowest regional average score (49) in the B2C e-commerce index for 2020 and is below the global average (55). In the region, postal reliability is the biggest weakness of the e-commerce infrastructure (with a score of only 29). The study highlights that poor postal development is particularly serious in the Caribbean, with

4 See UNCTAD (2021).

eight countries in that subregion ranking in the bottom quartile of the Integrated Postal Development Index. Another limitation in Latin American and Caribbean countries is the low level of banking: the proportion of people who have an account at a financial institution or a mobile money service provider barely reaches 53% (compared to 60% at the level world and 93% of developed economies). In the case of Internet access, almost two-thirds of the region's population uses the Internet, a proportion higher than the world average. In terms of access to secure Internet servers, the region is worse positioned than the global average and far behind developed economies. However, compared to the 2019 index, Latin America and the Caribbean is the only region that shows an improvement in its regional value. In 2020, the ten countries in the region with the best index are the following: Costa Rica, Chile, Brazil, the Dominican Republic, Colombia, Uruguay, Jamaica, Trinidad and Tobago, Peru, and Argentina.

Table 2: Regional values of the UNCTAD B2C e-commerce index, 2020

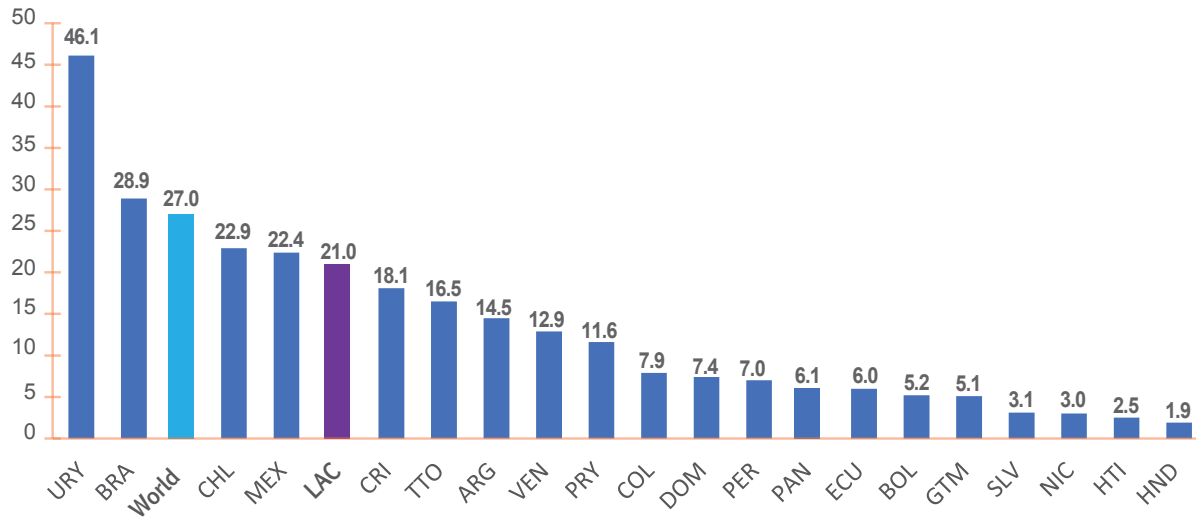
	Proportion of individuals using the Internet	Proportion of people with an account	Secure Internet Servers	Postal reliability score	2020 Index Value	2019 Index Value
Africa	30	40	28	21	30	31
East, South and South-east Asia	57	60	54	58	57	58
Latin America and the Caribbean	**64**	**53**	**50**	**29**	**49**	**48**
Western Asia	77	58	45	50	58	59
Transition economies	71	58	60	59	62	63
Developed economies	88	93	84	80	86	87
World	**60**	**60**	**53**	**47**	**55**	**55**

Source: UNCTAD (2021).

According to UNCTAD (2021), in 2019, approximately 1.5 billion people, or 27% of the world's population aged 15 and over, bought online, representing a 7% increase over 2018. In Canada, the United States, and 10 European nations, more than 70% of the adult population shop online, but that proportion is well below 10% in most low- and lower-middle-income countries. In Latin America and the Caribbean, it is estimated that, on average, 21 percent of the population made online purchases in 2019. Only two countries in the region are above the world average: Uruguay and Brazil, although they are far

behind the developed countries. At the other end of the region are El Salvador, Nicaragua, Haiti, and Honduras, where the percentages of the adult population that shop online are less than 3% (figure 3).

Figure 3: Online shopping in Latin America, the Caribbean, and the world
In percentages of the population



Source: UNCTAD (2021).

According to this study, the five main markets in Latin America and the Caribbean (Brazil, Mexico, Argentina, Chile, and Colombia) generated B2C e-commerce sales estimated at USD 71 billion in 2019, 13.4% more than the previous year. These sales are equivalent to 1.7% of the GDP, well below 5% globally. The remaining LAC countries generated around USD 2 billion in e-commerce sales in 2019. In addition, it points out that although the region has 9% of the world's population over 15 years of age and 11% of the world's Internet users, its share in the number of online shoppers worldwide was only 6 % in 2019.

In the smaller markets of Central America and the Caribbean, large local online retailers are much less prevalent than in South America or Mexico and cross-border shipments, primarily from the United States, are estimated to account for between 60% and 10%. 90% of B2C sales. However, during the pandemic, the cross-border electronic commerce of goods in the region was negatively affected by the disruption of air transport services, while domestic electronic commerce experienced high growth rates (UNCTAD, 2021).

4 Digital economy: new forms of business, economic effects, and taxation challenges

This section summarizes the new forms of business that have emerged due to the adoption of new technologies to adequately present the economic effects and the associated regulatory and tax challenges.

According to OECD (2015) and ECLAC (2019), six relevant characteristics distinguish the digital economy, from a taxation perspective: *mobility*, both of intangible assets, users, and commercial functions; use of customer and supplier data made by companies in the sector; *network effects or externalities*, to the extent that the participation of an additional user changes the value of that network to existing users; *multilateral business models*, where different groups interact through an intermediary or platform, which coordinates demand; *tendency to monopoly or oligopoly*, based on network effects and economies of scale; volatility, due to the progressive reduction of costs, both for data processing and entry barriers.

Regarding digitalized companies, they share several characteristics that are common, and from which derive the main challenges in terms of taxation: high profitability; inter-jurisdictional scale without physical presence; heavy dependence on intangible assets, especially intellectual property; and the importance of data, participation and the value generated by users and their synergies with intellectual property (IMF, 2018; OECD, 2018; ECLAC, 2019).

The digital transformation has not changed the activities that companies have traditionally carried out to generate profits (logistics, operations, marketing, and sales, among others), but it has transformed the way in which these functions are carried out, leading to the appearance of new business models and the transformation of the old (OECD, 2018; ECLAC, 2019).

There are different classifications of business models in the digital economy. For example, OECD (2015) and Balsa et al. (2016) classify e-commerce business models, which is useful for analyzing VAT taxation of services and intangibles. According to this classification, electronic commerce, which is defined as the purchase or sale of goods or services carried out through computer networks using

methods specially designed for the purpose of receiving or placing orders, can take place between companies (B2B), from business to final consumer (B2C) or between final consumers (C2C).

Business-to-business (B2B) e-commerce models

Most electronic commerce transactions are classified within this group and are those in which a company sells products or services to another company (OECD, 2015; ECLAC, 2019). It may be the online adaptation of conventional operations in which a wholesaler buys merchandise and then resells them to the consumer, or the online sale of goods or services that other companies require to carry out their activities, such as: i) logistics services, such as transportation, warehousing, and distribution; ii) computing services through the network; iii) outsourcing of e-commerce support functions, such as web hosting, security, and customer support solutions; iv) electronic auction services for the management and maintenance of auctions in real-time over the Internet; v) website content management services, and vi) electronic commerce tools that allow automated online purchases, among others.

Business-to-consumer e-commerce models (B2C)

These are companies that sell goods or services online to final consumers, complementing in some cases with traditional physical stores. Another relevant distinction refers to the type of goods or services that are sold, which can be tangible (physical or material) or intangible (received by the consumer in an electronic format through a device). Among the advantages of this model, we can enumerate (OECD, 2015 and ECLAC, 2019) that it allows digital delivery of a greater number of goods and services to clients located far from the seller's location; dramatically shortens the supply chain, eliminating the need for intermediaries; reduces transaction and search costs for consumers; reduces the entry barriers to markets, as it is less expensive to maintain a website than to maintain a traditional physical point of sale.

Consumer-to-consumer (C2C) e-commerce models

This model operates as a multilateral platform, where there is a company that acts as an intermediary between consumers, streamlining transactions through the Internet. These companies have different forms of financing, either through a charge to consumers or through advertising.

Table 3. Synthesis of business models in the digital economy

Business models	Main characteristics
Business-to-business (B2B) e-commerce models	Sale of products or services from one company to another. For example: ■ buying and reselling goods ■ logistics services (transportation, warehousing, distribution) ■ computing services over the network ■ e-commerce assistance services (web hosting, etc.) ■ electronic auction services ■ website content management services ■ e-commerce tools.
Business-to-consumer e-commerce (B2C)	Sale of goods (tangible or intangible) or online services of a company to final consumers. Benefits: ■ Digital delivery of a greater number of goods and services to distant customers ■ Shortens the supply chain and eliminates intermediaries ■ reduces transaction costs and consumer search ■ reduces barriers to market entry (it is less expensive to maintain a website than to set up a traditional physical point of sale).
Consumer-to-consumer (C2C) e-commerce models	They operate through a multilateral platform of a company that acts as an intermediary between consumers. They are financed by charging consumers or with advertising.

Source: Own elaboration based on ECLAC (2019).

Additionally, three types of situations can be distinguished that apply to specific industries (Hernandez and Albagli, 2017):

Same product or service, lower transaction costs: These are businesses that in their essence have not changed; Although the transaction cost of connecting the buyer, the seller and/or the final product or service was reduced. These include public transportation (Uber, Cabify); accommodation (Airbnb, Booking), retail (Amazon, Free market); On-site (domestic) services (TaskRabbit; Youpijob).

Lower transaction costs and product differentiation: This group includes businesses where the delivery of the product or service is done digitally and not in person, differentiating itself from the traditional

product. Includes television and video services (Netflix, Apple TV, Amazon Prime, Disney Plus), music (iTunes, Spotify, Apple Music), gambling (888poker), dating (match.com), sale (download) of software and digital books (Kindle- Amazon, Apple Books), as well as medical consultations, distance education or other professional activities that are carried out remotely.

New products and/or services: This group comprises new businesses that originate from technological advances. This category should include search engines (Yahoo, Google, Bing), social networks (Facebook, Instagram, Twitter, Tinder, Happn) and applications such as Skype, WhatsApp, and Facetime, which although they are (almost) free for users end users, allow obtaining information on consumption patterns, consultation or others generating value from users, along with offering new channels to companies to advertise.

The changes mentioned in the previous paragraphs, beyond their advantages, present important challenges in regulatory and tax matters, among which are the possibility for companies to operate in informality, with workers who do not contribute to social security; non-declaration of income together with tax evasion and /or avoidance; obtaining and using consumer information for commercial or other purposes without their authorization or knowledge; the economic imbalance that can significantly affect the traditional economy and leave workers without adequate social protection. These risks are very difficult to identify with the current systems of most tax administrations (Arias and Zambrano, 2021).

As a result of these risks and of tax systems that do not take them into account, there are significant economic, social, and tax threats, including the possibility of company bankruptcy and job loss, the transfer of business operations outside of the jurisdiction, and the consequent loss of taxes derived directly or indirectly from these activities (Arias and Zambrano, 2021).

The disadvantage of a company that, by not delivering its goods or services digitally, faces a greater tax burden should be highlighted. This disadvantage occurs because the current tax systems, whose design predates the emergence of the technological revolution and the digital economy, are not designed for situations where there is a physical disconnection between the destination market and the source market and/or where the delivery is performed remotely and not physically or in-person (Hernandez and Albagli, 2017).

Of course, it should not be concluded that the problem originates in the adoption of these new technologies and that, consequently, they should be avoided. As previously emphasized, new technologies are desirable because they increase the universe of goods and services available to consumers. The regulatory and tax challenge consists of making new technologies successful, since they allow offering better and / or cheaper goods and services, but not because they pay less taxes, which would mean unfair competition caused by the permanence of an inadequate tax system for digital challenges. It is necessary, then, to reform the tax framework, adapting it to the new times, which would allow equalizing the tax burden between companies that offer the same services/products, regardless of whether they are based on digital platforms (Hernandez and Albagli, 2017).

5 Challenges of the digital economy for value added tax

VAT is a tax whose objective is to tax the final consumption of households, through the non-cumulative multi-phase method, that is, it is applied at each stage of the production chain, but in each of them the added value is taxed, that is the difference between purchases and sales (ECLAC 2019 and Jorrat, 2020).

Faced with cross-border operations, there are two possibilities or principles for the application of VAT. First, the "principle of origin", according to which VAT should tax domestically produced goods and services, thereby taxing exports, while imports would be exempt. Second, there is the "destination principle", which suggests taxing with VAT goods and services consumed domestically, which in this case would tax imports, while exports would be exempt.

While in the case of VAT on goods, the destination principle is usually applied, the same has not happened with VAT on services, which may give rise to situations of double or no taxation.

Although the harmonized application of a VAT at source would make it possible to meet the objective of the tax of taxing consumption, there is consensus among specialists regarding the superiority of the destination principle, since this principle gives the tax its main characteristic of neutrality in the value chain and in international trade. This is recognized by the OECD[5], which states that "for the purposes of the consumption tax, internationally traded services and intangibles must be taxed in accordance with the rules of the consumer jurisdiction".

However, to apply the destination principle to cross-border operations of services and intangibles, there must be mechanisms to determine in which country or jurisdiction the consumption is expected to take place. VAT systems require rules to implement the destination principle not only for business-to-consumer (B2C) supplies, which involve final consumption but also for business-to-business (B2B)

5 Guideline 3.1 on "Determination of the place of taxation for the cross-border supply of services and intangibles" in OECD (2014), International Guidelines on VAT / IBS.

supplies, even though such supplies do not involve the final consumption. In this second case, the rules that are applied should facilitate the objective of VAT, which is to tax final consumption at the rate of the country where this takes place. Thus, in the case of B2B operations, the OECD establishes that it is the jurisdiction in which the client is located that has the right to tax with VAT the services or intangible objects of international trade[6].

It also considers the case of companies that have branches or establishments in several countries, where the purchase of services or intangibles is carried out centrally, and then distribute their use among the different branches. In this case, the OECD indicates that when the customer has establishments in more than one jurisdiction, the right to tax VAT rests with the jurisdiction or jurisdictions in which the establishments that use the service or intangible are located[7].

Regarding B2C operations, the right to tax with VAT must correspond to the jurisdiction where the services or intangibles are consumed, to ensure the neutrality of the tax. At present, it is extremely easy for anyone to acquire services and intangibles, through the web, from suppliers located anywhere in the world. Likewise, the client can use these services and intangibles in any country in the world, although it is certainly more likely that they will do so in the country where they usually reside.

In this context, the OECD recommends two general rules to determine the place of application of VAT for supplies of services and intangibles between companies and consumers: i) for physical supplies in an easily identifiable place and that are normally consumed there time and in the place where they are physically carried out in the presence of the person who makes the supply and the person who consumes it (for example, accommodation services, cinemas or restaurants)[8], the OECD recommends that VAT be applied in the place where the service is performed; ii) for other supplies of services and intangibles (for example, purchase of applications, software or subscription to a platform), the OECD recommends applying VAT in the jurisdiction in which the customer has his habitual residence[9].

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6 Guideline 3.2 OECD (2014).

7 Guideline 3.4.

8 Guideline 3.5

9 Guideline 3.6

These recommendations make it possible to assign the tax rights on the supplies of B2C services and intangibles to the jurisdiction where it can be assumed that the final consumer is located when consuming the supply.

Beyond the recommendations, in the international trade of goods, services, and intangible assets, the main difficulties to be solved for the application of VAT to these activities must do mainly with B2C transactions when the supplier and the consumer are in different countries. There may also be tax base erosion problems in B2B transactions when the client is exempt from VAT. Although these problems already existed, with the digital economy they have worsened considerably since technological advances have significantly increased the options of end consumers and intermediate consumers to make online purchases from suppliers anywhere on the planet and have also increased the possibilities of any company to sell its products to consumers located in any country.

One of the main problems is related to exemptions in the importation of low-value goods, considering that anyone can make purchases of tangible goods from a foreign supplier, provided that the buyer has the electronic means of payment and the supplier count on an electronic commerce platform and carry out shipments abroad. From the conceptual point of view, clearly, the buyer is importing, which must be taxed with VAT in the country in which he resides, a tax that will normally be collected at Customs at the time the merchandise enters. It is also true that the seller is exporting the merchandise, so in his jurisdiction, that sale should be taxed at zero rates. The problem arises because in almost all countries there is a VAT exemption for low-value imports, which is justified because the administrative expenses incurred by Customs to collect VAT from these operations could be greater than the tax to be collected. These exemptions were introduced when low-value personal imports were rare, Internet purchases were non-existent, and the level of imports benefiting from the exemption was relatively low. However, because of the advances in the digital economy, these types of imports have grown significantly. Purchases of all kinds of goods in stores such as Amazon, AliExpress, and others are increasingly frequent, so the associated tax expenditure will be increasing. Additionally, unfair competition appears here for suppliers who are resident in the consumer's country, who sell the same products required to charge VAT. This could also lead some to look for ways to make those low-value sales from abroad, further increasing the loss of revenue.

The exemption thresholds for low-value imports that seek to establish a balance between the administrative costs of applying VAT to these small imports and the potential revenue that could be obtained differ greatly between countries. Therefore, the OECD (2015) considers that the solution to this problem consists of a drastic simplification of the VAT declaration procedures for these imports, allowing the reduction or elimination of these thresholds. Likewise, it is considered that a radical simplification could be achieved by urging non-resident sellers to register as VAT payers, with a simplified procedure, in the jurisdiction of the buyer, in such a way that they are the ones who withhold and pay the tax. This mechanism limits or eliminates the need for customs authorities to intervene in the collection of VAT for the importation of low-value goods since the tax is collected directly from the provider or digital platform (ECLAC, 2019).

Some countries, such as Australia, New Zealand, and Norway, have already implemented a VAT collection regime on the import of low-value goods, where foreign suppliers must register, collect VAT on their sales, declare and pay the tax under a simplified registration regime. In the countries of the European Union, the legislation in force until July 1, 2021, establishes that member states must exempt from VAT the importation of goods whose value does not exceed 10 euros, and they may grant an exemption for imported goods with a value greater than 10 euros, but not exceeding 22 euros. However, as of that date, the VAT exemption for imports of low-value goods is eliminated and suppliers may choose to collect VAT from EU consumers at the time of sale and declare and pay that tax through an online digital portal. If suppliers do not opt for this simplified registration and collection regime, the customs declarant (e.g., postal operator, courier company, customs broker, etc.) will collect the import VAT from customers and remit it to the customs authorities in a monthly payment[10].

A second problem concerns remote digital supplies to consumers. As mentioned above, the digital economy facilitates the distance selling of intangible goods and services to final consumers, without the provider having a physical presence in the country where its customers reside. Normally, the legislation of the countries regarding VAT considers that these operations are taxed in the country where the services or intangibles are consumed, as suggested by the OECD guidelines. To ensure the collection of the tax, in the case of B2B operations, a change of subject is usually carried out, transferring the

10 For more details see OECD (2020).

obligation of payment to the resident company that acts as a buyer of the service or intangible. In the case of B2C operations, the change of subject is not the most appropriate, since final consumers do not have incentives to declare and pay the tax, so a high level of non-compliance could be expected. In this case, it is recommended that non-resident suppliers are responsible for charging, collecting, and paying VAT for these operations, for which it is necessary that they register in the VAT taxpayers register of the country where the consumers reside. In any case, the VAT laws of several countries, although they tax services and intangibles acquired abroad by residents, they do not contemplate adequate collection mechanisms, so in practice, no VAT is applied to digital supplies imported by end consumers. In view of the exponential growth that these operations are experiencing around the world, failure to establish feasible and simple collection procedures can lead to increasingly significant losses of tax revenue for countries. But in addition to the loss of collection, the non-application of VAT to these operations implies a significant competitive disadvantage for internal providers of the same services and intangibles. This competitive disadvantage may induce local suppliers to restructure their operations to supply services and intangibles from abroad, further increasing the loss of revenue.

As a possible solution to this problem, the OECD (2015) recommends that in B2C operations, countries oblige all non-resident suppliers to register as a taxpayer and declare the VAT applicable to the supply of cross-border services and intangibles in the consumer's jurisdiction. To do this, tax administrations must implement simplified registration mechanisms, sufficiently clear and accessible for sellers who are non-resident SMEs, so that it is not necessary to set thresholds below which registration is not required. In this simplified procedure, intermediaries can play an important role, who would oversee helping non-resident companies to register, declare and pay VAT (ECLAC, 2019).

Another issue concerns remote digital supplies to exempt companies. Since these are B2B operations, the recommendation is that the right to tax the supplies of services and intangibles with VAT must fall on the jurisdiction where the client resides, in which case a change of subject is normally applied, in such a way that it is the customer who withholds and pays the VAT[11]. To the extent that countries do not implement this recommendation, the VAT regime can offer companies tax planning opportunities to lower the VAT burden on their products. This possibility arises in the case of remote digital supplies

11 OECD Guideline 3.2.

to VAT-exempt companies. Exempt companies do not apply VAT on their sales but must bear the VAT paid on the purchase of inputs as a cost. In other words, like the final consumers, they cannot recover the VAT charged on their purchases, which is finally transferred to the prices of their products. Some countries do not require companies to collect and pay VAT on imports of services and intangibles. If the company is a VAT taxpayer, there is no major problem of tax base erosion, since it will not withhold VAT on the import, but neither will it be able to deduct a VAT credit in its liquidation. On the other hand, when the company is exempt from VAT, there is a direct benefit in not being subject to VAT on imported supplies, with a clear risk of erosion of the tax base. Similarly, it entails a competitive disadvantage for the national providers of the same services or intangibles, who are obliged to pay VAT when they carry out operations with resident companies that are exempt (ECLAC, 2019).

The OECD[12] suggests that the solution to the problems of remote digital supplies to exempt companies is that in B2B operations the right to collect VAT rests with the customer's jurisdiction[13]. In turn, the practical application of this principle implies that a change of subject or reverse charge must be made, that is, the buyer is responsible of withholding and paying the VAT associated with these operations (OECD, 2017).

An additional problem relates to remote digital supplies to multi-location companies. In these cases, there is also the risk of elusive practices in which a multi-localized company acquires a digital good or service since it is common for these entities to organize themselves to acquire services and intangibles centrally to achieve economies of scale. However, at present many jurisdictions with a VAT regime do not apply this tax to transactions carried out between establishments of the same legal entity (OECD, 2015). This means that multi-located companies that carry out VAT-exempt activities can organize themselves so that services and intangibles are initially acquired by an establishment located in a jurisdiction where VAT is not applied or is applied at a relatively low rate. Subsequently, each establishment would be re-invoiced, depending on the use they make of those services or intangibles, transactions that would also be exempt because they correspond to operations between branches of the same legal entity. This would allow them to obtain these mentioned services without being subject

12 Report on Action 1 of the 2015 Action Plan against Tax Base Erosion and Profit Shifting.

13 OECD Guideline 3.2.

to VAT since this tax does not apply to operations between establishments of the same legal entity. Companies exempt from VAT can save significant amounts in VAT by resorting to this type of planning (OECD, 2015).

As in the previous case, the OECD suggests that when the customer has establishments in more than one jurisdiction, the right to charge VAT corresponds to the jurisdiction or jurisdictions in which the establishments that use the service or intangible are located[14]. In turn, the practical application of this principle implies that a change of subject or reverse charge must be made, as in the case of cross-border B2B operations (OECD, 2017).

Table 4. VAT in the digital economy: Problems and proposed solutions

Problem	Proposal for a solution raised by the OECD
i) Exemptions in the importation of low value goods	Simplify the VAT declaration procedure to reduce or eliminate the exempt threshold. For example, allowing non-resident suppliers to register for VAT and they are the ones who withhold and pay the tax.
ii) Remote digital supplies to consumers	Allow non-resident suppliers to register for VAT in the customer's jurisdiction, under a simplified regime.
iii) Remote digital supplies to exempt companies	The right to collect VAT must fall within the jurisdiction of the client, and a change of subject must be applied for the importing company to withhold and pay VAT.
iv) Remote digital supplies to multi-localized companies	The right to collect VAT must fall within the jurisdiction of the client, and a change of subject must be applied so that the resident establishment retains and pays the VAT.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), Fiscal Panorama 2019.

14 Guideline 3.4.

6 Initiatives implemented to address the challenges of the digital economy for the value added tax

This section describes the main measures that Latin American countries have adopted to face the challenges of the digitalization of the economy in relation to the value-added tax.

According to a survey by KPMG (2021), worldwide, in January 2021 there are 81 countries that have implemented indirect taxes on transactions in the digital economy, such as value-added tax or general sales taxes. Of these countries, nine are Latin American: Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Paraguay, and Uruguay (Table 5). Likewise, there are 11 countries with some bill or a public consultation in process to apply this type of tax, where four of them are countries in the region: Honduras, Panama, Peru, and the Dominican Republic[15].

15 In addition, ECLAC (2020) indicates that Bolivia also has a proposal to levy VAT on digital services provided from abroad in order to apply the 13% tax to digital platforms.

Table 5: Indirect taxes on the digital economy, worldwide

Type	LAC countries	OECD countries (without LA)	Rest of the world
VAT, GCT	Argentina[1], Bahamas, Barbados, Brazil[2], Chile, Colombia, Costa Rica, Ecuador, Mexico, Paraguay, Uruguay	Germany, Australia, Austria, Belgium, Canada, Czech Republic, South Korea, Denmark, Slovak Republic, Slovenia, Spain, United States, Estonia, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Japan, Latvia, Lithuania, Luxembourg, Norway, New Zealand, the Netherlands, Poland, Portugal, the United Kingdom, Sweden, Switzerland, and Turkey.	Albania, Andorra, Armenia, Bahrain, Bangladesh, Belarus, Bhutan, Bulgaria, Cameroon, Croatia, Cyprus, Ghana, India, Indonesia, Kenya, Malaysia, Malta, Mauritius, Moldova, Nigeria, New Caledonia, Oman, French Polynesia, Romania, Russia, Saudi Arabia, Serbia, Singapore, South Africa, Taiwan, Tanzania, Tajikistan, Uganda, United Arab Emirates, Uzbekistan, Vietnam, Zimbabwe.

Source: Own elaboration based on KPMG (2021) and national legislation.

1 / Additionally, some Argentine provinces apply a tax on gross income, with rates between 2% and 5%.

2 / Only some states of Brazil tax transactions with digital goods and merchandise with the ICMS (Sao Paolo, Paraiba, Goias, Piaui, and Rondonia).

As mentioned in the previous section, the OECD (2017) has published a set of internationally agreed principles and standards for the treatment of VAT in the case of international transactions. Guideline 3.1 of OECD establishes that the destination principle must be applied to tax services and intangible goods with VAT, that is, they must be taxed in accordance with the rules of the consumer's jurisdiction.

In the case of business-to-business (B2B) transactions, in accordance with the guideline 3.2, the jurisdiction in which the client is located has tax rights on internationally traded services or intangibles. To avoid unnecessary burdens on suppliers, the OECD recommends the "reverse charge mechanism" when this is consistent with the general design of VAT in the country. Through this tax mechanism, the obligation to pay the tax is changed from the provider to the customer, that is, the resident companies that import the service or intangible are responsible for any tax owed.

On the other hand, the OECD guidelines regarding business-to-end consumer (B2C) operations recommend implementing a collection mechanism based on a simplified registration and compliance

regime for non-resident suppliers. According to OECD (2017), experience with this simplified registration and compliance regime has shown that they provide a practical and relatively effective solution to ensure the collection of VAT on cross-border services and intangibles in business-to-consumer transactions, while at the same time they minimize economic distortions and preserve neutrality between resident and non-resident providers. It also emphasizes that this mechanism allows tax administrations to capture a significant proportion of the tax revenues associated with these transactions at a relatively limited administrative cost.

Ultimately, the OECD guidelines regarding the definition of taxable person establish that in B2B operations it should be the client company, that is, the taxpayer investment approach must be applied, while in B2C transactions, the liable subject must be the provider.

However, as Jorratt (2020) warns, establishing the mandatory registration proposed by the OECD is not trivial for tax administrations in countries with markets smaller than those of the EU or other countries in the developed world, which should force the multinational companies that operate in the digital economy, without physical presence, to comply with the established rules and procedures, or to submit to tax audits and sanctions in case of non-compliance.

In Latin America, several countries have started taxing cross-border digital services with VAT, although only some follow those guidelines as explained below.

The pioneer countries in applying VAT to these services were Argentina, Colombia, and Uruguay, which began to collect the tax in 2018, followed by Chile, Costa Rica, Ecuador, and Mexico, which implemented it in 2020, while in Paraguay its application began in 2021. The tax rates that are applied correspond to the general tax rate and vary between countries[16]. The highest rates, between 19 and 22% depending on the country, are taxed in Argentina, Chile, Colombia, and Uruguay; while in Mexico, the VAT rate is 16%. In contrast, the lowest rates are applied in Costa Rica, Ecuador, and Paraguay with 13, 12, and 10%, respectively.

16 The annex presents thae general VAT rates and their collection in terms of GDP in Latin American countries.

Of these eight countries in the region, half of them follow the OECD recommendations regarding the VAT registration obligation for non-resident providers of digital services: Chile, Colombia, Mexico, and Uruguay. In addition to the mandatory registration of foreign taxpayers, in Chile and Colombia, in certain cases, a withholding is applied in the means of payment used to pay for these services (credit cards or transfers of funds abroad). In Chile, the withholding is applicable if foreign suppliers do not comply with the obligation to register, while in Colombia non-resident providers can voluntarily opt for VAT to be withheld directly from their digital services means of payment. Likewise, in Mexico, the technological platforms that provide intermediation services have the obligation to withhold the tax from individuals who sell goods or provide services (including hosting services) and to report these withholdings to the tax administration.

On the other hand, in Argentina, Costa Rica, Ecuador, and Paraguay, non-resident suppliers are not required to register as taxpayers, but VAT withholding is applied by the financial entities that administer the means of payment used for paying digital services. The tax administrations of these countries periodically publish a list of non-resident companies that are subject to this withholding. In addition, in Costa Rica and Ecuador, the non-resident provider can voluntarily choose to register with the tax administration, and only if he/she registers, it oversees collecting, declaring, and paying VAT before the tax authority. In Paraguay, an exception is established to the mechanism for collecting and withholding the tax, since the intermediary platforms of land transport services must declare and pay the VAT directly before the tax administration using a generic RUC (Unique Taxpayer Registry).

Although the implementation of withholding mechanisms on the means of payments is relatively quick and simple and can generate collection immediately, it suffers from a series of drawbacks and limitations. In the first place, the bank has no way of knowing whether the payment made to a certain foreign supplier corresponds to purchases taxed with VAT. Second, the bank cannot be sure whether the payment corresponds to consumption that must be taxed in its jurisdiction, since it does not have enough information, which the suppliers do have, to apply the criteria that allow determining or presuming the place of consumption. Finally, with this method, all transactions paid with bank cards issued by a non-resident bank, or with means of payment not managed by the local financial system, are outside the scope of the tax (Jorratt, 2020).

Regarding the definition of the taxable person, when the only collection method is withholding in the means of payment, the tax subject is always the buyer of the digital service, whether it is a resident company or a final consumer (Argentina and Paraguay). On the other hand, when there is a registration system for foreign providers, there are two alternatives. One of them is the OECD approach where the taxable person is the supplier when the customer is a final consumer, while if the buyer is a VAT registered company, the reverse charge mechanism is applied, and the buyer would be liable for the payment of the tax. The countries in the region that follow this approach are Colombia and Chile. The other alternative, in the case of foreign supplier registration, is that the taxpayer is always the latter, that is, both in B2B and B2C operations, as is the case in Costa Rica, Ecuador, Mexico, and Uruguay.

Regarding services subject to VAT, most countries consider a broad definition, such as Argentina, Colombia, Costa Rica, Ecuador, and Paraguay. However, exceptions are considered in some of them. For example, in Argentina, access and/or downloading of digital books are exempt from VAT; The same happens in Colombia with services related to the development of digital content (virtual education, software, storage, etc.) and in Ecuador, services for supplying domains for web pages, servers and cloud computing have a 0% rate. In Chile and Mexico, four concepts are listed which, although they are quite broad, as pointed out by Jorratt (2020), could give rise to discussions regarding whether certain services are included or not, as for example in the Chilean case, the administration remote systems, virtual classrooms, or information provision. In the Mexican case, the digital services enumeration does not mention digital advertising services and it is established that downloading or access to electronic books, newspapers, and magazines is not taxed. In Uruguay, VAT is only levied on audiovisual content transmission services and intermediation services from multilateral platforms. Furthermore, in the latter case, if the bidder or the applicant is abroad, only 50% of the intermediation service is taxed with VAT.

In relation to the criteria to identify if the buyer is in a certain country and therefore define whether it corresponds to tax that sale, the countries resort to similar indicators, such as the IP address of the device used by the customer, the country code of the SIM card or some geolocation mechanism, the buyer's address, the address registered with the financial institution, the place of issuance or registration of the card or means of payment, among others.

Below is a comparative table that summarizes the main characteristics of VAT to face the challenges of the digital economy in the countries of the region.

Table 6. Main characteristics of indirect taxes on the digital economy in Latin American countries

Country	Starting year	Rate	Obligation to register suppliers	Liable subject	Collection method	Taxed digital services	Criteria for determining the place of consumption	In line with OECD?
Argentina	2018	21%	No	Buyer	Withholding in means of payment according to the list of entities published by the TA	All, except the access and / or download of digital books that are exempt from VAT.	- IP Address - SIM card country code - Customer billing address. -Bank account used for payment, customer billing address available to the bank or the issuer of the credit or debit card with which the payment is made.	No
Chile	2020	19%	Yes	B2B: buyer B2C and B2B in which buyer is not a VAT taxpayer: supplier	Direct if registered; otherwise, withholding in means of payment	- Intermediation services of multilateral platforms - Provision of digital entertainment content - Supply of software, storage, platforms, and IT infrastructure - Publicity.	- Device IP address - Place of issuance or registration of the card or means of payment - Buyer's address - SIM card country code	Yes
Colombia	2018	19%	Yes	B2B: buyer B2C and B2B in which buyer is not a VAT taxpayer: supplier	Direct, but the provider can voluntarily choose withholding in means of payment	All, except services related to the development of digital content (virtual education, software, storage, etc.)	- Place of issuance of the card or bank account - Device IP address - SIM card country code Other criteria	Yes

Country	Starting year	Rate	Obligation to register suppliers	Liable subject	Collection method	Taxed digital services	Criteria for determining the place of consumption	In line with OECD?
Costa Rica	2020	13%	No (optional)	Provider, if registered. If not, the buyer	Direct if registered; or withholding in means of payment according to the list of entities of the TA	All	- Address where the service is provided - In intermediaries if the final provider is domiciled in the country - Landline location - IP Address - SIM card country code - Address registered by the client - Location of the bank account or billing address at the bank - Other information	No
Ecuador	2020	12%	No (optional)	Buyer or supplier if registered	Direct if registered; or Withholding in means of payment according to the list of entities of the TA	All, although the services of supplying domains of web pages, servers, and cloud computing have a 0% rate.		No
Mexico	2020	16%	Yes	Provider	Direct from supplier Brokerage platforms: withhold VAT	- Downloading or accessing content in digital format, including games of chance (except electronic books, newspapers, and magazines) - Intermediation between bidders and users of goods and services - Online clubs and dating sites - Distance learning or test or exercises	- Client address - Payment through an intermediary located in the country IP Address - Telephone number with the country code	Yes

Country	Starting year	Rate	Obligation to register suppliers	Liable subject	Collection method	Taxed digital services	Criteria for determining the place of consumption	In line with OECD?
Paraguay	2021	10%	No	Buyer	Withholding in means of payment, except for intermediary platforms of transport services, where payment is direct, using a generic TIN	All	- IP Address - SIM card country code - Customer billing address - Location of the bank account used for payment - Customer's billing address at the bank - Location of the financial institution	No
Uruguay	2018	22%	Yes	Provider	Direct from supplier	- Audiovisual content transmission services - Intermediation services of multilateral platforms	- IP Address - Customer billing address - Place of issuance of the electronic payment means	Yes

Source: Own elaboration based on official legislation and Jorratt (2020).

7 Potential VAT revenue on the digital economy

First, this section presents information on the effective collection of VAT on digital services in Latin American countries with available data. Then a methodology for estimating the potential collection of VAT on digital services is explained in those countries that have not yet implemented this tax on the digital sector and the results are shown disaggregated by main types of services.

As reviewed in the previous section, some countries in the region have already started charging VAT to foreign companies that offer digital services to their residents. Some tax administrations began to apply the tax in 2018, such as Argentina, Colombia, and Uruguay, while other countries began to collect it in 2020, such as Chile, Costa Rica, Ecuador, and Mexico, while Paraguay postponed the application of taxes to digital services until January 2021.

In 2019, the first period in which the tax was in force for a full year, Argentina and Colombia collected values below $ 80 million, which is equivalent to 0.02% of GDP. In Uruguay, the VAT collected for services provided through audiovisual content and accommodation platforms reached 18.4 million dollars, that is, 0.03% of GDP in 2019 (Table 7). However, this value does not include the collection contributed by the transport service applications, since its amount has not been published by the tax authority. According to information from the DGI of this country, the total collection of taxes on digital services comes from fourteen companies.

Table 7. VAT collection on digital services in Latin American countries

Country	Period	USD Millions	GDP%
Argentina	2018	53.0	0.01
	2019	79.0	0.02
Chile	Jun-Dec 2020	119.6	0.04
Colombia	Jul-Dec 2018	12.2	0.004
	2019	77.0	0.02
Costa Rica	Oct 2020	1.7	0.003
Ecuador	Sep-Oct 2020	2.4	0.003
	2000**	5.0	0.01
	2021**	19.0	0.02
Uruguay*	2018	2.7	0.004
	2019	18.4	0.03

Source: Own elaboration based on official figures.

* / Does not include collection of transportation applications.

** / SRI estimate.

Among the countries that recently began to collect VAT from foreign digital companies, the case of Chile stands out, which only in the first seven months managed to collect almost 120 million dollars for this concept, a figure equivalent to 0.04% of its annual GDP. However, this value corresponds to the first months of VAT application, so when the collection of a full year is obtained, this indicator would be close to 0.08% of GDP. In Costa Rica, VAT on digital services allowed a collection of 1.7 million dollars in the first month of validity, while in Ecuador 2.4 million dollars was collected during the first month and a half of application. According to estimates by the SRI of the latter country, the collection in 2020 would be around 5 million dollars, and it is expected that by 2021, 19 million dollars will be obtained, approximately 0.02% of GDP.

As a methodology to estimate the potential VAT revenue on digital services in eight countries that still do not apply the tax in the region , we basically follow Hernández and Albagli (2017) and ECLAC (2019), although with some adaptations and expansion of the coverage, according to the latest information available, which would allow a more representative estimate. In this way, the information of the four companies (Uber, Netflix, Apple, Spotify) presented in the previous estimates has been updated, while the universe of companies considered in the calculations is expanded, adding information from three more companies (Amazon, Google, and Airbnb).

The methodology consists, first, in estimating the income from sales of digital services in each of the countries of the seven foreign companies mentioned. For this, the reports that these companies have filed with the United States Securities and Exchange Commission (SEC) and other reports for their investors with information for the years 2018, 2019, and 2020 are used. In general, most companies publish information on their income from sales of digital services by main countries or geographical areas, so when data is available for the Latin American region, this information was considered. Based on the total sales in digital services in the Latin American region, or in other countries or regions when the latter is not available, the per-capita sales in that area or country are estimated for the seven international companies that provide digital services (table 8).

17 These countries are Bolivia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, and the Dominican Republic.

Table 8. **Income from sales of digital services of international companies**

Company	Country/Region	Year	Revenues (millions of United States dollars)	Per capita income
Apple[a]	LAC + Canada	2018 2019 2020	2.100 2.606 3.008	3.2 4.0 4.5
Netflix	LAC	2018 2019 2020	2.238 2.795 3.157	3.5 4.3 4.8
Spotify	USA + UK	2018 2019 2020[b]	3.010 3.658 4.299	7.7 9.3 10.8
Amazon[c]	Rest of the world (excluding USA, UK Germany and Japan)	2018 2019 2020	9.573 13.327 19.432	1.4 1.9 2.8
Google	LAC + Canada	2018 2019 2020	7.608 8.986 9.417	11.7 13.7 14.2
Airbnb	Global	2018 2019 2020[d]	3.652 4.805 3.200	0.5 0.6 0.4
Uber	LAC	2018 2019 2020[b]	2.002 1.947 1.465	3.2 3.1 2.3

Source: Prepared by the authors based on the reports of these companies to the US-SEC and IMF and ECLAC for population data.

a / Estimated applying the share of digital service sales income in total world income over the value of total sales in the Rest of America (excluding the USA).

b / Estimated based on accumulated sales as of September 2020.

c / Estimated applying the share of total sales revenue (products plus services) of the Rest of the world in the global total over the value of world sales in services.

d / Forbes estimate with company data as of September 2020.

Subsequently, the value of per-capita sales in that area or country is rescaled by the relative per-capita income between the country under analysis and that area or country, using information corresponding to the same year, both for sales, the population and per capita income. In cases where sales refer to a set of countries or to the LAC region, per-capita income weighted by the number of inhabitants of those countries is used. This result is multiplied by the population of the corresponding country for the same year (2018, 2019 or 2020) and an estimate of the income from sales of digital services is obtained. Once the estimated value of sales in each country is obtained, the general VAT rate in that country is applied and an estimate of the potential collection is obtained, measured both in dollars and as a percentage of GDP. Therefore:

$$Sales\ {}_{p}^{i} = \frac{Sales_{j}^{i}}{Population_{j}} * \frac{GDP\ per\ cápita_{p}}{GDP\ per\ cápita_{j}} * Population_{p}$$

$$VAT\ Collection\ {}_{p}^{i} = \frac{Sales\ {}_{p}^{i}}{(1 + t_{p)}} * t_{p}$$

$$Total\ VAT\ collection\ {}_{P} = \sum_{i} VAT\ collection\ {}_{p}^{i}$$

Where: Sales refers only to income from sales of digital services.

i corresponds to the international company that provides digital services (Apple, Netflix, Spotify, Amazon, Google, Airbnb, and Uber).

p denotes the Latin American country to which the estimate of potential collection refers.

j refers to the jurisdiction where that digital sales revenue was generated (be it a country, a region, etc.).

t_p is the general VAT rate in country p.

Before analyzing the results obtained, it is important to point out some assumptions and limitations of the methodology so that they are interpreted with caution, as Hernández and Albagli (2017) warn:

- The sales revenues of these companies are not always known in each locality or region and vary significantly between localities depending on the age (degree of penetration) of the firm in each market.

- As these are recent innovations, there is not always legal certainty regarding how tax legislation applies to sales of digital goods and services. For example, in this mentioned study, the intermediation services provided by the UBER platform were treated as VAT exempt because at that time they were considered by the Chilean SII as “brokerage” services and provided from abroad. However, in general, tax administrations are receiving VAT for the commissions charged by platforms for this type of service in countries where the tax on digital services is in force, so they are considered here as part of the base taxable of VAT. In the ECLAC estimates (2019), it was considered that Uber would pay VAT on the intermediation commission.

- The estimates are based on the following assumptions: i) sales depend only on the country’s per capita income and ii) these do not change in the presence of taxes (or alternatively that the taxes are paid in full by the foreign supplier)[18].

- The estimates refer to those specific years and these mentioned assumptions suggest that the results could overestimate the potential collection since it is reasonable to expect that sales will decrease in the presence of taxes if the bidders try to pass part of these to the demanders. However, a more complete analysis with plausible medium-term projections would possibly result in an even higher estimate, so the results would have a negative bias when compared to a medium-term situation, where companies based on new technologies have higher growth.

According to the estimates obtained, in 2018, in these eight countries of the region (Bolivia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru and the Dominican Republic) a total of 184 million dollars were lost in VAT revenues for not expanding the tax base to digital services provided by foreign companies (table 9). Given the significant expansion of the digital economy year after year, these amounts reach 227 and 255.4 million dollars in 2019 and 2020, respectively. In proportion to the size of the economy, on average, the revenue lost for not applying VAT to digital services of cross-border companies was 0.05% of GDP in 2020. However, there are differences between countries, with the

18 This methodology assumes that per capita income captures the degree of penetration of technologies: the higher the per capita income, the greater the use of technologies. Assumption ii) is questionable. In fact, in the countries that began to apply VAT, an increase in consumer prices has been observed. However, there is no information on the elasticity of demand for these services.

lowest potential collection being in Panama (with 0.03% of GDP), and the highest in Peru and the Dominican Republic (with 0.06% of GDP)[19].

Table 9. Latin America (8 countries). Estimation of the potential VAT revenue for digital services. 2018-2020

Country	USD million			Percentage of GDP		
	2018	2019	2020	2018	2019	2020
Bolivia	13.3	16.3	19.4	0.03	0.04	0.05
El Salvador	7.6	9.5	11.0	0.03	0.04	0.04
Guatemala	19.8	25.0	31.3	0.03	0.03	0.04
Honduras	7.8	9.9	12.0	0.03	0.04	0.05
Nicaragua	4.3	5.0	6.1	0.03	0.04	0.05
Panama	10.8	13.4	15.3	0.02	0.02	0.03
Peru	86.3	105.1	113.0	0.04	0.05	0.06
Dominican Republic	34.1	42.9	47.4	0.04	0.05	0.06
LAC (8)*	**184.0**	**227.0**	**255.4**	**0.03**	**0.04**	**0.05**

Source: Prepared by the authors based on the reports of these companies to the US-SEC and IMF and ECLAC for population data.

* / The total in millions of USD for LA (8) corresponds to the sum of the potential revenue of the eight countries, while the value in percentages of GDP corresponds to the simple average of the eight countries.

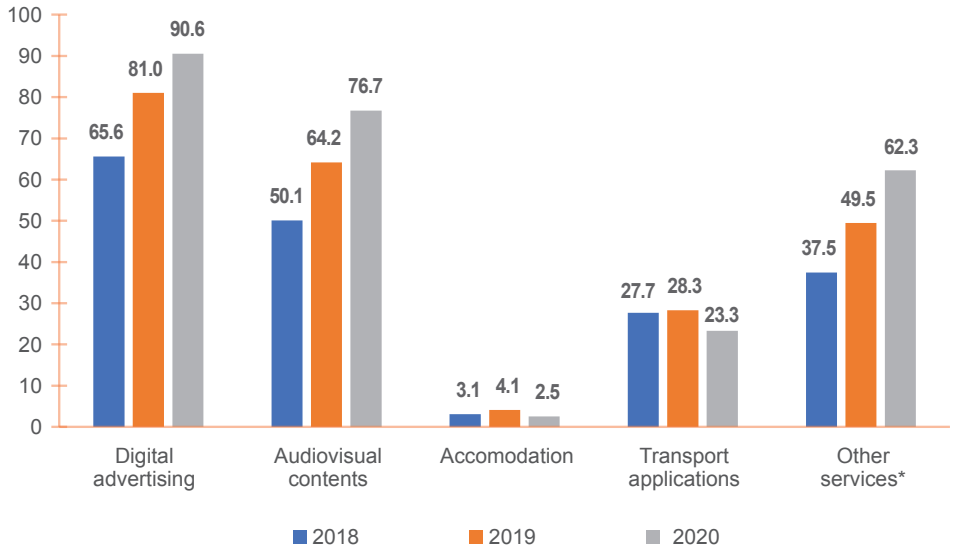
The following figure shows the increasing revenue, by type of service, that the treasury loses each year due to not taxing these transactions, which are expanding more and more and represent a growing portion of economic activity. The potential collection that VAT on digital advertising sales would generate is notable, which is estimated at 90.6 million dollars for all eight countries, according to 2020 data. Also important are the lost revenues for services with audiovisual content such as Netflix, Spotify, Amazon Prime, YouTube Premium, YouTube TV, and other digital content that have grown considerably in

19 The annex presents more detailed information for each country and by company, as well as the concepts included as income from sales of digital services in each company.

recent years, especially during the pandemic. It is estimated that in 2020, around $ 76.7 million were not collected in the sample of eight Latin American countries.

In the case of applications that are intermediaries for accommodation and transport services, only the commissions charged by these technological platforms to their clients or users are taxed with VAT. In contrast, in 2020 there is a drop in income from digital services corresponding to these platforms, because of confinement measures and restrictions to contain the advance of the COVID-19 pandemic. However, the potential revenue for the UBER transport platform is also quite important. Other digital services such as cloud storage, databases, technical support services, etc., would also imply extra revenue for the treasury.

Figure 4. **Latin America (8 countries). Estimation of potential VAT revenue for digital services by type** - *In millions of dollars*

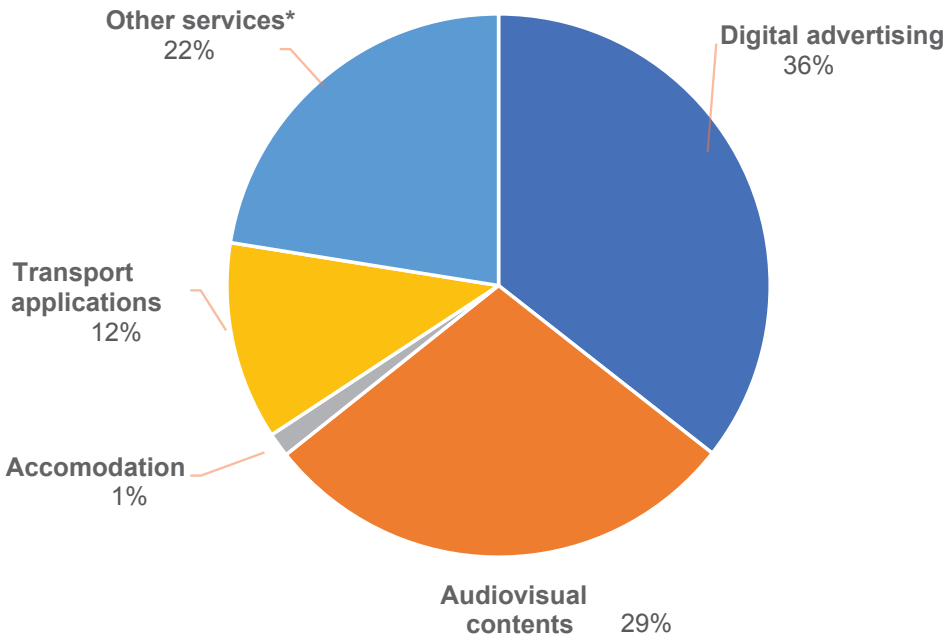


Source: Authors' own work.

* / Since no disaggregated information was found, it includes Apple digital services (advertising, AppleCare, digital content, maps, iCloud, Apple TV, etc.); Amazon services (commissions to third-party sellers, AWS sales, advertising services, and others); Google Cloud and other Google services.

On average, 36% of potential VAT collection would come from digital advertising sales, while services related to audiovisual content (such as TV content, movies, series, videos, games, music, electronic books, etc.) would generate about 29% of the potential revenue (figure 5). The rest would correspond to other digital services (22%) and intermediation services, either through transport platforms (12%) or accommodation (1%).

Figure 5. **Latin America (8 countries). Relative share in potential VAT collection for digital services by type - 2018-2020 average.** *In percentages*

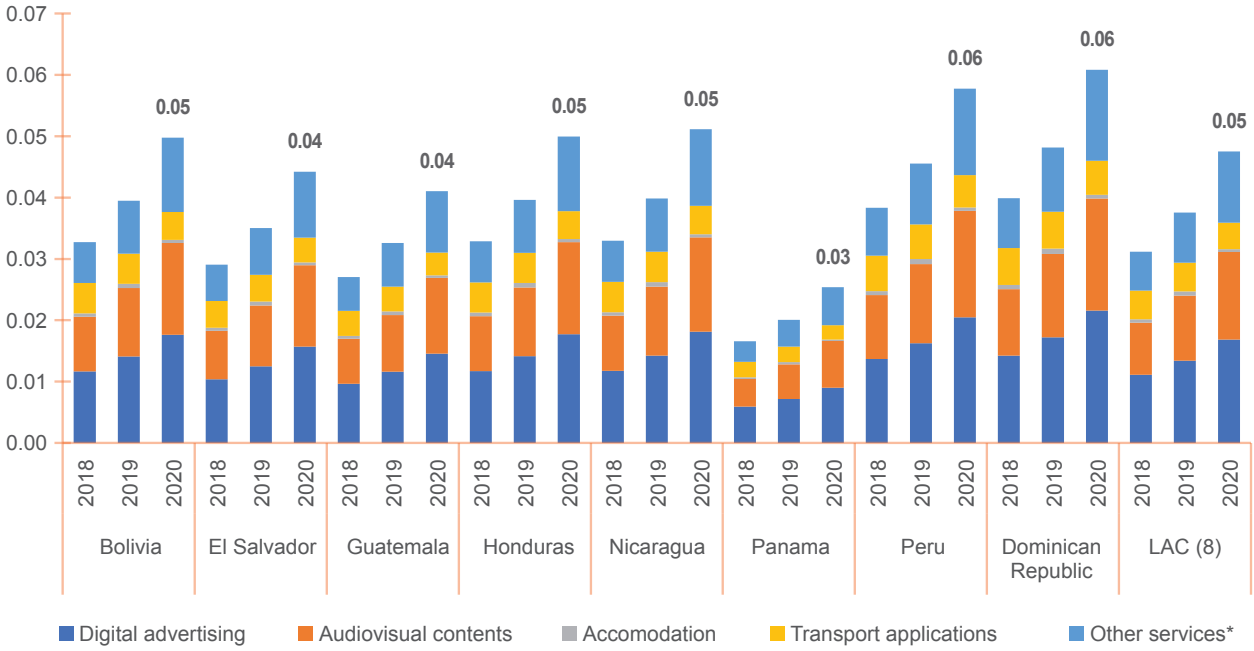


Source: Authors' own work.

* / Since no disaggregated information was found, it includes Apple digital services (advertising, AppleCare, digital content, maps, iCloud, Apple TV, etc.); Amazon services (commissions to third-party sellers, AWS sales, advertising services, and others); Google Cloud and other Google services.

The following shows the growth in potential VAT collection on cross-border digital services in each of the countries, between 2018 and 2020, which is mainly explained by the increase in sales of audiovisual content and other digital content, as well as by the higher income from online advertising (figure 6).

Figure 6. **Latin America (8 countries). Estimation of potential VAT revenue for digital services by type and country** - *In percentage of GDP*



Source: Authors' own work.

* / Since no disaggregated information was found, it includes Apple digital services (advertising, AppleCare, digital content, maps, iCloud, Apple TV, etc.); Amazon services (commissions to third-party sellers, AWS sales, advertising services, and others); Google Cloud and other Google services.

Beyond the limitations of the applied methodology, this exercise gives an idea of the magnitude of resources that the countries of the region lose since they do not revenue VAT on digital services provided by non-resident companies, a situation that is it will deepen and worsen hand in hand with the advancement of the digital economy.

8 Conclusions, main lessons, and perspectives

In view of the accelerated growth of the digital economy and cross-border operations, it is crucial that countries adapt their VAT laws to tax intangible goods and services acquired abroad by resident companies and local consumers while considering adequate collection and registration mechanisms of taxpayers. This is key both for obtaining tax revenues and for “leveling the playing field” with local suppliers so that they operate under equal conditions of competition. If not, the loss of tax revenue will be increasingly important, not only due to the expansion of this sector but also because companies from traditional sectors will seek a way to migrate to the digital sector and operate from abroad, with the consequent damage to the employment, economic growth, and the development of the local digital economy.

Against this background, some Latin American countries have incorporated digital services into the VAT tax base and have begun to collect the tax, although the rates, the collection mechanism, the obligation to register the provider and other characteristics of the tax varies between countries.

Although the OECD recommendations regarding business-to-consumer(B2C) transactions are that the foreign supplier company must register as a VAT taxpayer, through a simplified process, in the buyer’s jurisdiction and is responsible for collecting, declaring, and paying the tax, countries with smaller markets may face difficulties in forcing foreign companies to register and penalize them for non-compliance.

Faced with this difficulty, some Latin American countries have chosen to collect VAT on digital services purchased abroad, through withholding systems in the means of payment, an approach that also has problems and limitations, as detailed in the document.

From the collection point of view, the countries of the region have obtained tax revenues for this concept that are between USD 20 and USD 120 million per year, depending on the size of the digital

economy of each country, which is equivalent to a value between 0, 02% and 0.04% of GDP. However, in some cases, such as Chile, these values correspond to the first six months of VAT application, so when the collection of a full year is obtained, this indicator would be close to 0.08% of GDP. In the case of the European Union, according to the OECD (2018), revenue collection in the first year of operation of the simplified compliance regime exceeded 3 billion euros in 2015, because of the implementation of international guidelines about VAT.

From the review of the incipient specialized literature, the recommendations of international organizations, and the comparative experiences, it can be concluded that the best suggestion for the countries of the region that have not yet implemented measures to tax cross-border digital services with VAT, is to opt for the mandatory VAT registration system for non-resident suppliers, combined with the withholding of the tax in the means of payment only in transactions with suppliers that fail to comply with the obligation to register.

For this, it is essential that the tax administrations carry out a detailed and exhaustive identification of the companies that potentially should be registered, a list that must be updated periodically. This list will be necessary to request voluntary registration from suppliers and, if this does not occur, inform the issuers of means of payment to which companies the withholding should be made. When it is necessary to apply a withholding, it is also important to establish effective and expeditious procedures to return the VAT in those cases where it was wrongly withheld.

Regarding the definition of digital services in the regulations, it is recommended that a broad concept of digital services be used, without prejudice to the fact that some of them may be exempted by virtue of the general exemptions provided by the VAT legislation at the national level. Additionally, in the case of establishing specific exemptions to certain digital services, to grant certain incentives, it is important to ensure that such exemptions are also extended to national providers, so as not to encourage unfair competition, as well as to periodically evaluate the effectiveness and continuity of these tax incentives.

Regarding VAT, the general recommendation is to tax completely at the place of consumption, which means that the commissions charged by the administrator of a digital platform must be taxed with VAT at one hundred percent. But, in addition, any digital service that is consumed in a country must be taxed with VAT.

Additionally, it is suggested to facilitate the registration of non-resident suppliers through a web platform and a simplified procedure, which does not require the physical presence of company representatives. In addition, supporting information should be provided so that it allows providers to easily determine if they are required to enroll, how to enroll, and how to comply with reporting and payment.

Regarding the periodicity of the declaration, all Latin American countries have chosen to request quarterly declarations, while for the payment it is important to offer all the alternatives that are possible, such as online payments by internet or international transfers, giving the option to pay in dollars or national currency.

Regarding the estimates included in the report, it can be observed that the potential collection in terms of GDP would be like that achieved by other Latin American countries that already tax these activities: between 0.02 and 0.06% of GDP annually and once the tax is fully in force. According to the degree of penetration of these technologies, the size of the countries, and the VAT rate, the annual resources that could be obtained in countries where the tax is not yet applied range from $ 6 million in Nicaragua to USD 113 million in Peru.

Finally, it is important to highlight two elements that have not been considered in the estimates and that would amplify the effect on the potential revenue.

First, it has not been measured here how much VAT collection would fall if the legislation were not changed and cross-border digital services continued without taxing. The fact that these services continue to expand and do not pay the tax prevents competition under equal conditions and implies increasing damage to tax revenues, the economic activity of resident companies that are taxpayers, in addition to affecting the employment and the informal economy. The negative impact on the income of local companies will clearly affect future collection levels, an effect that will be even greater if local companies or companies from traditional sectors look for a way to move towards the digital sector and operate from abroad, which would increase the collection loss even more. Although the quantification of this type exceeds the scope of this study, requiring the application of a general equilibrium model and different assumptions of agent behavior, the negative effects of not taxing these activities are significant and will increase over time.

The second element that allows us to suppose a greater effect on collection earnings is related to the intermediary platforms of accommodation and transport services (such as Airbnb and Uber) since only the VAT that would be generated by the service of these intermediaries has been included in the estimates, that is, for the commissions that these digital companies charge to their clients or users. However, since in many countries the platforms share with the tax agencies the information of the owner or lessor of the property and the driver, as well as the income they receive, this will also strengthen the VAT collection for accommodation services and of transportation and income tax of the hosts and driving partners. Some countries have even forced platforms to act as withholding agents. For example, recently in Mexico, the obligation of this type of technological platform to withhold VAT and income tax from natural persons who provide services through them (including accommodation services, transportation, delivery of goods, disposal of goods and provision of services); and then they must report those withholdings to the tax administration.

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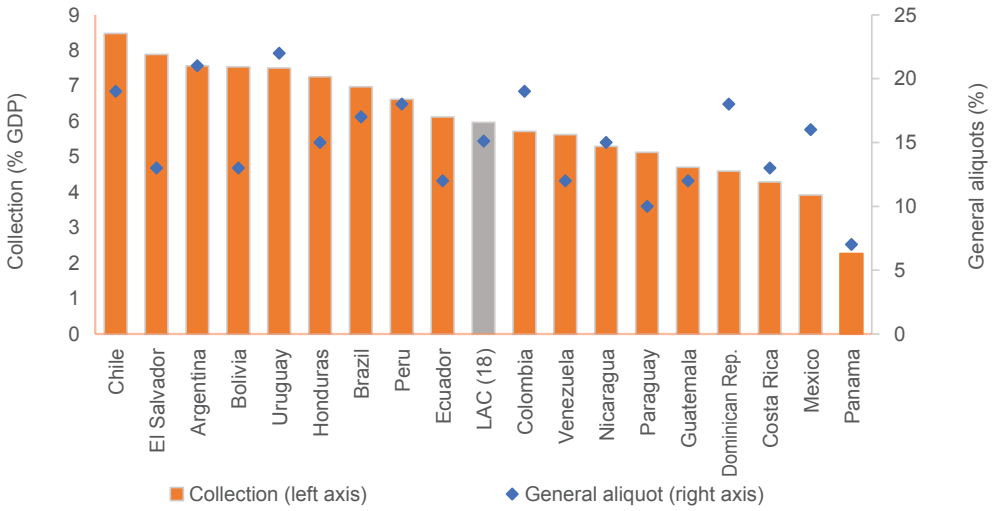
Annex

Table A.1. **Latin America and the Caribbean. Value Added Tax: general rates and collection- Year 2018**

Country	General rates (%)	Collection in % of GDP
Argentina	21.0	7.6
Bolivia*	13.0	7.5
Brazil	17.0	7.0
Chile	19.0	8.5
Colombia	19.0	5.7
Costa Rica	13.0	4.3
Ecuador	12.0	6.1
El Salvador	13.0	7.9
Guatemala	12.0	4.7
Honduras	15.0	7.3
Mexico	16.0	3.9
Nicaragua	15.0	5.3
Panama	7.0	2.3
Paraguay	10.0	5.1
Peru	18.0	6.6
Dominican Republic	18.0	4.6
Uruguay	22.0	7.5
Venezuela	12.0	5.6
LAC (18)	**15.1**	**6.0**



Source: CIAT for the aliquots and OECD / CEPAL / CIAT / IDB (2020) for the collection.

* / Bolivia: general rate of 13% incorporated in the price, which means 14.94% as the effective rate.

Table A.2. **Income from sales of digital services by international companies.**

Company	Concepts included	Geographical area
Apple	Services: advertising sales, AppleCare, digital content, and other services (maps, Siri, iCloud storage, Apple TV, etc.)	LAC + Canada
Netflix	Income from streaming services in LATAM	LAC
Spotify	Income from Premium Services (Standard Plan, Family Plan and Student Plan) and from Advertising Services	USA + UK
Amazon	Services: Third Party Seller Fees (Commissions, Fulfillment and Shipping Fee), AWS Sales, Amazon Prime Membership Fees, Advertising Services, and Digital Content Subscriptions	Rest of the world (excluding USA, UK, Germany, and Japan)
Google	Google services: products and services such as ads, Android, Chrome, hardware, Google Maps, Google Play, Search, and YouTube; advertising; application sales, digital content, subscription fees such as YouTube Premium and YouTube TV; Google Cloud: Google Cloud Platform and Google Workplace Others: Internet and TV services, licenses	LAC + Canada
Airbnb	Income from the service fees you charge to your clients (hosts and tourists)	Global
Uber	Income from fees (commissions) paid by drivers and restaurants for the use of the platform	LAC

Source: Authors' own elaboration.

Table A.3. **Latin America (8 countries). Estimation of potential VAT collection for digital services according to main companies. 2018-2020**

	Bolivia			El Salvador			Guatemala			Honduras		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Sales (millions USD)												
Apple	12.1	15.6	20.3	7.8	10.3	13.0	21.9	29.1	39.9	7.1	9.4	12.5
Netflix	16.8	21.8	28.5	10.8	14.3	18.2	30.2	40.6	55.9	9.8	13.2	17.6
Spotify	5.2	6.2	7.1	3.3	4.1	4.5	9.4	11.5	13.9	3.0	3.7	4.4
Amazon	7.1	9.9	14.3	4.6	6.5	9.2	12.8	18.4	28.0	4.2	6.0	8.8
Google	43.9	53.8	63.7	28.3	35.4	40.7	79.3	100.3	124.8	25.8	32.6	39.3
Airbnb	1.7	2.3	1.5	1.1	1.5	0.9	3.1	4.2	2.9	1.0	1.4	0.9
Uber	15.4	15.6	13.6	9.9	10.2	8.7	27.8	29.0	26.6	9.0	9.4	8.4
Total	**102.2**	**125.1**	**149.1**	**66.0**	**82.3**	**95.3**	**184.5**	**233.2**	**292.1**	**60.0**	**75.7**	**91.9**
Potential collection (millions USD)												
Apple	1.58	2.03	2.64	0.90	1.18	1.50	2.34	3.12	4.27	0.93	1.23	1.64
Netflix	2.18	2.83	3.71	1.24	1.65	2.10	3.24	4.35	5.99	1.28	1.72	2.29
Spotify	0.67	0.80	0.92	0.39	0.47	0.52	1.00	1.24	1.49	0.40	0.49	0.57
Amazon	0.92	1.28	1.86	0.53	0.75	1.05	1.37	1.97	3.00	0.54	0.78	1.15
Google	5.71	6.99	8.28	3.26	4.07	4.69	8.50	10.75	13.37	3.36	4.25	5.12
Airbnb	0.22	0.29	0.19	0.13	0.17	0.11	0.33	0.45	0.31	0.13	0.18	0.12
Uber	2.00	2.02	1.77	1.14	1.18	1.00	2.98	3.11	2.85	1.18	1.23	1.09
Total	**13.3**	**16.3**	**19.4**	**7.6**	**9.5**	**11.0**	**19.8**	**25.0**	**31.3**	**7.8**	**9.9**	**12.0**
Potential collection (% GDP)												
Apple	0.004	0.005	0.007	0.003	0.004	0.006	0.003	0.004	0.006	0.004	0.005	0.007
Netflix	0.005	0.007	0.010	0.005	0.006	0.008	0.004	0.006	0.008	0.005	0.007	0.010
Spotify	0.002	0.002	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002
Amazon	0.002	0.003	0.005	0.002	0.003	0.004	0.002	0.003	0.004	0.002	0.003	0.005
Google	0.014	0.017	0.021	0.012	0.015	0.019	0.012	0.014	0.018	0.014	0.017	0.021
Airbnb	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.001	0.000
Uber	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005
Total	**0.033**	**0.039**	**0.050**	**0.029**	**0.035**	**0.044**	**0.027**	**0.033**	**0.041**	**0.033**	**0.040**	**0.050**

	Nicaragua			Panama			Peru			Dominican Rep.		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Sales (millions USD)												
Apple	3.9	4.8	6.4	19.6	25.5	31.9	67.1	86.0	101.1	26.5	35.1	42.4
Netflix	5.4	6.7	8.9	27.1	35.7	44.7	92.7	120.0	141.8	36.7	49.0	59.4
Spotify	1.7	1.9	2.2	8.4	10.1	11.1	28.7	34.1	35.3	11.4	13.9	14.8
Amazon	2.3	3.0	4.5	11.5	16.2	22.4	39.3	54.5	71.1	15.6	22.2	29.8
Google	14.2	16.5	19.9	71.0	88.1	99.9	243.2	296.4	316.7	96.2	121.0	132.7
Airbnb	0.6	0.7	0.5	2.8	3.7	2.3	9.5	12.4	7.4	3.8	5.1	3.1
Uber	5.0	4.8	4.3	24.9	25.5	21.3	85.2	85.8	67.6	33.7	35.0	28.3
Total	**33.0**	**38.3**	**46.7**	**165.2**	**204.9**	**233.8**	**565.8**	**689.2**	**741.0**	**223.9**	**281.2**	**310.5**
Potential collection (millions USD)												
Apple	0.51	0.62	0.83	1.28	1.67	2.09	10.23	13.11	15.43	4.05	5.35	6.46
Netflix	0.71	0.87	1.17	1.77	2.33	2.93	14.15	18.30	21.63	5.60	7.47	9.06
Spotify	0.22	0.25	0.29	0.55	0.66	0.73	4.38	5.20	5.39	1.73	2.12	2.26
Amazon	0.30	0.39	0.58	0.75	1.06	1.47	6.00	8.31	10.85	2.37	3.39	4.55
Google	1.85	2.15	2.60	4.64	5.76	6.54	37.09	45.22	48.30	14.68	18.45	20.24
Airbnb	0.07	0.09	0.06	0.18	0.24	0.15	1.46	1.89	1.12	0.58	0.77	0.47
Uber	0.65	0.62	0.56	1.63	1.67	1.39	13.00	13.09	10.31	5.14	5.34	4.32
Total	**4.3**	**5.0**	**6.1**	**10.8**	**13.4**	**15.3**	**86.3**	**105.1**	**113.0**	**34.1**	**42.9**	**47.4**
Potential collection (% GDP)												
Apple	0.004	0.005	0.007	0.002	0.003	0.003	0.005	0.006	0.008	0.005	0.006	0.008
Netflix	0.005	0.007	0.010	0.003	0.003	0.005	0.006	0.008	0.011	0.007	0.008	0.012
Spotify	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.003	0.002	0.002	0.003
Amazon	0.002	0.003	0.005	0.001	0.002	0.002	0.003	0.004	0.006	0.003	0.004	0.006
Google	0.014	0.017	0.022	0.007	0.009	0.011	0.016	0.020	0.025	0.017	0.021	0.026
Airbnb	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001
Uber	0.005	0.005	0.005	0.002	0.002	0.002	0.006	0.006	0.005	0.006	0.006	0.006
Total	**0.033**	**0.040**	**0.051**	**0.017**	**0.020**	**0.025**	**0.038**	**0.046**	**0.058**	**0.040**	**0.048**	**0.061**

Source: Prepared by authors, based on the reports of these companies to the US-SEC and IMF and ECLAC for population data.

Working Papers *Serie*

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