Chapter 6

Affordability, government charges and digital inclusion

This chapter focuses on good practices aimed at increasing the affordability of broadband services and digital inclusion. It outlines mechanisms that help reduce the costs of services and devices, taking into consideration taxation and government charges. It also examines how to promote further digital and financial inclusion, by using ICTs to overcome barriers resulting from such factors as affordability or for people with special needs.
Information and communication technologies (ICTs) and specifically broadband are general-purpose technologies that can be applied to a wide range of economic and social activities. Their positive effects on development have been well documented. More widespread use of ICTs translates into more social development and general economic growth. Given the large economic and social positive externalities of ICTs, governments should promote their use. This role requires, among other things, making the adoption and use of ICT affordable. Policies should aim to reduce the “affordability gap”, defined as the number of people or households who do not access ICT services because they are not able to cover such expenses.

As competition generally results in more investment, better quality, increased supply and lower prices, the creation of a competitive framework is the single most important initiative that authorities can take to increase affordability. The difference in consumer demand that theoretically exists between any given market structure and a fully competitive market is usually described as the “market gap”. It can be efficiently addressed with comprehensive policies that promote competition and lower barriers to entry. Yet, even in a perfectly competitive market, certain market failures may prevent areas or groups from being reached commercially without some form of intervention, commonly referred to as the “access gap” (Navas-Sabater, Dymond and Juntunen, 2002).

The recognition that some areas or groups, because they are located in isolated zones or because they cannot afford certain services, are not able automatically to benefit from competitive markets has prompted government intervention, including policies for universal service and community access (as discussed in Chapter 5). This chapter focuses on the particular market failure caused by the affordability dimension of the “access gap”, a major challenge to the urban poor in Latin America and the Caribbean (LAC) in particular.

Apart from community access, universal policies and retailing innovations, affordability is also influenced by taxation and other charges imposed by governments, as this chapter will show. Such factors can refer to charges imposed by different levels of government at different stages of the value chain (among them direct sales tax, spectrum usage, rights of way and other fees levied on the deployment of communications networks, import duties, labour taxes, universal service funds, regulatory levies and fees). The taxes different government agencies impose throughout the production chain in order to provide telecommunication services are an important cost factor in the sector, and directly influence affordability. For mobile communications, the GSMA (for GSM Association) estimates that total tax and fee payments as a proportion of mobile revenues were on average 31.9% for a sample of 26 countries, of which seven countries are in the LAC region (GSMA and Deloitte, 2015). The price of smartphones with greater functionality may also bar certain disadvantaged groups from enjoying the benefits of digital inclusion, although this is being rapidly addressed by market forces, as was the case with feature phones.

Closing the access gap and promoting digital inclusion requires more than simply ensuring that services are available and affordable. It also requires that these services be relevant and accessible for disadvantaged groups. While the Chapter 1 addresses Sustainable Development Goals (such as targets for the digital inclusion of women) and Chapter 5 delves into the issue
of connecting rural populations, this chapter will analyse issues related to digital inclusion, for example, financial inclusion and accessibility to people with special needs. This discussion should include the efforts to resolve other important “demand-side” issues, such as skills (Chapter 9), digital local content (Chapter 10) and consumer trust (Chapters 13, 14 and 15).

Key policy objectives for the LAC region

The main policy objective should be to encourage more people, businesses and governments to increase their use of ICTs. This is easier said than done: penetration still lags behind in LAC countries, businesses have not fully incorporated ICTs into their processes, and usage is still low by international standards. This general objective can be broken down into more specific goals:

- **Expand connectivity.** Policy makers should promote the widespread adoption of ICTs by tackling the obstacles to growth. Such actions could include the promotion of competition, skills for effectively participating in the digital economy, a neutral taxation system, the development of local content, and incentives to promote ICT usage in the private and public sectors (addressed in Chapter 10 on business uptake and in Chapter 12 on digital government, as well as in Chapter 11 on e-health and Chapter 9 on education and skills for the digital economy).

- **Increase affordability.** Governments should aim to increase affordability, not only through expansion of services but also through more specific policies and regulation that have a positive influence on lowering pricing of services and devices, and through targeted redistribution mechanisms aimed at tackling market failures.

- **Encourage financial inclusion.** The use of mobile telephony and broadband for mobile banking can bring poor people into the formal financial system at a relatively low cost, even though challenges related to privacy and security still need to be addressed (Chapters 14 and 15).

- **Promote the inclusion of those with special needs through the use of ICTs.** The use of ICTs helps reduce many of the obstacles faced by people with special needs, helping to fully include them in economies and societies. ICTs have a major contribution to make in integrating those with special needs.

Tools for measurement and analysis in the LAC region

ICTs are a rapidly changing industry involving constant innovation, and today's cutting-edge technologies quickly become outdated. Governments need to constantly track and benchmark progress towards a set of measurable indicators. This, in turn, will aid the timely development and modification of national policies to better meet connectivity goals.

Affordability is a relative concept that does not lend itself to precise indicators. **Market prices** should be evaluated periodically to evaluate trends. Specifically, average and minimum available prices should be collected and compared with the distribution of income. This allows for precise measurement of how many people and households need to spend more than an acceptable share of their income to acquire broadband services. International price comparisons are also a useful measurement tool.

**Taxation,** at least partially, can be measured through estimated total taxes levied on total cost of ownership (TCO) and total cost of use (TCU), the difference between both indicators being the inclusion in TCO of upfront payments (activation and terminal equipment). Other fees along the value chain (as explained below) can be benchmarked with international data. As a reference, the GSMA has been publishing annual statistics on taxation of mobile services for over a decade.²
Progress in gaining access to information and communications technologies (ICTs) among people with special needs can be measured by general indicators that track what percentage of members of such groups have adequate access, and that track the infrastructure that supports such access. The ICT Consultation in support of the High-Level Meeting on Disability and Development at the 68th session of the United Nations General Assembly (ITU, 2013) proposes a full set of indicators for monitoring and promoting the needs of people with disabilities/special needs, but effective implementation of this measurement agenda is not yet complete.

On the one hand, access to ICTs for people with special needs is based on the technology available for each type of impairment the availability of accessible ICT products and services across markets, and affordability. However, progress towards broader enabling conditions also has to be measured. This might include reference to ICTs in disability legislation; the rate of awareness of people with special needs of the use of ICTs; the share of GDP spent on research and development on ICT-enabled solutions for those with special needs; and total patents filed or awarded for ICT-enabled solutions for people with special needs. Other more specific indicators relate to health care, education, professional and lifelong learning, employment, independent living, government services and participation in political and public life. Finally, financial exclusion can be measured based on data showing the percentage of the population who use traditional as well as mobile and online banking.

Overview of the situation in the LAC region

Affordability

A crucial aspect of broadband uptake in the LAC region is affordability. Affordability is a relative concept that should be measured against income. It reflects the financial resources that households and businesses need to access services. In the OECD-IDB questionnaire, when asked about the main barriers to online and ICT services in middle- and low-income groups, LAC countries ranked “high prices for devices/services” as the greatest obstacle (Figure 6.1).

Figure 6.1. Barriers to broadband and ICT services in general (2015)

As a rule of thumb, prices that exceed 5% of disposable income substantially reduce demand (Galperin, 2012). Wide income inequalities exacerbate the situation, given that low-income households tend to have income that is disproportionately lower than the average.
In Brazil and Mexico, the bottom of the pyramid (defined as those households located in the bottom three income deciles) has an average household income of around 30% of the national average. As both national averages stand at around USD 1 400 PPP per month, a 5% maximum expenditure in telecommunications services would translate to around USD 20 PPP. This would severely limit access.

High-income households (in the two top deciles) whose use of telecommunications services is generally above 90%, tend to account for around 50% to 60% of total household spending on telecommunications. As a percentage of disposable income, the amount spent in these groups is usually well below the 5% threshold. The bottom of the pyramid accounts for only 5% to 10% of total telecommunications revenues. On average, household spending is well below the 5% threshold, due to the fact that ICT penetration is spotty. Of those households that actually spend on ICTs, the average spending significantly exceeds the threshold (Box 6.1).

Box 6.1. Distribution of use of ICT services in Mexico

Use of ICT services in Mexico is extremely uneven. On average, the wealthiest 20% of households (2008) accounted for 47.1% of total household telecommunications spending, which represented 5.75% of total household expenditure. At the other extreme, the lowest three deciles accounted for only 7.6% of total telecom spending, which represented 2.55% of their expenditures. Nevertheless, for those households that reported having paid for the service, 6% of expenditures was spent paying for fixed telephony services, 4% for mobile services, 10.5% for broadband and 2.5% for pay television. Paying for ICTs thus consumes a significant proportion of disposable income (see Figure 6.2).

Figure 6.2. Telecom expenditure in Mexico (2008)

In households with the service

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed telephony</td>
<td>8.0%</td>
</tr>
<tr>
<td>Mobile telephony</td>
<td>5.0%</td>
</tr>
<tr>
<td>Broadband</td>
<td>12.0%</td>
</tr>
<tr>
<td>Pay TV</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

In all households in the decile

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed telephony</td>
<td>1.0%</td>
</tr>
<tr>
<td>Mobile telephony</td>
<td>0.5%</td>
</tr>
<tr>
<td>Broadband</td>
<td>2.0%</td>
</tr>
<tr>
<td>Pay TV</td>
<td>0.5%</td>
</tr>
</tbody>
</table>


StatLink © http://dx.doi.org/10.1787/888933354271
Mobile telephony charges have decreased steeply in recent years, but this is not the case for fixed telephony and broadband. Mobile operators have invested in and developed service innovations in LAC by introducing prepaid services and daily tariffs for mobile broadband. As a result, more affordable services are now offered, and at least 80% of mobile access in the region is on a prepaid basis (GSMA, 2015).

Nevertheless, in terms of affordability, average products in the market do not tell the full story. A much better picture of the situation can be obtained by reviewing the least expensive option available in each market, on the assumption that access is important to the user even if consumption amounts are capped (and usually very expensive on a per-unit basis). In the second quarter of 2015, the cheapest available prices for fixed broadband plans ranged from USD 14.92 PPP in Brazil to more than USD PPP 50 in Argentina and Venezuela. For mobile broadband (1 gigabyte plans), plans ranged from USD PPP 3.35 in Costa Rica to more than USD PPP 30 in Venezuela and Ecuador (Figure 6.3).

Figure 6.3. Cheapest available plans for fixed and mobile broadband (second quarter of 2015, in USD and USD PPP)

For fixed broadband, in the five years to 2Q2015, prices for the cheapest plans did not change substantially in the LAC region. Three countries (Nicaragua, the Plurinational State of Bolivia [hereafter “Bolivia”] and Honduras) saw large decreases, but they are still three
of the most expensive countries. Nine countries saw marginal increases, whereas seven saw marginal decreases. The average cheapest regional price went down by less than 10% (excluding Venezuela) in the same period (Figure 6.4).

Figure 6.4. **Cheapest available plans for fixed broadband (2Q2015 vs. 2Q2010) (in USD PPP)**

In relative terms, six countries had fixed broadband minimum prices of less than 2% and six above 5% of GDP per capita. For mobile broadband, all countries except one offer plans priced under 5% of GDP per capita, with ten of them at under 2% (Figure 6.5). Roughly speaking, these numbers translate into around half those percentages in terms of income per household. As households buy other telecommunications products (mainly voice services), these minimum expenditure percentages are affordable for the average consumer, but an almost unsurmountable burden for the bottom of the pyramid.

Affordability is still an important hurdle for broadband adoption in the LAC region, as prices are still high when compared to income levels and wealth distribution, especially for the most economically disenfranchised segments of the population. A number of LAC countries have started to address this issue. Many operators in the LAC offer “social” service plans (“popular” in Brazil, “social broadband” in Costa Rica). Some governments have subsidised access devices (tablets for students in Colombia and Mexico, while Costa Rica offers a subsidy for families assessed to be living in poverty to buy a computer with Internet access). Most countries have free Internet access in certain public places (in Costa Rica, four programmes financed by the *Fondo Nacional de Telecomunicaciones* (FONATEL) pursue this objective – Connected Communities, Equipped Public Centres, Connected Public Spaces and Solidarity Broadband). Some countries increase affordability by reducing taxes on plans
for those with low income (as in Brazil and Colombia’s Vive Digital). Though not specific to telecommunications services, most countries have income redistribution policies that also increase affordability of ICT services.

Figure 6.5. Cheapest available plans as a percentage of GDP per capita (second quarter of 2014 and 2015)


Taxation and other government-imposed charges

Taxation is necessary in any economy to finance current government spending, support public investment and redistribute income among citizens. That being said, taxation affects supply and prices, influencing demand and reducing affordability. The fiscal regime that applies to the ICT sector must thus be put in perspective with other national goals. Government intervention also needs to consider spending programmes, including income support for low-income households.

ICTs are general-purpose technologies with a positive measurable effect on growth and productivity. From a theoretical perspective, because these technologies have positive economic externalities and generate other social benefits, governments may consider them as goods and services that are potentially useful to promote, including by reducing the tax burden on their supply, adoption and usage. A neutral tax structure that allows for positive externalities can lower barriers to affordability and increase investment. This can result in economic and infrastructure development, increasing productivity and employment and benefiting education, health care and overall development, which in turn can promote growth and additional tax revenues.
In practice, however, many governments impose additional and sometimes substantial industry-specific taxation on telecommunications services. Revenue collection may be carried out efficiently and at a low cost, as the sector is a significant part of the economy, concentrated in a handful of large formal corporations. For example, the two largest telecommunications companies in Brazil accounted for 6.3% of the revenues collected from the 20 largest taxpayers in 2014 (11.2%, if Petrobrás, the state-owned oil company, is excluded). In the short term, higher tax revenues collected by a small number of large taxpayers may often win out over the longer-term potential economic and social benefits for development and may entail other detrimental effects, where they are, for example, not neutral (e.g. favour one technology over another).

This creates a dilemma, because overtaxing the sector to generate revenue conflicts with a more neutral taxing approach (or, at least, applying the general taxation regime), which potentially has a more positive, less distorting effect on the economy going forward. Most LAC countries have chosen the first option. Most studies that argue for neutral taxation, however, stress the value of the second option.

There are many ways to develop a taxonomy of taxes. This report groups them into three almost non-overlapping categories. It is important to stress that many payments to governments are not strictly considered taxes, but since their effect is similar to that of levying a tax, they are included in the following classification.

The first are **general taxes**, broad-based taxes that usually apply to all activities in the economy and should be considered the basis for evaluating how much distortion special taxes cause. These taxes on consumers comprise value-added taxes (VAT), sales taxes or their equivalent. On companies, these are regular taxes that are imposed on profits, as well as non-recoverable taxes on investments (e.g. product-type VAT). Labour contributions (social security, payroll taxes, etc.) and other taxes that apply to all players in the economy also belong in this category. Of course, broad-based taxes often have numerous exemptions and exclusions for distributional, administrative or political reasons.

The second, **special taxes or fees to consumers**, which are levied on the sales price and take several different forms, all have a negative effect on demand:

- **On overall spending on a specific product or service.** This is usually an additional percentage on a consumer’s bill, in addition to VAT. For example, Mexico applies a 3% “special tax” on all telecommunications services except Internet and public and rural telephony. It was imposed in 2010 with other tax rate increases (VAT and income tax). Since 2003, Colombia has applied a 4% differentiated VAT on mobile services. This tax finances sports at the national and state level. The Dominican Republic charges a 10% excise tax and a 2% tax to finance the regulator and projects for universal service. In El Salvador, at the end of 2015, the government approved the imposition of a 5% tax on telecommunications services to finance security plans.4

- **On usage.** Special taxes on usage can either be charged at the actual price (sometimes at different rates for different services – calls, SMS, data) or on a per-event basis (calls, SMS). They are sometimes defined as a percentage of price, sometimes as a fixed amount. For example, Jamaica imposes a surcharge of around USD 0.4 cents per mobile voice minute.

- **On terminal equipment and handsets.** A terminal device is indispensable for access to telecommunications networks. These devices (modems, handsets, dongles, cable boxes, tablets, computers and so on) are expensive and represent an important overall percentage
of the total cost of access to ICTs, even though they could potentially be financed or subsidised by operators (usually at the cost of raising switching costs or charging more for services). Taxes on such devices become a barrier to access (especially for people with lower incomes) and can hinder adoption of newer services and technologies. These taxes can take several different forms (e.g. higher VAT rates, “luxury tax,” constant amount per unit, higher import duties). Some countries have gone even further, applying different rates for different types of devices (e.g. feature phone vs. smartphone, or even exemptions, if the price is under a certain amount) or even different origins (e.g. imported vs. locally manufactured). For example, in 2010, Argentina imposed a 26.63% import duty on mobile phones, LCD monitors and PCs; it has recently been reduced to 20.5%. Ecuador imposes quotas on the import of smartphones. Many of these taxes are driven by the need to increase government revenue or influence the international balance of payments, but others are used to give incentives to local production or to address current-account imbalances.

- **On activation or on installed base in service.** Some countries impose a one-time fee per new connection. For example, Jamaica has a 0.8% surcharge on the value of the Subscriber Identity Module (SIM). Brazil charges BRL 26.83 (around USD 8) per new connection. Some countries in the LAC region apply yearly fees for active users; for example, Brazil has imposed this fee (of BRL 13.42, or around USD 4, per connection per year) for many years.

  The third and final classification are **special taxes/fees to network and service providers.** Operators and service providers pay a myriad different government charges. Some of these payments are explicitly labelled as taxes, while others are linked to permits, the use or exploitation of publicly owned resources, or to special regulatory conditions. This category can be grouped into five types:

- **Special taxes on revenues, profits or market shares.** Certain countries apply a tax as a percentage of revenues on network and service providers. Brazil, on top of the Universal Service Fund (USF) contribution, imposes a levy of 0.5% for a technological development fund. El Salvador, imposes a tax of 5% of total incomes for entities with incomes above USD 500 000 per year. Sometimes, a different tax rate applies to profits from telecommunication service providers. Panama applied different rates until 2013. Ecuador applies certain fees based on the market share of operators.

- **Regulatory contributions:**
  - Universal Service Funds contributions. As shown in Chapter 6, on the extension of broadband access, operators are sometimes obliged to make payments for funds aimed at increasing universal service. These payments take several forms, but they are usually calculated as a percentage of revenue, such as Brazil’s 1% Telecommunications Services Universalisation Fund (FUST) contribution.
  - Licensing and permit contributions. Most regulators charge administrative fees for issuing permits and licenses to operate. In many countries, these fees are either for processes that could be considered unnecessary or are above the cost of providing the license.
  - Inspection fees. Some countries charge a fee (either on a per-event basis or on a yearly basis) to inspect and verify networks. Through Fistel, Brazil charges a telecommunications inspection fee (Taxa de Fiscalização de Instalação [TFl]) for verifying installation and an annual payment for inspection (Taxa de Fiscalização de Funcionamento [TFF]).
Other regulatory levies. Some regulators impose a charge to support regulatory activities. Certain countries impose charges for other goals, such as Brazil’s Technological Development Fund (FUNITTEL), which receives 0.5% of revenues to encourage innovation in the sector, or Costa Rica’s FONATEL contribution, which can range from 1.5% to 3% of the gross income of operators, depending on the projects to be financed each year.

**Exploitation of publicly owned resources.** The deployment of telecommunications networks entails the use of many publicly owned resources, such as buildings, rights of way, public spaces and land, poles, towers, ducts, etc. Governments usually set charges on these resources, sometimes well above costs. Although strictly speaking these are not taxes, they do have similar effects on the production function. Many of these levies represent a substantial part of local income for cities and municipalities, so setting them close to true costs might prove politically difficult. As a general rule, it is recommended that government levies for these concepts be set at the true costs (the so-called Diamond-Mirrlees Efficiency Theorem) (see Hammond, 2000). Of course, when publicly owned resources are scarce (as the appropriate public space for deploying towers can sometimes be), other mechanisms to reflect scarcity should be used instead. See Chapter 4, on competition and infrastructure bottlenecks for good practices in this area.

**Spectrum fees.** The rights to use spectrum are the ultimate example of exploitation of publicly owned resources, and as such, deserve to be treated separately. Spectrum can represent a significant cost of building and operating a telecommunications network. Chapter 3 addresses the most important aspects of efficient spectrum management. The OECD recommends using auctions as the most efficient way to charge the right price and let spectrum be assigned to those who value it the most. Whereas some countries license spectrum with only an upfront payment, others have opted for a two-part fee, composed of an initial payment (usually the amount offered by the bidder during the auction process) and annual spectrum usage fees. Assuming the cost of capital is the same for public and private funds, in terms of net present value, these two amounts are theoretically equivalent. Nevertheless, such annual government charges impose costs incurred by all players and thus most likely trickle down to final prices; they could also aﬀect competition, because on a per-unit basis, spectrum that is more heavily used pays a lower spectrum unit fee. This is an important consideration for smaller players, which on a proportional basis, pay higher spectrum annual fees than larger players.

**Special import duties and custom taxes.** In most LAC countries, a significant percentage of network equipment (hardware and software alike, such as switches, base stations, computer systems) is imported. These taxes aﬀect the production value-chain and, as such, should be carefully considered; they could even distort certain decisions, such as using more spectrum instead of installing more radio base stations. Import duties could also translate into underinvestment, compromising quality and supply (especially in remote areas and less proﬁtable deployments).

There is an additional tax that does not ﬁt into the taxonomy described above, because it aﬀects directly consumers living abroad. Especially in highly regulated environments with monopolistic provision of services, some countries apply high surcharges on international incoming traﬃc. Such measures can have negative implications for the provision of international telecommunications services (OECD, 2009).

While less prevalent in the LAC region than in Africa and some parts of Asia, the practice of applying surcharges to the termination of incoming international calls can also lead to market distortions. In some cases, they entail additional costs for the state, due to
enforcement (e.g. where an arbitrage opportunity is created, such as in the case of so-called SIM box fraud) (OECD, 2014). In addition, this can lead to double taxation for consumers in the country making the call, including in the LAC region. The end result is higher prices and suppressed demand, often affecting the diaspora (who tend to be less well off in the countries where they are living) when calling family and friends in the countries applying the surcharges.

With so many different taxes and charges applied to telecommunications services, a straightforward cross-country comparison is extremely difficult. An aggregate comparison can be made by evaluating how much tax is levied on handset acquisition and service costs over the expected life of the service contract (total cost of ownership [TCO]). Though this approach reveals how substantial the additional charges are, it does not help assess the level of distortion caused by the different charges.

According to the GSMA, which periodically assesses taxes in the mobile sector worldwide, LAC countries on average charged 20.1% on TCO in 2014. For the set of countries analysed in previous studies, from 2010/2011, total tax on TCO increased from 17% to 18.4% (Figure 6.6). For the 27 OECD countries tracked by the GSMA (excluding Turkey, which currently taxes mobile services at 38.32%), total tax went from 20.0% to 20.95% in the same period.

Figure 6.6. **Government charges as a percentage of total cost of ownership in selected LAC countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>2010/11</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colombia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peru</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nicaragua</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolivia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecuador</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venezuela</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guatemala</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraguay</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Most LAC countries apply some sector-specific taxes along the production chain. Most of these taxes end up affecting end-user prices, which in turn decrease demand and affordability. These charges also have implications for the deployment of networks, which
have a negative effect on supply, quality and coverage. They can also distort choices if not applied in a technologically neutral manner, something that is particularly important in an industry dependent on dynamic technological change.

Financial inclusion

While communication services have become widespread in the LAC region (109% penetration of mobile telecommunication services, for example, according to GSMA), a large proportion of low-income populations are still largely excluded from financial services. Average banking penetration for high-income OECD countries is 94%; in the LAC region, an average of 51.3% of the adult population has accounts in financial institutions (e.g. banks) (World Bank, 2014).

Although there has been considerable growth (around 10 percentage points) in account ownership in financial institutions in the region (World Bank, 2014), some population groups remain at the top of exclusion levels in the use of financial services – women who are not heads of households, youth, pensioners, students, people of lower income and education levels, and the rural population (Garcia et al, 2013).

ICTs, especially mobile telephony and broadband, are becoming key enablers of financial inclusion. Online banking, payment and transfers are increasingly used to access financial services worldwide. Mobile services have played a central role in connecting lower-income populations. Mobile financial services are bringing financial services to millions of unbanked and under-banked people. As of 2014, more than 250 services had been deployed in 89 countries, most in the sub-Saharan region, where M-Pesa has had considerable success, but LAC has also seen its share of mobile financial service deployments, with around 50 currently active (Table 6.1) (GSMA, 2014).

Table 6.1. Mobile financial services available in the LAC region

<table>
<thead>
<tr>
<th>Financial services providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina Sicom (m, s)</td>
</tr>
<tr>
<td>Bolivia Tigo (Millicom) (m)</td>
</tr>
<tr>
<td>Brazil Vivo (Telefónica) (m) Oi (m)</td>
</tr>
<tr>
<td>Colombia DaviPlata (m) BanColombia (s)</td>
</tr>
<tr>
<td>Dominican Republic Orange (m)</td>
</tr>
<tr>
<td>El Salvador Tigo (Millicom) (m)</td>
</tr>
<tr>
<td>Guatemala Tigo (Millicom) (m)</td>
</tr>
<tr>
<td>Guyana Guyana Telephone and Telegraph Company (m)</td>
</tr>
<tr>
<td>Haiti Digicel (m) Haitipay (m)</td>
</tr>
<tr>
<td>Honduras Tigo (Millicom) (m, i)</td>
</tr>
<tr>
<td>Mexico eZuza (m) Telcel (América Móvil) (m)</td>
</tr>
<tr>
<td>Paraguay Tigo (Millicom) (m, i, c)</td>
</tr>
</tbody>
</table>

Note: m: Mobile money; i: Mobile insurance; c: Mobile credit and s: Mobile savings. For further details on each service, GSMA (2016), Mobile Money Deployment Tracker, is available at www.gsma.com/mobilefordevelopment/programmes/mobile-money-for-the-unbanked/insights/tracker.


Despite having a mobile financial accounts penetration of only 2.1% (World Bank, 2014), the LAC region has witnessed the highest growth of mobile financial services subscriptions in the world, with the number of financial accounts growing by 50% between
December 2013 and December 2014, and reaching 14.9 million registered accounts (GSMA, 2014). It should be noted, though, that the number of active accounts is less than half that figure, at 6.2 million, and small by comparison with the 61.9 million accounts in sub-Saharan Africa.

The LAC region is unusual in having a high percentage of people using accounts to receive government transfers (9%). Among other regions in the world, it lags only behind high-income OECD countries, with 17.2% of people receiving transfers in this fashion. The LAC region is also ahead of other regions, with the exception of the OECD countries, with respect to the use of credit and debit cards, at 18% and 27%, respectively (World Bank, 2014).

Given the LAC region’s more developed financial sector and use of financial services, the implementation of government programmes of cash transfers has probably been an important force in bringing people into the formal financial sector, minimising the demand for mobile financial services by comparison with other regions of the world. Governments can play an important role in harnessing ICTs, mobile telephony and broadband to spur more inclusive development.

Individuals with special needs

While methodologies among countries may vary, the prevalence of individuals with special needs in Latin America and the Caribbean has been reported to range from 2.9% in the Bahamas to 23.9% in Brazil (CEPAL, 2013). Around 12%, or 66 million individuals, in Latin America and the Caribbean live with at least one disability, such as visual and mobility limitations, hearing and speaking disabilities and intellectual and developmental limitations. This last group, which includes people with mental or cognitive disabilities, includes those, according to CEPAL, who face the greatest challenges in integrating themselves in social and economic activities in the LAC region.

A key challenge in the LAC region is collecting basic statistics on people with disabilities. Gathering disaggregated data on their specific limitations, gender, income and use of technology is an even more difficult task for certain countries. The lack of knowledge of the conditions such individuals face contributes to the fact that people with special needs continue to be remain in low-income groups. In tackling the issue of digital inclusion, initiatives that target both the affordability and the accessibility of ICTs are crucial to help the entire population benefit from the digital dividends.

Good practices for the LAC region

Affordability

The Sustainable Development Goals include, in Goal 9, the objective of significantly increasing access to information and communications technology and striving to provide universal and affordable access to the Internet in the least developed countries by 2020. Thus, affordability of broadband services has become a worldwide priority and a task for all stakeholders, governments and businesses included.

Affordability is defined in terms of the relative burden of paying for broadband services with a given income, for a given set of benefits derived from access. Thus, broadband affordability can be increased in three different, non-mutually exclusive ways: by increasing income, by lowering prices (especially entry-level prices) or by increasing the utility derived from broadband access (such as by shifting the perceived importance broadband access in people’s spending priorities).
Increasing income at the national level is one of the main objectives of almost every government. Though broadband uptake plays a relevant role in increasing income, governments take a much more comprehensive approach to economic development. Thus, increasing affordability through higher national income is beyond the scope of the present chapter.

Transfer mechanisms for targeted segments of the population, especially the most disenfranchised – the elderly, women, rural households or even SMEs – could potentially increase affordability. These mechanisms could be distributed through a voucher system (as implemented in the United Kingdom from 2010 to 2015 for SMEs) or through direct subsidies to operators, or through lower prices, which are effectively equivalent to income increases. This is the case for Colombia’s Vive Digital programme for strata 1 and 2, the poorest of six strata of the population, considering several socio-demographic variables, and the Connected Households Programme in Costa Rica, which aims to help people in vulnerable conditions (from quintiles 1, 2 and 3) to access ICTs. General transfer schemes, such as the conditional cash transfer programmes that have become widespread in the LAC region (as of last count, 18 countries had such programmes) also increase affordability, but allow beneficiaries to choose how to spend the money. As expected, their impact on broadband uptake is lower than a direct broadband-only subsidy.

Apart from the transfer mechanisms outlined above, governments have many tools at their disposal for efficiently lowering broadband prices. The Alliance for Affordable Internet (A4AI), a global coalition of private, public and nonprofit organisations, has identified five common success factors that can increase broadband affordability, as addressed in several chapters of this Toolkit:

- **Enhanced competition.** Competition has been shown to result in investment, better quality and lower prices. Overall, liberalised markets with an open and competitive environment have more affordable services than markets with imperfect competition (see Chapter 4 on competition and infrastructure bottlenecks). Nevertheless, competition alone is not sufficient, as it needs to be effective. Independent regulators with enforcement capabilities, a clear licensing regime, technology and service-neutral rules, as well as a regulatory framework that minimises barriers to entry are common characteristics of markets where competition has thrived (see Chapter 2, on regulatory frameworks and digital strategies). Since around 1990, most countries in the LAC region have started to liberalise the telecommunications sector. Starting with the privatisation of the public national incumbent, they have moved on to creating regulators (not all of them independent) and to allowing competition. Some approaches worked better than others; a second wave of regulatory restructuring is now starting to reach the region. Competition and governance frameworks are now being reviewed. Mexico, with its creation of a constitutionally autonomous regulator and the implementation of asymmetric regulation, provides an example of how much the approach has changed in the last quarter of a century.

- **Effective broadband strategies, usually laid out in national broadband plans.** As shown in Chapter 2 on regulatory frameworks and digital strategies, many countries in the LAC region have developed broadband plans in the last decade. If they are to be successful, they need to address not only supply (deployment of networks, especially in underserved areas) but also demand (awareness, prices, digital and language literacy, relevant content, government services). These plans must be time-bound and measurable. One example is Colombia’s Plan Vive Digital, launched in 2010, which outlines three overarching goals to be achieved over five years: triple the number of municipalities reached by at least one
fibre-optic network; connect to the Internet at least 50% of microenterprises and SMEs, as well as 50% of households; and quadruple the number of broadband connections nationwide. It also aimed at having shared access in all towns of more than 100 inhabitants. Through a private-public partnership, it built a fibre-optic network reaching more than 62% of municipalities. It also started overhauling the regulatory framework to allow for full convergence and established rules for promoting local software and content providers. Certain import taxes were reduced or eliminated. Digital literacy courses were developed and implemented. In an A4AI’s report (A4AI, 2014), Colombia ranked second on the affordability index. Another example is Costa Rica’s PNDT, “Costa Rica: A Connected Society”, which defines goals such as “100% of the elderly day care centres with an intelligent community centre in operation by 2021” and “100% of CEN-CINAI (Nutrition and Education Centres-Comprehensive Care Child Centres) will have Technology Corners by 2021”. Each of these goals is assigned to an institution that is accountable for it, with a defined budget, and progress in implementation is evaluated annually.

● **Efficient spectrum allocation.** As described in Chapter 3, spectrum is a scarce resource essential for providing wireless telecommunication and broadcasting services. As such, it needs to be managed efficiently and, given its huge opportunity cost, should be made available promptly on a competitive and non-discriminatory basis. Spectrum should be assigned through transparent processes that guarantee that economic and social benefits are maximised. In one case of good practice in the region, Peru, which lagged behind in addressing the potential benefits of the digital dividend only a few years ago, has recently adopted new measures to catch up with the rest of the world. Although some barriers to spectrum trading still exist, the government has recently promoted competitive access to spectrum, auctioning off the AWS, 2.5 gigahertz (GHz) and 2.3 GHz bands, which is more than other countries in the region have achieved.

● **Infrastructure-sharing models.** Deploying broadband networks requires large capital disbursements and ongoing operational expenses, which in effect act as significant barriers to entry. As explained in Chapter 4, on competition and infrastructure bottlenecks, infrastructure sharing can potentially reduce broadband provision costs: up to 80%, by some estimates). Regulators have the tools to monitor, encourage and when efficient, mandate infrastructure sharing, not only for passive infrastructure (such as towers) but also for active infrastructure (such as backbone); or even go further by mandating other types of resource sharing, such as spectrum (as described in Chapter 3). Sharing translates into a more efficient use of capital, accelerates deployment, is more environmentally friendly and, most importantly, translates into lower industry costs that allow for lower prices and thus increase affordability. Passive infrastructure sharing is not widespread in the LAC region. Many countries have attempted, but have not fully achieved, to set rules for sharing towers, ducts and poles. As noted in Chapter 4, in 2012, Chile passed its new “Antenna Law” (Ley de Antenas), which not only transferred certain regulating powers to local authorities, but established basic rules for mobile telecommunications tower deployment. Among the several aspects that were regulated was mandatory sharing of towers.

● **Universal access to affordable Internet services.** For countries where broadband prices remain a barrier for adoption, even after accounting for some or all of the previous success factors, shared services play an important role for uptake. These services, provided free or for a minimum fee, can be made available at community centres, public plazas, schools, libraries and other anchor institutions. They are important in poor urban areas as well as rural communities. More information on extending broadband access is included in Chapter 5.
A third way of increasing affordability is by changing the relative value of broadband services and increasing the utility (benefits) derived from accessing the Internet. The higher the benefits, the more people will be willing to pay for broadband access, changing the relative importance of Internet in their spending priorities, provided that incomes are high enough to allow for expenses beyond basic goods and services. People must have a reason to access the Internet: user awareness and digital literacy are critical, but so are relevant content and experiences. Governments can play a fundamental role in increasing the benefits of accessing the Internet, from providing basic services and simplifying the interactions between governments and citizens, to sending and receiving payments. Such actions will increase demand and increase broadband’s value in promoting development and inclusion.

**Taxation and other government-imposed charges**

Given the potential influence ICTs have on social and economic development, as well as on reducing inequality, government charges in the sector should be a matter of national policy, and the cost-benefit analysis of the government charges should be carefully analysed. Some general guidelines can help to maximise adoption and use and minimise distortions:

- **The tax regime should be simple, transparent and easy to understand.** Simple systems are easier to comply with, minimise arbitrage opportunities and evasion, and decrease operating costs.
- **The taxation regime should be fair,** should not impose unreasonable burdens on any party and should not be regressive.
- **Sector-specific taxes should be avoided,** unless it is clear that the benefits outweigh the costs. The analysis should include externalities arising from higher penetration and use of broadband. In some cases, higher tax rates on one sector can result in lower government revenue (through lower spending in that sector and lower sectoral growth).
- **The same argument applies for sector-specific tax incentives,** which distort the allocation of capital in the economy. Even accounting for spillover effects and externalities, incentivising ICTs through tax subsidies or spending programmes may not be the way to achieve public policy goals.
- **Administrative fees** should be set as close as possible to the real cost of providing the services. Extracting government fees throughout the production process can potentially lead to inefficient allocations of capital. This could stifle growth and investment and potentially increase ICT usage inequality.
- **Taxation regimes** should be competitively neutral. Even in the face of sector-specific taxation, the same levies should be imposed on all players. They should also strive for technologically neutrality.

**Financial inclusion**

Lack of access to formal financial services does not mean that unbanked or under-banked people do not conduct financial activities. Those without access to formal financial services usually find alternative mechanisms for saving and protecting themselves. However, the informal services available to them are often risky and expensive.

ICTs have influenced the expansion and convenience of financial services since the early stages of computing and telecommunications. Automated teller machines (ATMs),
telephone banking, Internet banking (e-Banking) and point of sale (POS) have made transfers, withdrawals and debit and credit payments effortless activities. These applications continue to evolve, and they involve a new set of solutions and challenges. Online peer-to-peer (P2P) transactions, crowdsourcing, virtual wallets, digital money, and completely branchless banks have been reducing the costs of traditional banking and changing the way consumers with access to fixed and/or mobile broadband access financial services. Most importantly, ICTs address two of the most important barriers to financial inclusion: affordability and availability.

At the centre of the disruptive effect of ICTs for financial services are mobile financial services, or mobile money applications. Mobile money applications comprise not only basic transfers and transactions, but also savings, credit and insurance. Despite the possibilities mobile money offers to include a large proportion of the unbanked population, many barriers, and in particular, regulation, still block widespread adoption. To unlock the potential of mobile money in the LAC region, the following good practices could be encouraged:

- **Allowing nontraditional financial institutions** to provide financial services to business and personal customers: adapting financial frameworks for non-banks is key for harnessing the potential of ICTs.
- **Simplifying the process of opening accounts**: “Know your customer” (KYC) requirements, such as requiring a formal address and identification, increase operation costs, reducing the affordability of services and acting as a deterrent for vulnerable populations.
- **Reducing capital requirements for financial services providers**: requirements need to be proportional to the risks undertaken by smaller agents and non-banks in offering these services.
- **Relaxing conditions for agents** that can execute certain operations, such as cash in and cash out, to expand the geographical coverage of simple financial services.
- **Improving the conditions for international remittances**, one of the fastest-growing uses of mobile banking: regulations tend to be restrictive, and many countries allow inbound remittances but forbid outgoing services.
- **Promoting interoperability of systems**. Although mandating specific interoperability models rather than spurring a market-based approach may slow deployment, initiatives that encourage interoperability are desirable.

In this ecosystem, governments can play an important role in promoting mobile banking, because they have the capacity to use these systems to transfer money, make payments (e.g. salary payments, social security, benefits and redistribution disbursements, and subsidies) and receive payments (e.g. services, taxes, fines). They have the potential to catalyse the system by adding significant volume, which can allow service providers to reach economies of scale faster.

For widespread adoption, the value proposition needs to be compelling for consumers, the interface has to be user friendly, transactions should be speedy, and the system must be trusted by users. Building such an ecosystem is not an easy task and involves many stakeholders.

In the LAC region, some policy makers have realised that mobile financial services could provide a steady route for financial inclusion and are adapting their regulatory frameworks. Colombia and Costa Rica are two examples (Box 6.2).
Box 6.2. **Adapting regulation for mobile financial services in LAC**

**Colombia**

In 2014, Colombia issued new regulations, creating a new financial institution that specialises in electronic payments and deposits (SEDPE). The rules consider two types of account holders, which involve different processes. For the simplified process, no physical presence is required and only basic documentation is needed, but deposits are limited to a maximum of three minimum salaries per month, around USD 600, except when the account is linked to government payments. The regular process – subject to know your customer (KYC) regulations – is intended for businesses, so that a payment ecosystem can be formed. The new regulations allow SEDPEs to use agents. It also establishes that mobile operators cannot discriminate in providing access to any financial institution, and a minimum capital of COP 5.8 billion (around USD 1.7 million) is required.

**Costa Rica**

One of the goals of the National Telecommunications Development Plan for 2015-21, known as “Costa Rica: A Connected Society” (PNDT) is allowing access to 3 749 150 people over the age of 15 to the banking system by 2019, providing them a “proximity card” (“contactless” smart card which can be read without inserting it into a reader device) and access to the SINEPE mobile service, a payment and transfer system linking different banks. One of the principal measures used to achieve this goal was the creation of the Simplified Record Accounts (CES), which allow users to activate a bank account without visiting a branch and with very little documentation. In addition, the “electronic purse”, SINPE Mobile allows transactions by cell phone (via short message service, or SMS, or by linking the telephone number to a bank account).

In 2016, the National Treasury of the Ministry of Finance will begin to implement the Social Resources Single Payment System (SUPRES), for the payment of all social transfers. These transfers will be made through the national financial system, creating a strong incentive for lower-income citizens to access and use it.

**Individuals with special needs**

According to the World Health Organization, approximately 5% of the world’s population has disabling hearing loss, and more than 4% are visually impaired (of whom about 13% are blind). Broadband, and, more generally, ICTs, could help to reduce the exclusion and inequality faced by individuals with these and other physical and cognitive challenges. However, to enable all citizens to fully realise their potential, broadband access without services and applications adapted to the special needs of users is not enough. The full potential of ICTs needs to be implemented to improve labour market opportunities and social empowerment of those with special needs.

This would involve several goals and specific good practices:

- **Improving awareness**, at the earliest stages of conception, of developing ICT products and services compatible with and adaptable to the requirements of those with special needs.
- **Including and engaging people with special needs and their organisations** in the design of public policies.
- **Ensuring that governments lead by example** and incorporate into their day-to-day routine ICT products and services appropriate for those with special needs. Requirements that take into account the needs of people with special needs in public procurement is a key tool for promoting inclusion and developing a robust market of accessible ICT products and services.
Article 27 of the United Nations Convention on the Rights of Persons with Disabilities (UN, 2006) recognises the rights of people with disabilities to work on an equal basis with others, including the opportunity to make a living by work “freely chosen or accepted in a labour market” in an environment that is open, inclusive and accessible to people with disabilities. The Convention also prohibits all forms of employment discrimination, promotes access to vocational training and opportunities for public, private and self-employment, and calls for reasonable accommodation in the workplace, among other provisions.

As documented in several studies, both in developed and developing countries, adults of working age with special needs have significantly lower employment rates and much higher unemployment rates. Lower rates of labour market participation often lead to poverty. ICTs help people with special needs obtain employment, by opening new fields of work, providing better access to education and training for existing opportunities, and allowing governments and non-governmental organisations (NGOs) to track and organise employment initiatives. People with special needs use ICTs to work, for example as retail associates, telecommuting service agents and self-employed entrepreneurs with online storefronts. In terms of training and social mobility, ICTs promote distance learning and reduce the cost of certification for various workforce positions. Finally, governments and NGOs use ICTs to ensure that accessibility initiatives are on track and to respond to evolving trends in the labour market and the special needs community.

Technology is creating new tools for the diverse population of individuals with special needs, whether physical, intellectual or developmental. In some countries, a broadband connection coupled with the capabilities of Internet Protocol-based technology has created a unique opportunity to expand the possibilities available to individuals who struggle with disabilities and cognitive impairment. The United States (Box 6.3), with several other OECD countries, has been at the forefront of spurring inclusion and advancing the integration and independence of those with physical and cognitive disabilities and special needs.

**Box 6.3. United States measures to enhance access to ICT for individuals with special needs**

In the United States, the Twenty-First Century Communications and Video Accessibility Act (CVAA), enacted in 2010, introduced the requirement that communications products and services use broadband to be fully accessible to persons with disabilities. The CVAA required that smartphones be usable by blind and visually impaired people as well as people with hearing aids, and made it easier for people with disabilities to view video programming on television and the Internet. Among other things, the CVAA included provisions to ensure that people with disabilities can respond to emergency situations by having access to emergency information shown on television and by ensuring that their accessibility needs are considered in the rollout of the next generation of “911 emergency services” (for advanced IP-based devices and applications).

The CVAA directed the FCC to establish rules to provide up to USD 10 million annually from the Interstate Telecommunications Relay Service Fund (TRS Fund) to support programmes that distribute communications equipment to low-income individuals who are deaf-blind. In accordance with this directive, in 2011, the Commission established the National Deaf-Blind Equipment Distribution Program (NDBEDP) as a two-year pilot programme and, in 2015, the FCC proposed to establish permanent rules for the programme, using lessons learned during the pilot programme.
Box 6.3. United States measures to enhance access to ICT for individuals with special needs (Cont.)

Through the NDBEDP, thousands of people with disabilities in the United States have obtained equipment and received training on how to operate it, to help them function independently in society and the workplace and lead productive, fulfilling lives. The equipment distributed must be designed to access telecommunication services (such as wireline and wireless telephone communication), advanced communication services (such as Internet-based voice communication, e-mail, instant messaging and interoperable video conferencing services) and access to the Internet (including information services). The equipment distributed may be hardware, software or applications, separate or in combination, mainstream or specialised. The equipment must meet the needs of the deaf-blind individual to achieve access. Before distributing equipment, certified programmes conduct a thorough assessment of each individual to determine the equipment best suited to his or her needs. These programmes may also provide equipment warranties, maintenance and repairs for such equipment, depending on the available funding.

One example of the type of device that can be made available to deaf-blind people through the NDBEDP is the “refreshable” braille device (Hellen Keller National Center, 2013), which is used to render the text on a computer screen in braille (an array of raised dots on a flat surface). This is done using screen reader software technologies such as JAWS (for the PC) or Voiceover (for the Mac) to navigate on-screen content and tell the refreshable braille display what to render. Other types of equipment distributed under the NDBEDP include large-screen monitors, zoom text reader software, portable electronic magnifiers, sound amplifying headsets, braille keyboards, a variety of smartphones, tablets and other mobile devices, as well as other accessories and support devices. The programme also pays for training to use the equipment.

Today, many accessibility features are built into telecommunications devices sold to the general public. These may include screen and text modifications (such as magnification capabilities and colour changes), voice output (such as a computer-generated voice response to commands), speech recognition, programmable visual and audio and vibration alerts, captioning capability, tactile adaptations for interfacing with touch screens, and other programmable functions. The NDBEDP allows people who are deaf-blind to receive these off-the-shelf products, along with assistive technology devices specifically designed for their population’s accessibility needs.

An important aspect of this experience was the effort expended to provide a comprehensive outreach and education nationwide – through publications, advertisements, billboards, public meetings and other means – to notify the public of the availability of the NDBEDP. These outreach efforts have been effective, as indicated by the increase in the number of individuals receiving equipment over the past few years. Each US state and territory manages the NDBEDP for its own residents. In addition to outreach conducted by the national outreach co-ordinator, certified programmes provide education to inform their communities about this equipment distribution programme and verify that applicants are eligible to receive equipment. They assess each applicant’s needs for communications equipment and select equipment to meet those needs. They help install and provide training on the equipment distributed.

The FCC continues to work with state governments and the special needs community to notify the public about the NDBEDP and to improve the programme by identifying new technologies that should be included for distribution. Feedback received from the special needs community attests to the positive impact the programme has had in the lives of deaf-blind people across the country.

1. In 2009, a study conducted by the US Federal Communications Commission (FCC) revealed that Americans with disabilities are less likely to use Internet-based communications technologies: 65% of the population had broadband at home, as compared with only 42% of those with disabilities (Horrigan, 2010). This gap is due in part to physical barriers that people with disabilities confront in using the Internet.


Colombia also provides a good example of initiatives for improving access to ICT products and services for people with disabilities (Box 6.4).

Box 6.4. Colombia’s initiatives for people with special needs

- **Visually impaired.** The government of Colombia acquired a four-year license of JAWS (screen reader) and a license for MAGIC (screen magnifier) that is available to any blind or visually impaired person in Colombia. Training is included, and the government provides digital literacy courses for the use of this software. As part of this project, technical support as well as installation in libraries, in kiosks (Vive Digital) and other locations, is provided. This programme makes it possible to access a screen reader and magnifier that would not be affordable otherwise.

- **Identification of needs and development of solutions (Ayudapps).** Ayudapps is a project to develop technological solutions to fulfil the needs and overcome the barriers that those with special needs face in their daily life. The project involves several stages. First, individuals present or explain the type of barrier they encounter and outlines what their needs are. Second, developers of solutions are invited to present their proposed solutions to address the need or eliminate the barrier. Projects for funded development are then chosen.

- **Communication with other people (TalkTo).** TalkTo is a platform that enables people with certain types of special needs (such as cerebral palsy) to communicate. This platform allows communication between persons with special needs and others. This platform was developed by a professor and four students within the project of the Colombia’s Ministerio de Tecnologías de la Información y las Comunicaciones (MinTIC) AyudApps.

- **Taxi hailing.** Transpecial is a project by Inncluyo, an entrepreneurial project aimed at inclusion. It consists of an application allowing a person with special needs to request a taxi that complies with accessibility requirements. The drivers of accessible taxis register through the application and are allocated an accessible taxi number. People with special needs use the application to request taxi service, using the application’s global-positioning feature. Users may subsequently evaluate the taxi service.

- **Mapping of facilities.** MappAcc is an application informing those with special needs about the level of accessibility of different places, products and services. It allows a person with disabilities to arrive at a location and evaluates the level of accessibility or notes in which aspects the location is not fully accessible or are not accessible at all. A user accesses MappAcc, which geographically locates the place and allows the user to select among categories (e.g. hotel, restaurant, hospital), displaying a checklist, so that each relevant item is assessed for accessibility. Such information is intended to be useful for other users, and in the long run, MappAcc hopes to be able to evaluate whether a given location has improved in accessibility over time (if so, possibly issuing a certification).

- **Deaf people.** The Centro de Relevo Project, a joint project of the Colombian national federation for deaf people (FENASCOL) and the ICT ministry, uses the Internet and ICTs to address the needs of deaf people. In the past, when deaf people needed to reach customer-service centres or information points in the public sector, customer-service agents were not able to help them since they could not communicate in sign language. The Centro de Relevo project built a platform to link deaf users via an app to online translators. To facilitate this task, public entities now ensure that customer service centres are equipped with devices that can run the application.
Conclusion

This chapter focused on good practices aimed to increase the affordability of broadband services and promote digital inclusion. It outlined three ways affordability can be increased: by increasing income (such as through transfer mechanisms for targeted segments of the population); lowering the cost of broadband services (such as through enhanced competition, effective broadband strategies, efficient spectrum allocation, infrastructure sharing models and universal-access programmes); and increasing the utility of accessing the Internet (such as by enhancing digital awareness, literacy and the provision of local content).

Additionally, this chapter analysed the effect of government charges such as taxation in the ultimate cost of broadband services and ICT devices. Good practices to maximise adoption of broadband services in this area relate to developing simpler, more transparent and neutral tax regimes; not imposing unreasonable burdens on any party; avoiding sector-specific taxes; and setting administrative fees close to real costs of providing the services.

Finally, good practices were presented for furthering digital and financial inclusion. As for financial inclusion, unlocking the potential of ICTs for financial services involves adapting financial services frameworks to include nontraditional financial institutions; simplifying the process of opening accounts; reducing capital requirements for financial service providers; promoting interoperability of systems; and encouraging user-friendly and trustworthy systems. As for expanding digital inclusion, particularly for people with special needs, it is crucial to improve the need to develop and design ICT products and services appropriate for people with special needs, by including and engaging people with special needs in the design of public policies, and ensuring that governments lead by example in this regard.

Notes
1. The average for the eight LAC countries included in the GSMA/Deloitte study is 28%. The countries are Panama, Uruguay, Ecuador, Chile, Colombia, Brazil and Jamaica.
2. See www.gsma.com/publicpolicy/tax/research-and-resources.
3. Under the Connected Households Programme, launched as one of the programmes of the National Strategy for Solidarity Universal Access and Service, known as crdigit@.
5. For many developing countries, import duties and customs taxes are an important source of revenue, and their reduction is likely to entail significant short-term revenue loss. Abolition or reduction of special import duties should thus be carefully considered and coupled with measures to meet revenue needs.
6. The 2011 study did not include Panama, Jamaica and Uruguay.
8. This is a clear example of the Laffer curve. A Laffer curve refers to the concept of taxable income elasticity. It states that tax revenue will be zero at the extreme rates of 0% and 100% and that there should be at least one rate that maximises taxation revenue. This implies that potentially lower tax rates could translate into higher government revenues or vice versa, and that higher tax rates do not always increase revenue.

References


Hellen Keller National Center (2013), “HKNC Communications Technology for People who are Deaf-Blind”, www.youtube.com/watch?v=0E6er1TXQo.


Further reading


