Digital inclusion and mobile sector taxation in El Salvador

Deloitte.

APRIL 2017

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Executive summary

Around five million Salvadorans subscribe to mobile services, but use of mobile broadband remains limited

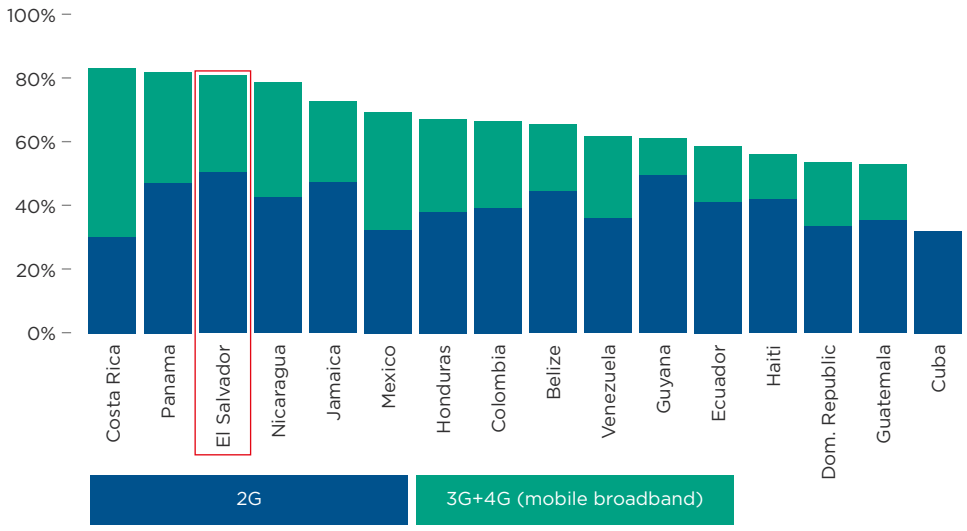
The Republic of El Salvador has the fourth largest economy in Central America. Its economy has grown slowly compared to other Central American countries,[1] constrained by a range of economic and social challenges, as highlighted by the International Monetary Fund (IMF): *"El Salvador continues to suffer from low growth due to a host of complex issues, including low investment, high crime and emigration, and weak competitiveness".*[2]

Total mobile sector revenues represented 2.7% of GDP in 2015[3] and the country's five mobile operators have successfully delivered mobile coverage across the country's largely mountainous terrain. This is despite mobile sector revenues having declined by more than a third between 2008 and 2015, while minutes of use have increased by 60% over the same period.[4]

In 2016, around 80% of the population subscribed to mobile services, which is high compared to most other countries in the region.[5] However, growth in mobile penetration has slowed recently, leaving one in five Salvadorans still unconnected. Over two thirds of subscribers are yet to benefit from mobile broadband services, with a tender to release spectrum suitable for 4G having been delayed since 2013.[6] The tender is now planned to take place in the first half of 2017.[7] Uncertainty about sector policy, such as the license renewal process, is reported to have stalled infrastructure investment decisions.[8]

Figure 1

Mobile penetration (unique subscribers) by technology in LAC[9] countries for which data is available, Q3 2016[10]



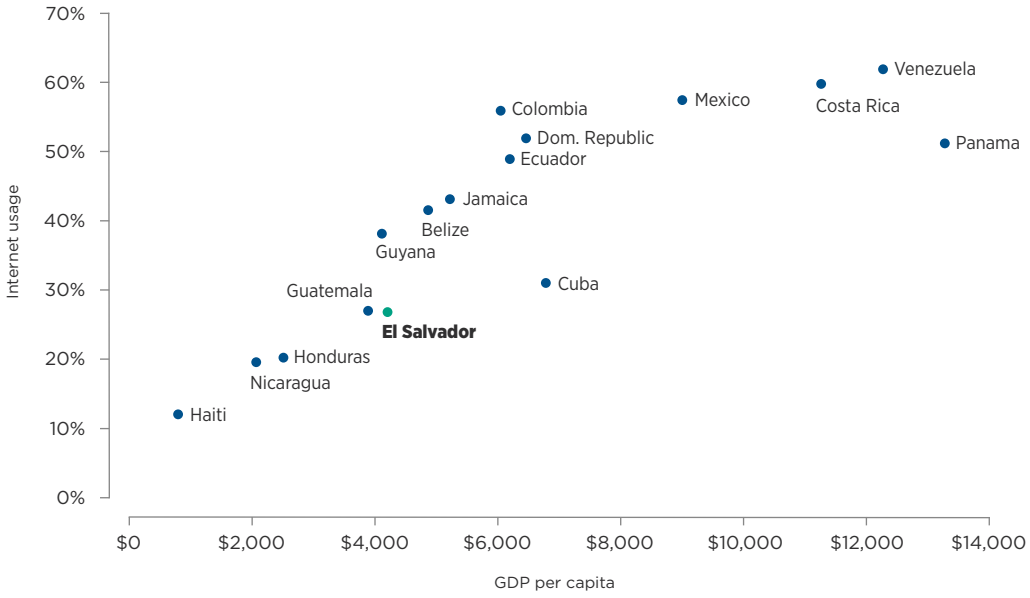
Source: Deloitte analysis based on GSMA Intelligence database

1. IMF (2016): "IMF Executive Board Concludes 2016 Article IV Consultation with El Salvador".
2. IMF (2016): "IMF Executive Board Concludes 2016 Article IV Consultation with El Salvador".
3. Deloitte analysis based on GSMA Intelligence and World Bank databases.
4. Deloitte analysis based on GSMA Intelligence and SIGET.
5. GSMA Intelligence database.
6. TeleGeography (2016): "Movistar El Salvador earmarks USD250m for LTE launch".
7. La Prensa Grafica (2017): "Licitación de 120 MHz para telefonía será en el primer semestre del año".
8. Discussions with mobile operators.
9. Latin America and Caribbean.
10. A 3G connection need not imply that the subscriber is using mobile broadband.

As fixed broadband penetration is limited to 6%,[11] mobile networks play a crucial role in delivering internet access. Reflecting the relatively limited uptake of mobile broadband, smartphone adoption was only 31% in 2016, compared to an average of 43% across LAC.[12] Internet usage remains low compared to other countries in the region, falling short of the developing country average of 35%.[13]

Figure 2

Percentage of individuals using the internet and GDP per capita in LAC countries for which data is available, 2015



Source: Deloitte analysis on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database

Increased use of mobile services is widely recognised as a driver of economic and social growth in countries such as El Salvador,[14] and mobile broadband specifically may deliver economic benefits over and above those generated by basic mobile telephony.[15] In particular, the country's mobile money services such as Tigo Money and m-Banco represent a success story, growing rapidly to support the government's financial inclusion objectives, and facilitating receipt of remittances, which correspond to one sixth of GDP.[16] The IMF reports that *"financial development and broadening inclusion will likely yield relatively high gains in terms of GDP growth"*.[17] Mobile services may also be a low-cost means of improving information flows and making markets work more efficiently. Smartphone applications such as the UN World Food Programme's P4P and Figaro's *Agromovil* provide Salvadoran farmers, traders and other stakeholders with timely market price information and weather updates.[18]

11. ITU database.
12. The average is based on 16 LAC countries. GSMA Intelligence database.
13. ITU (2015): "Facts and Figures 2015".
14. For example: World Bank (2012): "Maximising Mobile"; McKinsey & Company (2012): "Online and Upcoming: The Internet's impact on aspiring countries"; Goyal, A. (2010): "Information, Direct Access to Farmers, and Rural Market Performance in Central India". American Economic Journal: Applied Economics; Aker, J.C. and Mbiti, M. (2010): "Mobile Phones and Economic; Development in Africa", Journal of Economic perspectives.
15. ITU (2012): "Impact of broadband on the economy".
16. World Bank database.
17. IMF (2016): "IMF Country Report No. 16/209".
18. GSMA (2017): "mAgri Deployment Tracker".

Recently increased taxation on the mobile sector risks limiting connectivity, especially for the poorest Salvadorans

The mobile sector is subject to various general taxes, such as VAT, corporation tax, salary taxes and withholding taxes. On top of this, operators pay a sector-specific spectrum administration fee and municipal taxes levied on towers.

In November 2015, the introduction of two new taxes substantially increased the level of taxation applied to the mobile sector.

- The *Contribución Especial para la Seguridad Ciudadana y Convivencia* (CESC) is a 5% tax on all forms of telecommunications, including calls, SMS, mobile broadband, SIM cards, handsets and network equipment.[19]

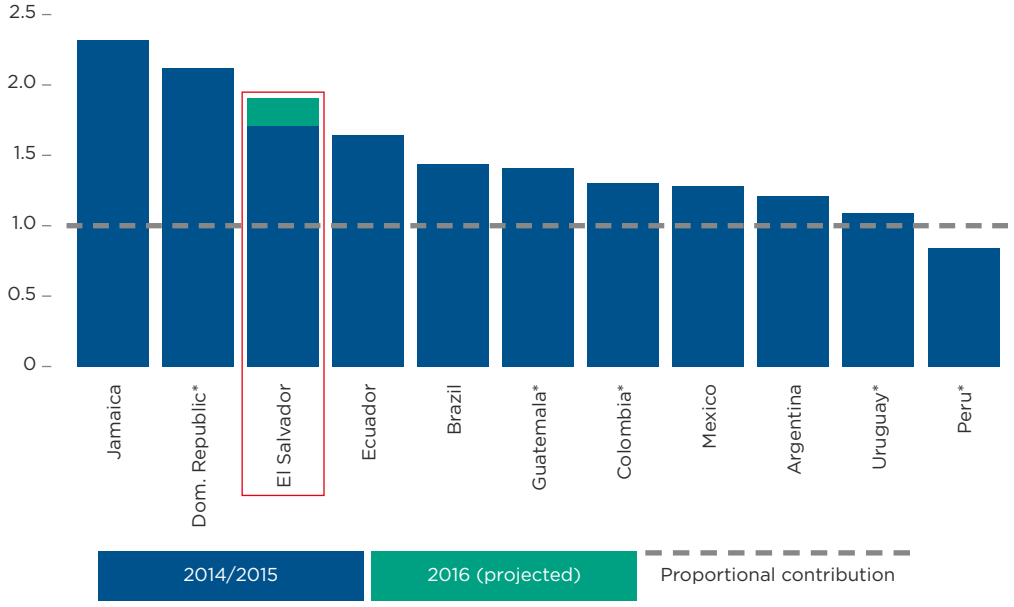
- The *Contribución Especial A Los Grandes Contribuyentes Para El Plan De Seguridad Ciudadana* (CEGC) is levied at a rate of 5% on the net income of companies whose net income exceeds $ 500,000.[20]

As a result of these taxes, in 2016 mobile operators are estimated to have paid $ 197 million in taxes and regulatory fees, representing 30% of their revenue. This is a sharp increase from 26% in 2015.

The mobile sector makes a large contribution relative to its economic footprint. The sector's tax and regulatory fee payments in 2015 are estimated to represent around 4.5%[21] of government tax revenues, while the sector's revenue only corresponds to around 2.7% of GDP.[22] That is, the mobile sector's "share of tax" is estimated to be around twice its "share of GDP". The sector's over-contribution to tax revenues, relative to its size, appears more pronounced in El Salvador compared to other countries in the region.

Figure 3

Ratio of mobile share of tax revenue to mobile share of GDP in LAC countries for which data is available, 2014/2015 and 2016 (projected change)



Source: Deloitte analysis based on operator data, GSMA Intelligence database, Banco Central de Reserva de El Salvador, and previous Deloitte studies. *2014 data

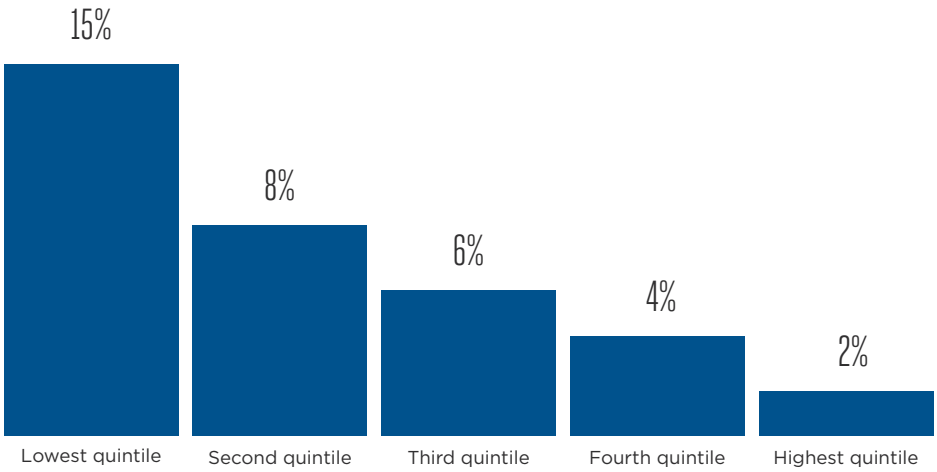
19. Asamblea Legislativa (2015): "Decreto N° 162".
20. IBFD (2016): "El Salvador – Corporate Taxation".
21. Deloitte analysis based on operator data, and GSMA Intelligence, Banco Central de Reserva de El Salvador and World Bank databases.
22. Deloitte analysis based on GSMA Intelligence and World Bank databases.

Taxation over and above that which applies to other standard goods and services is not fully aligned with the best practice principles of taxation set out by international organisations such as the World Bank and IMF, which recommend taxation to be levied on broad bases. The introduction of the sector-specific CESC in particular may create a number of issues:

- **Reduced affordability of mobile services.** The introduction of the CESC may put pressure on margins, potentially limiting the scope for price reductions and constraining further expansion of connectivity. For example, a typical mobile data bundle currently represents more than 15% of Gross National Income (GNI) for the lowest 20% of earners and exceeds 5% of GNI for the majority of Salvadorans.[23]

Figure 4

Cost of mobile broadband bundle as a percentage of GNI by quintile, 2015



Source: Deloitte analysis on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database. A quintile represents 20% of the population, ranked from the lowest to the highest 20% income bracket

- **Disincentives for investment.** Increases in taxation may reduce the returns on investment, potentially leading to inefficient investment decisions. The IMF notes in this regard that *"plans to boost tax collection should be carefully calibrated to avoid dampening the investment climate"*.[24] For one operator, earnings before interest, tax, depreciation and amortisation (EBITDA) have fallen by 11% since the new taxes were introduced and are now lower than in other countries in the region. The current policy risks curbing further improvement in El Salvador's mobile networks.

23. Deloitte analysis based on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database.
24. IMF (2016): "IMF Country Report No. 16/209".
25. IMF (2016): "IMF Country Report No. 16/209".

Reducing or phasing out the CESC has the potential to promote connectivity, economic growth and international competitiveness

The mobile industry recognises that its fiscal contribution remains critical to financing public expenditure, especially given the need to improve the country's security situation. However, the current treatment of the mobile sector may be limiting growth in mobile connectivity that would benefit society and the economy. Reducing taxation on mobile services, to be more in line with other goods and services as was the case before the introduction of the CESC, has the potential to support growth and fiscal stability in the medium term. The IMF argues that the CESC tax has a *"low yield but significantly hamper[s] financial intermediation and inclusion, and should be reduced or phased out"*.[26]

Reducing the CESC to 2.5% has the potential to improve affordability and enable further network investment

As an illustrative example, if the CESC were reduced from 5% to 2.5%, this would equate to an estimated mobile sector tax payment reduction of around $ 14.1 million in 2018, which represents 0.34% of government tax revenues and 7% of the mobile sector's tax and regulatory fee contribution in 2016.[27]

Based on an analysis which examines the impact of this tax reform on mobile penetration and economic growth, price reductions have the potential to generate an **additional 110,000 connections** over the four year period to 2021. In the wider economy, **GDP has the potential to grow by $ 470 million** and **total investment could increase by $ 70 million** over the four years to 2021. Increased resources for investment can potentially result in an **additional 420 new or upgraded mobile sites** by 2021.

Exempting mobile broadband data services from the CESC has the potential to support increased internet usage

As an illustrative example, if mobile broadband were exempted from the CESC tax, this would equate to an estimated total tax payment reduction of around $ 7.4 million in 2018, which represents 0.18% of government tax revenues and 4% of the mobile sector's tax and regulatory fee contribution in 2016.

Based on an analysis which examines the impact of this tax reform on mobile penetration and economic growth, price reductions have the potential to generate an **additional 60,000 connections** over the four year period to 2021, **including 40,000 using mobile broadband**. The growth in mobile ownership and usage to 2021 has the potential to **increase GDP by a total of $ 250 million** and **investment by $ 40 million**. Increased resources for investment can potentially result in an **additional 220 new or upgraded mobile sites** by 2021.

26. IMF (2016): "IMF Country Report No. 16/208".
27. These figures relate to CESC payment by the mobile sector. Based on Ministerio de Hacienda data, the total tax revenue from the CESC was $ 49 million in 2016. A 50% cut in the rate would correspond to a total tax revenue reduction of $ 24.5 million in 2016.

Any rise in the general VAT rate would directly affect mobile affordability

The IMF has suggested increasing tax revenues by adjusting the VAT rate upwards, closer to the regional average.[28]

An increase in VAT is likely to result in substantially larger tax revenues for the government. However, this policy, when considered together with the recent introduction of CESC, could create further pressure for the mobile sector. Based on an illustrative analysis which examines the impact of a VAT increase from 13% to 16% on mobile penetration and economic growth, higher prices associated with the raise in VAT may result in **170,000 fewer connections** over the four year period to 2021, **including 120,000 using mobile broadband**. Reduced resources for investment can potentially result in **650 fewer** new or upgraded mobile sites by 2021.

The IMF recommends that *"given the need to increase growth, revenue-raising measures should be accompanied by cuts in distortionary taxation".*[29] If VAT is raised, the budgetary cost of reducing or removing the distortionary and regressive CESC tax may be relatively minor in comparison. The mobile sector has the potential to drive higher GDP growth, attract Foreign Direct Investment (FDI) and boost international competitiveness, which are policy priorities of the recently established PROESA agency.[30] Reducing distortionary taxation on the mobile sector—such as the CESC—may support the achievement of these objectives.

Reforming taxation on the mobile sector

While taxation from the mobile sector remains critical to continue financing public expenditure in El Salvador, especially in light of the need to finance security measures, the recent introduction of the CESC tax may be obstructing growth of the mobile sector.

Using mobile phones may still be unaffordable for the poorest Salvadorans, while the country's mobile broadband infrastructure is underdeveloped and internet usage is low relative to other countries. The sector specific CESC is likely to compound limited affordability and dampen further investment in infrastructure.

Reforming mobile taxation could help align with principles of effective taxation recommended by leading international organisations, while benefiting society as a whole through increased mobile and internet usage. Alternative options for tax reform may be available. For example:

- Reducing the CESC rate of 5% to 2.5% could help align consumer taxes on mobile usage more closely to the taxation of standard goods and services.
- Mobile data services could be exempted from the CESC tax to reduce the affordability barrier for consumers and to encourage mobile operators to invest in the necessary infrastructure.

Further, should the government consider an increase in VAT across the economy, there is a risk of negative impacts on mobile usage and investment that could add to the potential negative impacts of the CESC. To mitigate this risk, the government could consider removing the CESC in the event that VAT is raised. An increase in VAT is likely to result in substantially larger tax revenues for the government and the budgetary cost of reducing or removing the distortionary and regressive CESC tax may be relatively small in comparison.

28. IMF (2016): "IMF Country Report No. 16/209".
29. IMF (2016): "IMF Country Report No. 16/209".
30. PROESA (2014): "Aprobada la Ley de Creación del Organismo Promotor de Exportaciones e Inversiones de El Salvador".

Around five million Salvadorans subscribe to mobile services, but use of mobile broadband remains limited. Recent increases in mobile sector taxation and uncertainty surrounding sector policy create affordability and investment barriers.

1. The mobile industry in El Salvador

The Republic of El Salvador has the fourth largest economy in Central America and its GDP per capita was $ 4,219 in 2015.[31] With a small land area relative to its population of 6.1 million, it is one of the most densely populated nations in the region.[32] An estimated 2.1 million Salvadorans live in the US,[33] and, as a result, El Salvador receives significant personal remittances, which correspond to one sixth of GDP.[34] Close to two thirds of economic value added is generated in the services sector, followed by the industrial sector with 27% and the agricultural sector with 11%.[35]

The pace of economic development in El Salvador has been moderate. Between 2000 and 2014, GDP growth in El Salvador averaged 2% per annum, compared to 4.5% per annum in the other Central American countries.[36] In 2015, growth increased to 2.5%. The International Monetary Fund (IMF) notes that the country's economic outlook remains challenging.[37] In particular, *"while favourable external conditions and low oil prices contributed to some improvement in the economic situation, El Salvador continues to suffer from low growth due to a host of complex issues, including low investment, high crime and emigration, and weak competitiveness".*[38]

The mobile sector makes a key contribution to El Salvador's economy and development. In 2015, mobile sector revenue corresponded to 2.7% of GDP.[39] There are five mobile network operators in El Salvador. The three largest operators—Tigo, Claro, and Movistar—have a combined market share of more than 85%.[40] In December 2016, Movistar and Tigo launched the first 4G services in the country.[41]

This report examines the role of tax policy in stimulating mobile uptake, digital inclusion, network investment and economic growth.

- The remainder of this section discusses the state of mobile uptake and digital inclusion and its benefits for El Salvador's social and economic development.
- Section 2 sets out the taxes and regulatory fees levied on the mobile sector in El Salvador, and their implications for affordability of mobile services and investment incentives. The section also compares mobile taxes and regulatory fees to international benchmarks and internationally recognised best practice principles.
- Section 3 analyses how potential mobile tax and regulatory fee reforms could affect affordability and investment in mobile services, and stimulate wider economic growth.
- Section 4 concludes, discussing options for tax reform.

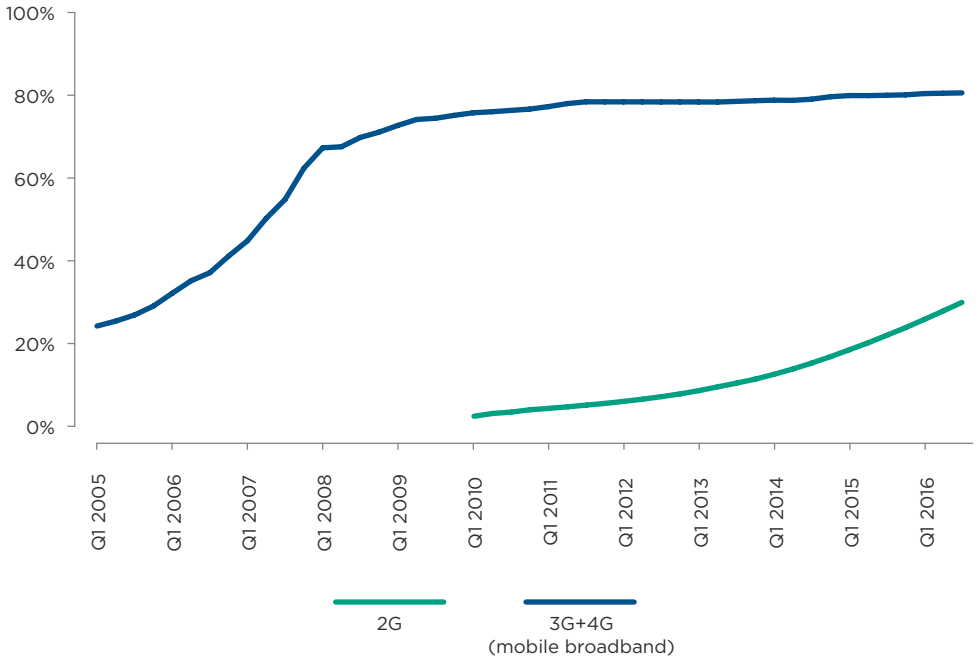
31. World Bank database.
32. World Bank database.
33. Migration Policy Institute (2015): "The Salvadoran Diaspora in the United States".
34. World Bank database.
35. World Bank database.
36. IMF (2016): "IMF Executive Board Concludes 2016 Article IV Consultation with El Salvador".
37. IMF (2016): "IMF Executive Board Concludes 2016 Article IV Consultation with El Salvador".
38. IMF (2016): "IMF Executive Board Concludes 2016 Article IV Consultation with El Salvador".
39. Deloitte analysis based on GSMA Intelligence and World Bank databases.
40. GSMA Intelligence database.
41. TeleGeography (2016): "Tigo set to follow Movistar with mid-December 4G launch".

1.1 The majority of Salvadorans are yet to benefit from mobile broadband

Mobile services are central to the connectivity of most Salvadorans. As of 2015, a third of the population lived in rural areas, many of which are out of reach of fixed infrastructure.[42] Use of fixed-line telephony has gradually fallen to less than one in six in 2015, while mobile penetration has more than doubled in the last ten years.[43]

Figure 5

Mobile penetration (unique subscribers) in El Salvador



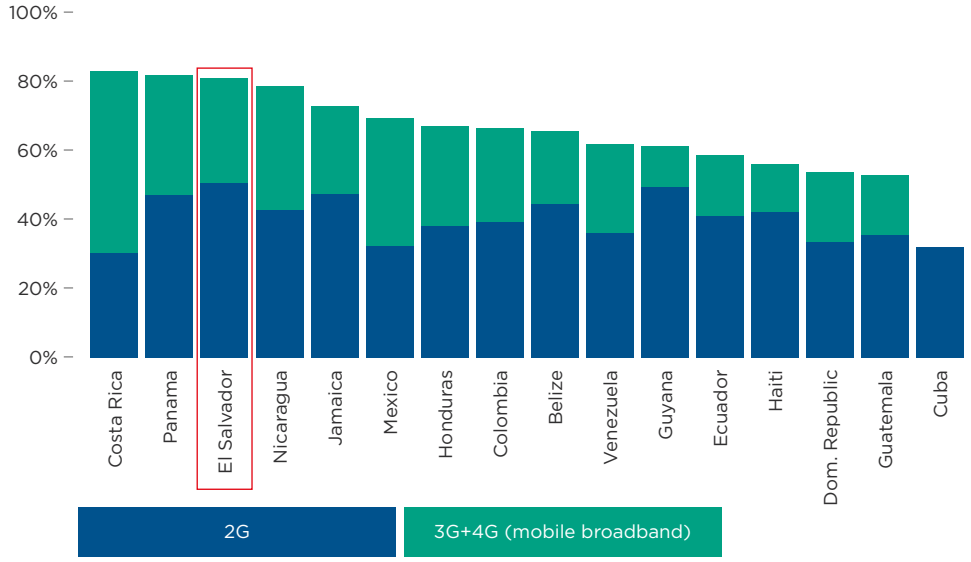
Source: Deloitte analysis based on GSMA Intelligence database

As of Q3 2016, over 80% of the population subscribed to mobile services, which is high compared to most other countries in the region.[44] However, while minutes of use have increased by 60% between 2008 and 2015, mobile revenues have declined by 37% over the same period.[45] Mobile penetration has plateaued recently and over two thirds of subscribers are yet to benefit from mobile broadband services.

42. World Bank database; ITU database.
43. GSMA Intelligence database.
44. GSMA Intelligence database.
45. Deloitte analysis based on GSMA Intelligence and SIGET.

Figure 6

Mobile penetration (unique subscribers) by technology in LAC countries for which data is available, Q3 2016[46]

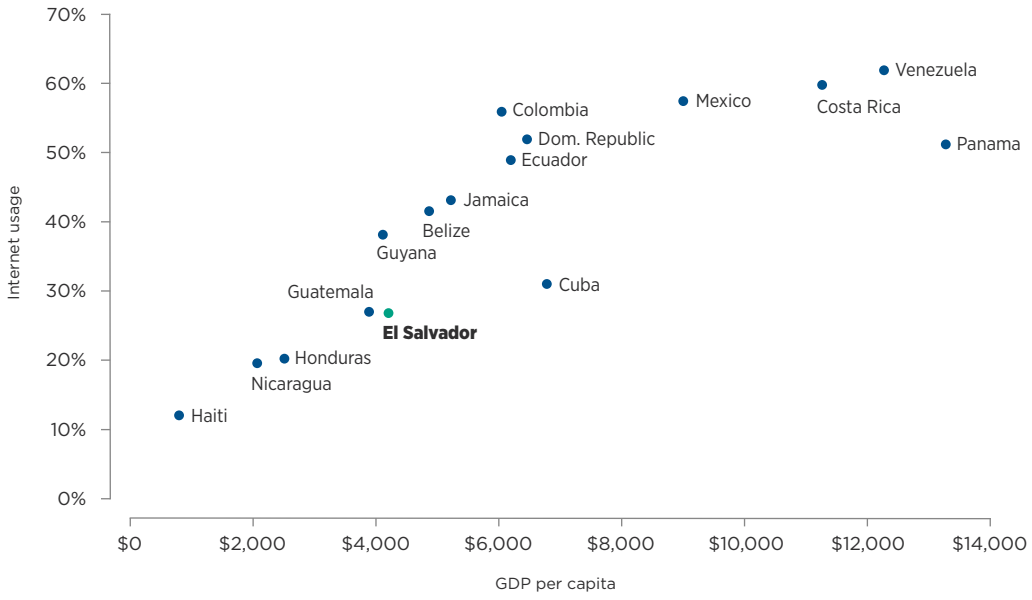


Source: Deloitte analysis based on GSMA Intelligence database

With fixed broadband penetration limited to 6%,[47] mobile networks are increasingly delivering internet access to a larger part of the population, including in rural areas. There remains significant potential to extend connectivity, as only around a quarter of the population were internet users in 2015.[48] Compared to countries in the region with similar levels of GDP per capita—such as Guyana, Belize, and Jamaica—internet use is low in El Salvador. The percentage of internet users is also below the developing country average of 35%.[49]

Figure 7

Percentage of individuals using the internet and GDP per capita in LAC countries for which data is available, 2015



Source: Deloitte analysis on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database

46. A 3G connection need not imply that the subscriber is using mobile broadband.
47. ITU database.
48. ITU database.
49. ITU (2015): "Facts and Figures 2015".

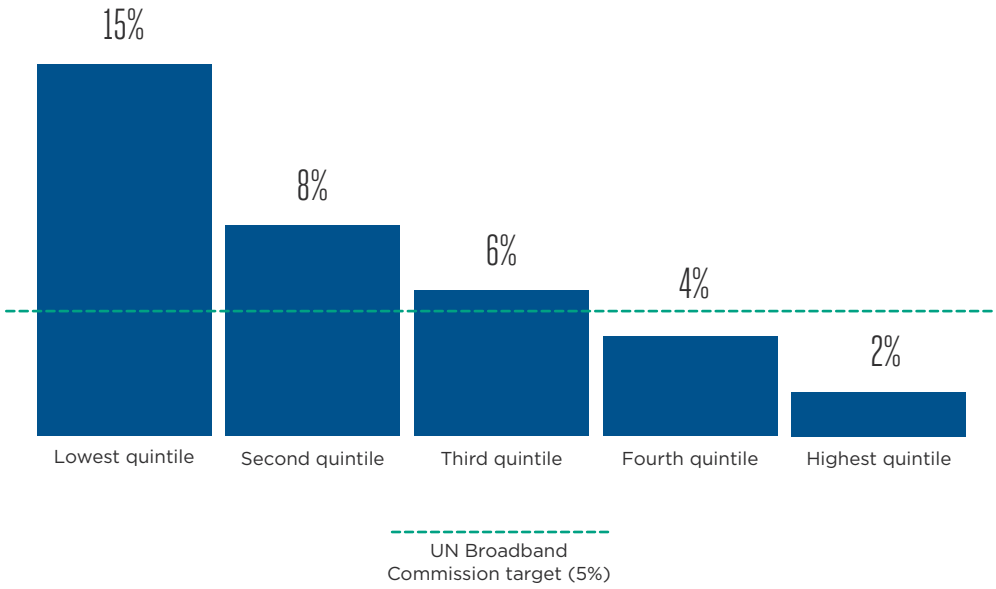
A possible factor limiting further growth in mobile penetration and internet use is limited availability of faster broadband services:

- Expanding coverage in El Salvador is challenging due to the country's largely mountainous terrain.
- Research by OpenSignal indicates that Salvadorans are able to receive a 3G or 4G signal 84% of the time, which is lower than in countries such as Mexico, Colombia, Argentina, Guatemala, Bolivia, Panama, Uruguay and Peru.[50]
- Until the end of 2016, only 3G mobile broadband infrastructure was in place, making El Salvador and Cuba the only countries in Latin America without 4G connectivity.[51] Operators have since launched 4G services in some areas.
- A tender to release spectrum suitable for 4G has been delayed since 2013.[52] It is now planned to take place in the first half of 2017.[53] Uncertainty about sector policy, such as the license renewal process, is reported to have stalled infrastructure investment decisions.[54]

The affordability of mobile broadband services may be another barrier to further uptake. While mobile broadband is significantly cheaper than fixed services[55], the cost of a representative mobile data bundle represents 4.3% of Salvadoran GNI per capita,[56] just under the United Nations (UN) affordability target of 5% of income.[57] Whilst the average cost of a representative mobile data bundle is near the UN's view of the level of affordability, the level of income disparity means that this cost can reach 15% of income for low earners.[58] Limited affordability may be due to various factors, including sizeable infrastructure costs and taxation.

Figure 8

Cost of mobile broadband bundle in El Salvador as a percentage of GNI by quintile, 2015



Source: Deloitte analysis on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database. A quintile represents 20% of the population, ranked from the lowest to the highest 20% income bracket. The UN Broadband Commission target applies to the average GNI across quintiles and individual quintiles may exceed the target even if it is met overall

50. OpenSignal (2016): "Global State of Mobile Networks (August 2016)". This availability metric measures the proportion of time users have a 3G or 4G signal.
51. Elsalvador.com (2016): "El Salvador es el único país en la región sin conexión 4G".
52. TeleGeography (2016): "Movistar El Salvador earmarks USD250m for LTE launch".
53. La Prensa Grafica (2017): "Licitación de 120 MHz para telefonía será en el primer semestre del año".
54. Discussions with mobile operators.
55. ITU database.
56. Deloitte analysis based on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database.
57. The UN Broadband Commission has devised an affordability target stating that entry-level mobile broadband prices should amount to 5% or less of monthly GNI per capita. The target was originally intended for fixed broadband, but is applied to mobile broadband in countries with limited fixed infrastructure.
58. Deloitte analysis based on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database.

1.2 Mobile services are key to economic development and social inclusion

Economic growth in El Salvador has lagged behind that of other Central American countries in recent years. The country continues to be affected by extensive criminal activity and had one of the world's highest homicide rates in 2016.[59]

In countries with considerable potential for economic and social development—like El Salvador—increased use of mobile services is widely recognised as a driver of social inclusion and economic growth.[60] Increased mobile service provision may be critical to promote the United Nations Sustainable Development Goals (SDGs), which define a broad set of objectives to coordinate and focus development efforts globally.[61] A recent GSMA/ Deloitte study found that the mobile sector can support all SDGs.[62] In El Salvador, further mobile uptake may impact the following SDGs in particular:

- **Eradicating poverty (SDG 1):** El Salvador has one of the lowest GDP per capita levels in Latin America and the Caribbean (LAC), with around half of the rural population living in poverty in 2014.[63] The mobile sector has the potential to stimulate economic activity and provide affordable connectivity and financial services—including platforms for mobile remittances.

- **Zero hunger (SDG 2):** 12% of Salvadorans suffer from undernourishment, compared to 7% in LAC.[64] Mobile uptake in agricultural communities can increase access to markets and information that can increase productivity.

- **Quality education (SDG 4):** According to USAID, high rates of crime in El Salvador are associated with *"poor quality education and exclusion from secondary education"*.[65] By enabling access to online resources, mobile services have the potential to improve the quality and reach of education at all levels.[66]

- **Industry, innovation and infrastructure (SDG 9):** Mobile operators invest in critical infrastructure that connects remote communities and promotes the evolution of other industries. For example, Tigo and Movistar plan to invest $ 1 billion and $ 250 million, respectively, to upgrade and expand their networks in the next four years.[67]

- **Peace, justice and strong institutions (SDG 16):** Mobile connectivity may be instrumental in reducing crime and violence, for example by enabling crowdsourcing of incident information and intercepting organised crime communications.[68]

There is evidence that the mobile sector already generates a variety of benefits in El Salvador, which could be spread more widely across society with higher mobile broadband and telephony penetration. Some impacts are discussed in more detail below.

Mobile connectivity promotes long-run economic growth

Mobile services contribute to economic growth, employment and productivity. The GSMA estimated that in 2015, mobile operators and their associated ecosystems made a direct contribution of just over $ 75 billion or 1.5% of the total GDP in LAC and employed more than 750,000 people.[69] Mobile connectivity may have indirect benefits across sectors of the economy by improving information flows and lowering transaction costs, helping businesses and consumers to make more efficient and effective decisions. These benefits may grow as mobile penetration becomes more widespread.

Several studies show that mobile use can play a central role in driving economic progress in the developing world. The World Bank and others have found significant positive relationships between mobile penetration and economic growth in developing countries:

65. USAID (2016): "El Salvador – Education".
66. GSMA (2016): "2016 Mobile Industry Impact Report: Sustainable Development Goals".
67. TeleGeography (2016): "Tigo set to follow Movistar with mid-December 4G launch"; TeleGeography (2016): "Movistar El Salvador earmarks USD250m for LTE launch".
68. GSMA (2016): "2016 Mobile Industry Impact Report: Sustainable Development Goals".
69. GSMA (2016): "The Mobile Economy – Latin America and the Caribbean 2016".

- A joint study conducted by Deloitte, GSMA and Cisco considered the impact of mobile penetration on Total Factor Productivity (TFP), a measure that often reflects an economy's long-term technological dynamism. The study found that in developing countries such as El Salvador a 10% increase in mobile penetration may increase TFP by 4.2 percentage points.[70]

- Mobile broadband may deliver economic benefits over and above those generated by basic mobile telephony.[71] A World Bank study has found that in developing economies such as El Salvador a 10% increase in broadband subscriber penetration[72] could accelerate economic growth by 1.38 percentage points.[73] Evidence from the literature on the impact of broadband on productivity suggests that every 10% increase in broadband penetration increases productivity by 1%.[74]

Mobile money

Many Salvadorans are still unbanked, with only one in three households having a bank account, compared to the LAC average of 51%.[75] Mobile money services, as offered by Tigo Money and m-Banco since 2011,[76] can contribute to greater financial inclusion in El Salvador, providing access to basic banking services and potentially more advanced services such as credit and insurance.

In 2014, 4.6% of adults in the country had a mobile money account, which is the highest level of penetration of all countries in LAC.[77] The sector has continued to grow rapidly and one operator reported transfers worth $ 530 million in 2015, corresponding to 2% of El Salvador's GDP in 2015.[78]

Crucially, mobile money platforms enable international transfer payments, allowing Salvadorans to receive cross-border remittance payments without having to travel to foreign exchange bureaus or needing a bank account. Such services can therefore reduce transaction costs, which may particularly benefit those at the bottom of the pyramid. According to the IMF, *"Mobile money has grown rapidly and benefited society through increased financial inclusion, as well as lower transaction costs and facilitation of receiving remittances"*.[79]

Acknowledging the potential of mobile money to enhance financial inclusion, the Salvadoran assembly recently passed the *Financial Inclusion Law (Ley para Facilitar la Inclusión Financiera)*. The law enables non-bank institutions—including mobile operators—to provide financial services, with the help of local agents like grocery stores and gas stations. According to the World Bank, within six months after the law was passed, *"484,128 basic banking transactions totaling nearly $45 million were processed through the new channels"*.[80]

Mobile education

El Salvador has made significant progress in developing its education system in the last decade, but challenges remain. According to the OECD, poor education quality, lack of equity in access and high dropout rates limit social mobility and contribute to inequality.[81] Mobile phones allow Salvadorans to use a simple form of information technology, which may enhance educational development and achievement. The *Seeds of Empowerment* project was launched in 2008 for disadvantaged students in several Latin American countries, including El Salvador.[82] Through a specifically designed mobile device developed at Stanford University, participating students could further their math and literacy skills digitally.

Mobile connectivity may also provide access to valuable educational resources. According to the UNESCO, *"as a low-cost substitute for computers, mobile phones can increase access to the internet and digital educational content, and because the devices are portable, they can facilitate learning outside as well as inside schools"*.[83] Therefore, mobile services may complement the government programme *One Girl, One Boy, One Computer (Una Niña, Un Niño, Una Computadora)*, which seeks to ensure each student can access a computer.[84]

70. Deloitte/GSMA/Cisco (2012): "What is the impact of mobile telephony on economic growth?".
71. ITU (2012): "Impact of broadband on the economy".
72. The distinction between users and subscribers of telecommunications services should be noted. Users refer to individuals who do not necessarily own or pay for telecommunications services, but who have access to such services through work, family etc. Subscribers, on the other hand, are individuals who pay for subscriptions to such services, to which a number of individuals may have access. Based on ITU (2014): "Manual for measuring ICT Access and Use by Households and Individuals".
73. Qiang, C. Z. W., Rossotto, C.M. (2009): "Economic Impacts of Broadband".
74. LECG (2009): "Economic impact of Broadband: An empirical study".
75. World Bank "Global Findex" database.
76. GSMA (2017): "Mobile Money Deployment Tracker".
77. World Bank "Global Findex" database.
78. TeleSemana (2016): "El Salvador: Tigo Money registra 50% más transacciones en 2016, cuando movió $ 530 millones"
79. IMF (2016): "IMF Country Report No. 16/209".
80. World Bank (2014): "Expanding Access to Financial Services through New Technological Channels in El Salvador".
81. OECD (2017): "Key Issues affecting Youth in El Salvador".
82. UNESCO (2012): "Turning on mobile learning in Latin America".
83. UNESCO (2012): "Mobile learning for teachers in Latin America".
84. Presidencia de la República de El Salvador (2015): "Presidente Sánchez Cerén lanza el programa "Una Niña, Un Niño, Una Computadora"

Mobile Health

Access to healthcare in El Salvador lags behind the rest of the region, with 1.6 physicians per 1,000 people, compared to 2.0 in LAC.[85] In some areas, Salvadorans are not able to benefit from basic health services due to criminal activity.[86] According to the OECD, tele-health is a vital instrument in improving access to healthcare services, especially to rural and remote areas.[87] In 2017, mobile health services are projected to reach an additional 28.4 million people in Brazil and 15.5 million in Mexico.[88]

In addition to broadening reach, mobile has the potential to increase the quality of care and reduce costs. Mobile applications allow Salvadorans to access medical services remotely, including public health information, home delivery of medicines and 24-hours medical advice.[89] Organisations like USAID-funded Population Services International also harness mobile connectivity to address most-at-risk populations for HIV/Aids.[90]

Mobile agriculture

Mobile services may be a low-cost means of improving information flows and making agricultural markets work more efficiently. For example, smartphone applications such as the UN World Food Programme's *P4P* and Figaro's *Agromovil* provide Salvadoran farmers, traders and other stakeholders with timely market price information and weather updates.[91]

Alcidez Ruiz, a user of the World Food Programme's P4P smartphone app believes that *"If we as the producers are kept informed about the prices in other areas, and how they evolve, we will be able to negotiate fair prices and increase our incomes"*.[92]

85. World Bank database.
86. Word Food Programme (2017): "The Republic of El Salvador – Current issues and what the World Food Programme is doing".
87. OECD (2016): "Broadband Policies for Latin America and the Caribbean".
88. GSMA (2016): "The Mobile Economy – Latin America and the Caribbean 2016".
89. For example, S.O.S Digicel and Tigo SOS.
90. GSMA (2017): "mHealth Deployment Tracker".
91. GSMA (2017): "mAgri Deployment Tracker".
92. World Food Programme (2013): "El Salvador: Smallholder Farmers to Report Prices From Smartphones".

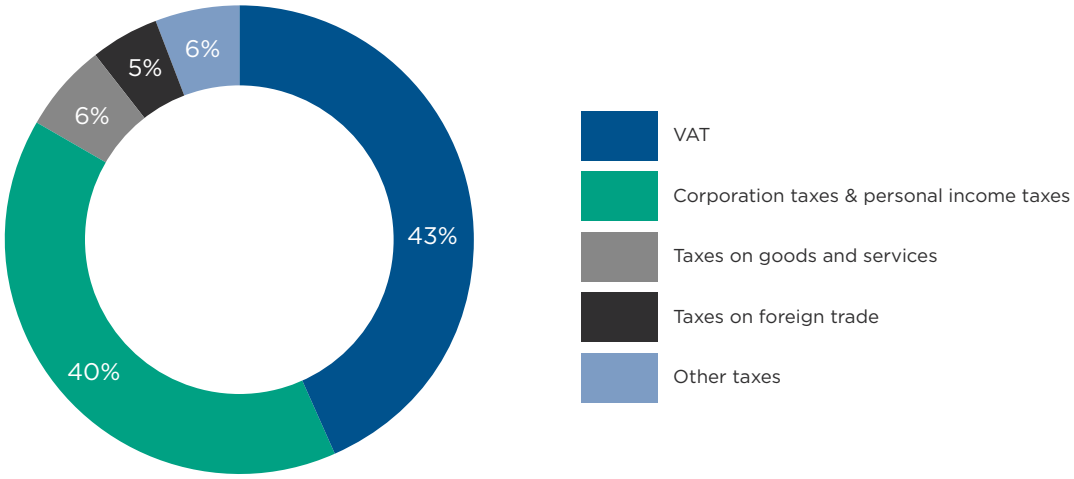
2. Taxation on the mobile sector

Fiscal consolidation is a major policy issue for El Salvador, which in recent years has suffered from lower growth rates than its neighbours and is reliant on external financing.[93] The IMF notes that *"ensuring fiscal and debt sustainability and raising potential growth will require strong policies and far-reaching structural reforms"*.[94]

In 2015, tax revenue totalled $ 3.9 billion, which corresponded to 15% of El Salvador's GDP.[95] Taxes on goods and services make up around half of tax revenue, and taxes on corporate and individual income account for the majority of the remaining share.[96] As a member of the Dominican Republic–Central America Free Trade Agreement, El Salvador raises only a small share of revenue from taxes on trade.

Figure 9

Breakdown of total central government tax revenue, 2016



Source: Deloitte analysis based on Banco Central de Reserva de El Salvador database

Mobile services are subject to a number of taxes and regulatory fees. The extent to which these charges fall on consumers or operators depends on specific market conditions and on the nature of each tax or fee. Some taxes and fees may be absorbed by operators in the form of lower profits, while others may be passed on to consumers via higher prices, or a combination of both. The following sections discuss these taxes and fees in more detail.

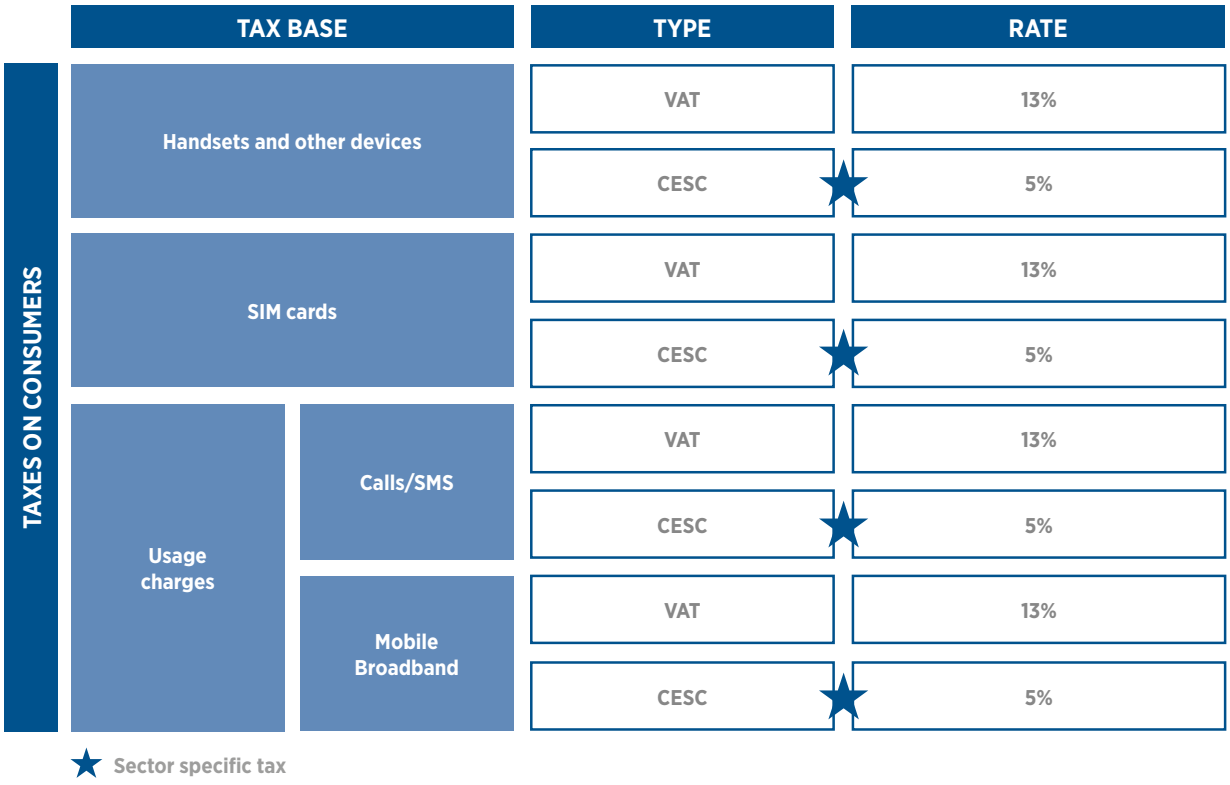
93. IMF (2016): "IMF Executive Board Concludes 2016 Article IV Consultation with El Salvador".
94. IMF (2016): "IMF Country Report No. 16/208".
95. Deloitte analysis based on World Bank and Banco Central de Reserva de El Salvador databases.
96. Deloitte analysis based on Banco Central de Reserva de El Salvador database.

2.1 Taxes on mobile consumers

Mobile subscribers are subject to taxes applied to mobile devices, SIM cards and usage of services. These taxes are likely to affect the prices ultimately paid by consumers and may have an impact on poorer consumers in particular.

Figure 10

Key consumer taxes on the mobile sector, 2016



Source: Deloitte analysis based on operator data and IBFD El Salvador tax report

Value-added tax

The standard value-added tax (VAT) rate of 13% applies to mobile services and equipment.[97] Specifically, handsets, SIM cards, and usage charges are subject to the tax.

Special Contribution for Security and Coexistence

In November 2015, a new tax called *Contribución Especial para la Seguridad Ciudadana y Convivencia* (CESC) was established, with the objective of generating revenues to support measures to improve the security situation in El Salvador.[98] The CESC is levied at a rate of 5% on the pre-tax value of telecommunication services and equipment.[99] The tax is set to apply for a period of five years from its introduction and is not deductible for income tax purposes.[100]

The tax is levied on *"the acquisition and/or use of telecommunications in all its forms, regardless of the technology used"*.[101] Telecommunication services, as defined in the law establishing the CESC, comprise fixed and mobile telephony, internet and other data transmission, subscription TV and satellite services.[102] Therefore, all mobile services including calls, SMS, and broadband are subject to the 5% tax, which also covers SIM cards, devices and network equipment used to facilitate mobile communication.[103]

Sector specific taxes on consumers like the CESC are rare in the region. Only four of the other 19 Latin American countries appear to levy similar ad valorem excise duties, namely Panama, Colombia, Argentina and Mexico.

Table 1

Ad valorem excise duties on telecommunications in LAC countries, 2016

Country	Tax rate
El Salvador	**5%**
Panama	5%
Colombia	4%
Argentina	4%
Mexico	3%

Source: Deloitte analysis based on operator data, previous Deloitte/GSMA studies, IBFD tax reports and Dirección General de Ingresos Panamá (2016): "Declaración ISC. Formulario 400".

The CESC in El Salvador is levied at a higher rate than other sector-specific consumption taxes in the region, with only Panama charging a tax at the same rate. Being levied on calls, SMS, data, SIM cards and handsets, the CESC is also one of the most comprehensive sector-specific taxes in the region. For example, the 3% *Impuesto Especial sobre Producción y Servicios* (IEPS) in Mexico applies to only airtime and SMS.[104]

Some countries in the region discontinued sector specific taxes on mobile consumers. Uruguay abolished its *Impuesto a las Telecomunicaciones* (ITEL) excise duty on telecommunications in 2007.[105] In Guatemala, an excise duty on fixed and mobile telephony was ruled unconstitutional in 2015, having been suspended since December 2014.[106] Panama abolished a so-called cable burying taax of 0.5% on telephone, internet and television bills in 2016.[107] Ecuador eliminated an excise duty on telecommunications in 2008, though it recently introduced a new tax on B2B telephony services.[108]

97. Buddecomm (2016): "El Salvador –Telecoms, mobile broadband and digital media".
98. Asamblea Legislativa (2015): "Decreto N° 162".
99. Asamblea Legislativa (2015): "Decreto N° 162".
100. Asamblea Legislativa (2015): "Decreto N° 162"; Latin American Tax and Legal Network (2016): "Global Tax Briefing Latin America".
101. Asamblea Legislativa (2015): "Decreto N° 162"; Deloitte translation.
102. Asamblea Legislativa (2015): "Decreto N° 162".
103. Latin American Tax and Legal Network (2016): "Global Tax Briefing Latin America".
104. GSMA (2016): "The Mobile Economy Latin America and the Caribbean 2016".
105. Asamblea General, Uruguay (2006): "Ley Nº 18.083".
106. Prensa Libre (2015): "CC declara inconstitucional tres impuestos del presupuesto 2015".
107. La Prensa (2016): "Asep suspenderá cobro de tasa para soterramiento de cables".
108. El Comercio (2016): "Las empresas pagarán un 15% de ICE por servicio de telefonía fija y móvil".

2.2 Taxes and regulatory fees on mobile operators

Mobile operators in El Salvador are subject to several taxes and regulatory fees, some of which are specific to the telecommunications sector.

Figure 11

Key taxes on mobile operators, 2016

	TAX BASE	TYPE	RATE
TAXES ON OPERATIONS	Profits	Corporation tax	30% of gros profits
		Special Contribution of Large Taxpayers (CEGC)	5% of net profits
	Spectrum	Spectrum administration fee ★	Based on spectrum and equipment specifactions
	Towers	Municipal tax ★	$ 250 per tower
	Network Equipment	VAT	13%
		CESC ★	5%
	Withholding taxes (WHT)	WHT on dividends paid to non-resident companies	5%/25%
		WHT on interest and royalties paid to non-resident companies	20%
	Salaries	Social security contribution (employer)	7.5%
		Pension contribution (employer)	6.75%
	Financial transactions	Financial Transaction tax	0.25% of transaction value

★ Sector specific tax

Source: Deloitte analysis based on operator data and IBFD El Salvador tax report

Corporation tax

Operator's profits are subject to a corporate income tax of 30%.[109] Advance corporation tax payments amounting to 1.75% of gross income must be made on a monthly basis, which are applied against the annual corporation tax due at the end of the year.[110]

Any excess payments can be refunded upon request by the taxpayer.

The Salvadoran corporate income tax of 30% is among the highest in Central America, with Panama, Belize and Honduras taxing profits at a lower rate of 25%.[111]

109. Operator data.
110. IBFD (2016): "El Salvador – Corporate Taxation".
111. IBFD (2016): "El Salvador – Corporate Taxation"; IBFD (2016): "Costa Rica – Corporate Taxation"; IBFD (2016): "Guatemala – Corporate Taxation"; IBFD (2016): "Nicaragua – Corporate Taxation"; IBFD (2016): "Honduras – Corporate Taxation"; IBFD (2016): "Panama – Corporate Taxation"; IBFD (2016): "Belize – Corporate Taxation".

Special contribution of large taxpayers

In addition to the CESC, another tax called *Contribución Especial A Los Grandes Contribuyentes Para El Plan De Seguridad Ciudadana* (CEGC) was established in November 2015. It is levied at a rate of 5% on the net income of companies whose net income exceeds $ 500,000.[112] Mobile operators are therefore liable to pay the CEGC as long as their net profits exceed this threshold. Analogously to the CESC, the tax is to be applied until November 2020 and the revenues generated are planned to be used to tackle the country's security challenges.[113] The CEGC is similar to a 5% solidarity contribution in Honduras that is payable by companies with a taxable income of over HNL 1 million ($ 42,390).[114]

The introduction of the CEGC has raised the effective corporation tax rate for large companies to 33.5%, the highest in Central America.[115] While a similar 5% tax on large corporate incomes called *aportación solidaria* (AS) exists in Honduras[116], the corporation tax rate in Honduras is 5 percentage points lower than that in El Salvador.[117] The IMF notes: *"While tax rates used to be comparable to the region until the 2009 crisis, various new taxes introduced in recent years have pushed them above those levels"*.[118]

Table 2

Effective corporation tax rates in Central America, 2016

Country	Effective Tax rate
El Salvador	**33.5%** *(30% corporation tax and 5% CEGC on after-tax profits)*
Costa Rica	30%
Nicaragua	30%
Honduras	28.75% *(25% corporation tax and 5% AS on after-tax profits)*
Guatemala	25%
Panama	25%
Belize	25%

Source: Deloitte analysis based on IBFD tax reports on Costa Rica, Guatemala, Nicaragua, Honduras, El Salvador, Panama and Belize. The reported rates correspond to the highest tax bracket in each country.

Spectrum fees

Mobile operators are subject to the following fees in relation to spectrum:

- One-off spectrum acquisitions and licence renewals typically entail costs for operators. These occur infrequently, when new spectrum is released to the market or when existing licences expire. In 2007 for example, two lots of GSM spectrum were awarded, for a total of $ 3.78 million.[119] A further 120MHz of spectrum is expected to be allocated through an auction in the first half of 2017.[120]

- An annual spectrum administration fee is payable by mobile operators to *Superintendencia General de Electricidad y Telecomunicaciones* (SIGET), to cover the costs of spectrum administration, management and monitoring.[121] The fee is dependent on the bandwidth of the spectrum used, the power of the transmission equipment and the type of service provided.[122]

112. IBFD (2016): "El Salvador – Corporate Taxation".
113. Asamblea Legislativa (2015): "Decreto N° 161"; Operator data.
114. IBFD (2016): "Honduras – Corporate Taxation". At exchange rate of HNL = 0.0423896 $.
115. IBFD (2016): "El Salvador – Corporate Taxation"; IBFD (2016): "Costa Rica – Corporate Taxation"; IBFD (2016): "Guatemala – Corporate Taxation"; IBFD (2016): "Nicaragua – Corporate Taxation"; IBFD (2016): "Honduras – Corporate Taxation"; IBFD (2016): "Panama – Corporate Taxation"; IBFD (2016): "Belize – Corporate Taxation".
116. The AS tax is applicable on net incomes exceeding HNL 1 million.
117. IBFD (2016): "Honduras – Corporate Taxation".
118. IMF (2016): "IMF Country Report No. 16/209"
119. TeleGeography (2007): "Tigo wins spectrum".
120. La Prensa Grafica (2017): "Licitación de 120 MHz para telefonía será en el primer semestre del año".
121. Asamblea Legislativa (1997): "Decreto N° 142"; Operator data.
122. Asamblea Legislativa (1997): "Decreto N° 142"; Operator data.

Municipal taxes

Local authorities may impose taxes on certain activities and services that fall under its regulatory purview.[123] The deployment of network equipment may require local authorisation, governed by 263 municipal laws.[124] In some municipalities, mobile operators pay $ 250 per tower per year.[125]

Taxes on network equipment

Mobile operators pay the following taxes on the value of network equipment:

- The CESC described above also applies to *"the transfer of any type of technological device, terminal, apparatus, and accessories used to enable such telecommunication services"*.[126] As such, transactions involving network equipment are subject to the same 5% tax.[127]

- The standard VAT rate of 13% is levied on the value of network equipment.[128]

Withholding taxes

Operators pay withholding taxes on some foreign payments as follows:[129]

- Dividends paid by Salvadoran companies to non-resident companies are subject to a 5% withholding tax.[130] An increased rate of 25% applies if the payment is to a location considered a tax haven.[131]

- Interest, royalties, and certain other payments paid from a Salvadoran source to non-resident companies are subject to a withholding tax of 20%.[132]

Salary taxes

The employer share of social security contributions amounts to 7.5% of employee's remuneration, up to $ 1,000 per month.[133] In addition, the employer contributions to the pension scheme amount to 6.75% of salaries, up to $ 427.[134] These taxes do not apply to operators that have no direct employees.[135]

Financial transaction tax

In July 2014, a new tax on financial transactions was introduced.[136] It applies at a rate of 0.25% on cheque and wire transfers over $1,000. A withholding tax of 0.25% on cash deposits, payments and withdrawals over $ 5,000 was also introduced, which is creditable against other taxes payable.[137]

123. Operator data; PwC (2016): "Worldwide Tax Summaries – El Salvador".
124. GSMA (2016): "The Mobile Economy – Latin America and the Caribbean 2016".
125. Operator data.
126. Asamblea Legislativa (2015): "Decreto N° 162".
127. Operator data.
128. Operator data.
129. A double taxation treaty was signed with Spain, establishing reduced WHT rates for payments to Spanish recipients.
130. IBFD (2016): "El Salvador – Corporate Taxation".
131. IBFD (2016): "El Salvador – Corporate Taxation".
132. Operator data.
133. IBFD (2016): "El Salvador – Corporate Taxation".
134. IBFD (2016): "El Salvador – Corporate Taxation".
135. Operator data.
136. Asamblea Legislativa (2014): "Decreto N° 764".
137. Asamblea Legislativa (2014): "Decreto N° 764".

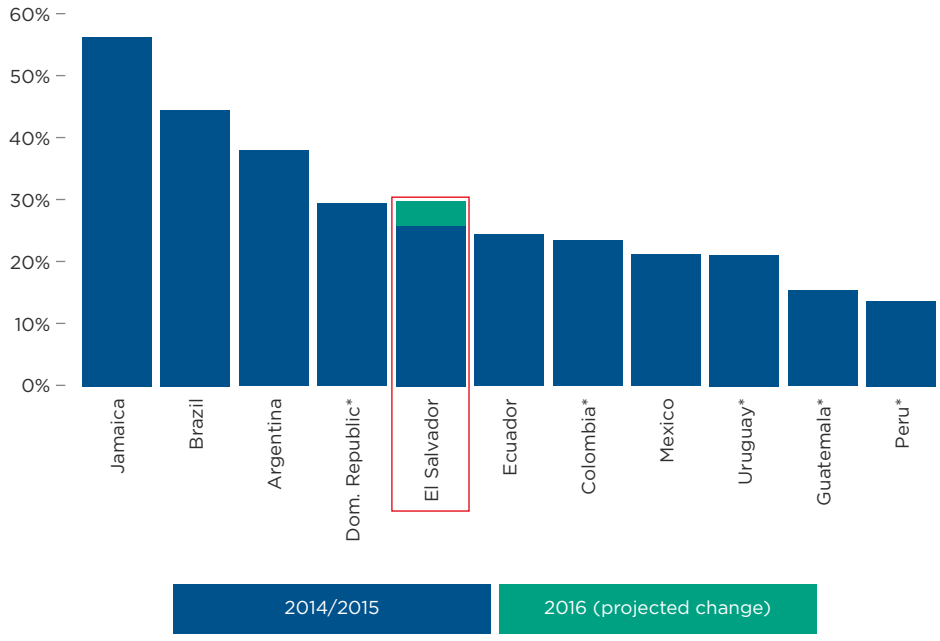
2.3 The tax and regulatory fee contribution of the mobile sector

The mobile sector is estimated to have paid $ 178 million in taxes and regulatory fees in 2015, which represents approximately 26% of sector revenue.[138] These figures only capture relatively small initial payments of the CESC due to its introduction late in 2015, which overall raised only $ 1.9 million in 2015 compared to $ 49 million in 2016.[139]

Full annual payment of the two new taxes—CESC and CEGC—will have been made in 2016. While few tax and fee payments were collected for 2016, it is possible to approximate these by assuming that payments remain proportionate to revenue. Taking into account the estimated additional 2016 payments for the CESC and CEGC, taxes and regulatory fees on the mobile sector may have grown to 30% of revenues, amounting to $ 197 million.[140] This is high compared to other countries in the region for which data is available. Most of this increase is attributable to the sector-specific CESC.

Figure 12

Tax and regulatory fee payments as a share of market revenue in LAC countries for which data is available, 2014/2015 and 2016 (projected change)



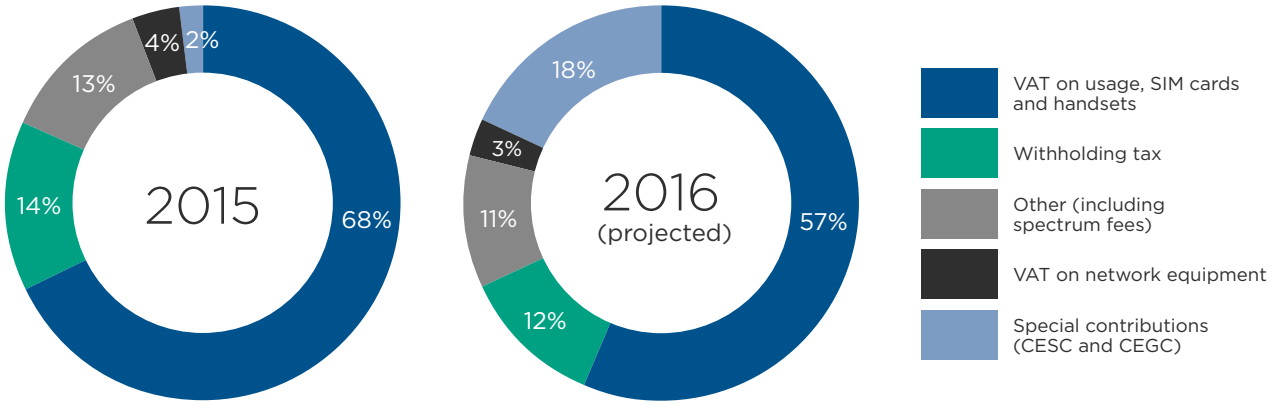
Source: Deloitte analysis based on operator data, GSMA Intelligence database, and previous Deloitte studies. *2014 data

138. Deloitte analysis based on GSMA Intelligence database and operator data.
139. Ministerio de Hacienda (2017): "Revenue collected as of December 31, 2016". Based on preliminary figures.
140. CESC payments for 2016 are estimated based on operator data and GSMA Intelligence. This estimate has been cross-checked with the total tax revenue collected from this tax in 2016 (based on Banco Central de Reserva de El Salvador data), adjusted for the mobile sector's share of the wider telecommunications sector (based on SIGET data), which yields similar results. The CEGC payment for 2016 is based on operator data of payments made in relation to the last month of 2015, scaled up for an entire year.

VAT accounts for the majority share of tax and fee payments. However, the composition of payments changed substantially once the new taxes fully took effect in 2016. Accounting for the estimated payments of CESC and CEGC taxes in 2016, sector specific taxes and regulatory fees form around a quarter of total payments.[141] A large share of these payments corresponds to the newly introduced CESC.[142] The remainder of mobile sector tax payments relate to VAT and withholding tax.

Figure 13

Share of total payments by type of tax and regulatory fee excluding corporation tax, 2015 and 2016 (projected)



Source: Deloitte analysis based on operator data and GSMA Intelligence database. Corporation tax payments are excluded for confidentiality reasons

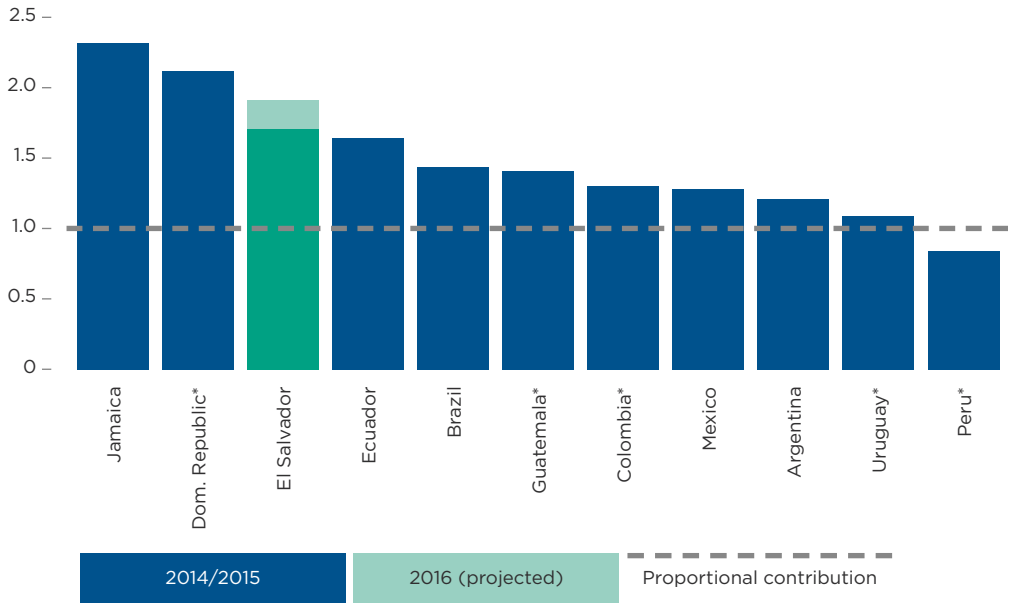
In 2015, the mobile sector made a large contribution relative to its economic footprint. The sector's contribution to government tax revenue, taking into account all tax and regulatory fee payments, was 1.7 times larger than the market's size, expressed in terms of revenue as a share of GDP.[143] A value greater than 1 indicates that the sector over-contributes to tax revenue relative to the size of the sector in the economy. That is, despite only accounting for around 2.7% of GDP, the sector's tax and regulatory fee payments contributed around 4.5% to total government tax revenue in 2015.[144]

Once the full effect of the introduction of the CESC and CEGC are taken into account, the mobile sector contribution to Salvadoran tax revenue may increase to 1.9 times its share of GDP in 2016.[145] This is a high value compared to other countries in the region for which data is available.

141. Deloitte analysis based on operator data and GSMA Intelligence database. Corporation tax is excluded for confidentiality reasons.
142. Deloitte analysis based on operator data and GSMA Intelligence database. Corporation tax is excluded for confidentiality reasons.
143. Deloitte analysis based on operator data, and GSMA Intelligence, Banco Central de Reserva de El Salvador and World Bank databases.
144. Deloitte analysis based on operator data, and GSMA Intelligence, Banco Central de Reserva de El Salvador and World Bank databases.
145. Deloitte analysis based on operator data, and GSMA Intelligence, Banco Central de Reserva de El Salvador and IMF databases. Projected tax and fee payments as described above, GSMA Intelligence projections for mobile revenue and IMF projections for GDP are used in calculating the mobile sector contribution for 2016.

Figure 14

Ratio of mobile share of tax revenue to mobile share of GDP in LAC countries for which data is available, 2014/2015 and 2016 (projected change)



Source: Deloitte analysis based on operator data, GSMA Intelligence database, Banco Central de Reserva de El Salvador, and previous Deloitte studies. *2014 data

2.4 Best practice in taxation policy and mobile sector taxation in El Salvador

There are a number of established principles that are generally accepted as contributing to an effective tax system, as provided by international organisations such as the World Bank[146], the IMF[147], the ITU[148] and the Organisation for Economic Co-operation and Development (OECD).[149] These principles seek to minimise the potential distortionary impacts caused by taxation and take into account important practical aspects such as the role of informal activity or limited institutional capabilities.[150]

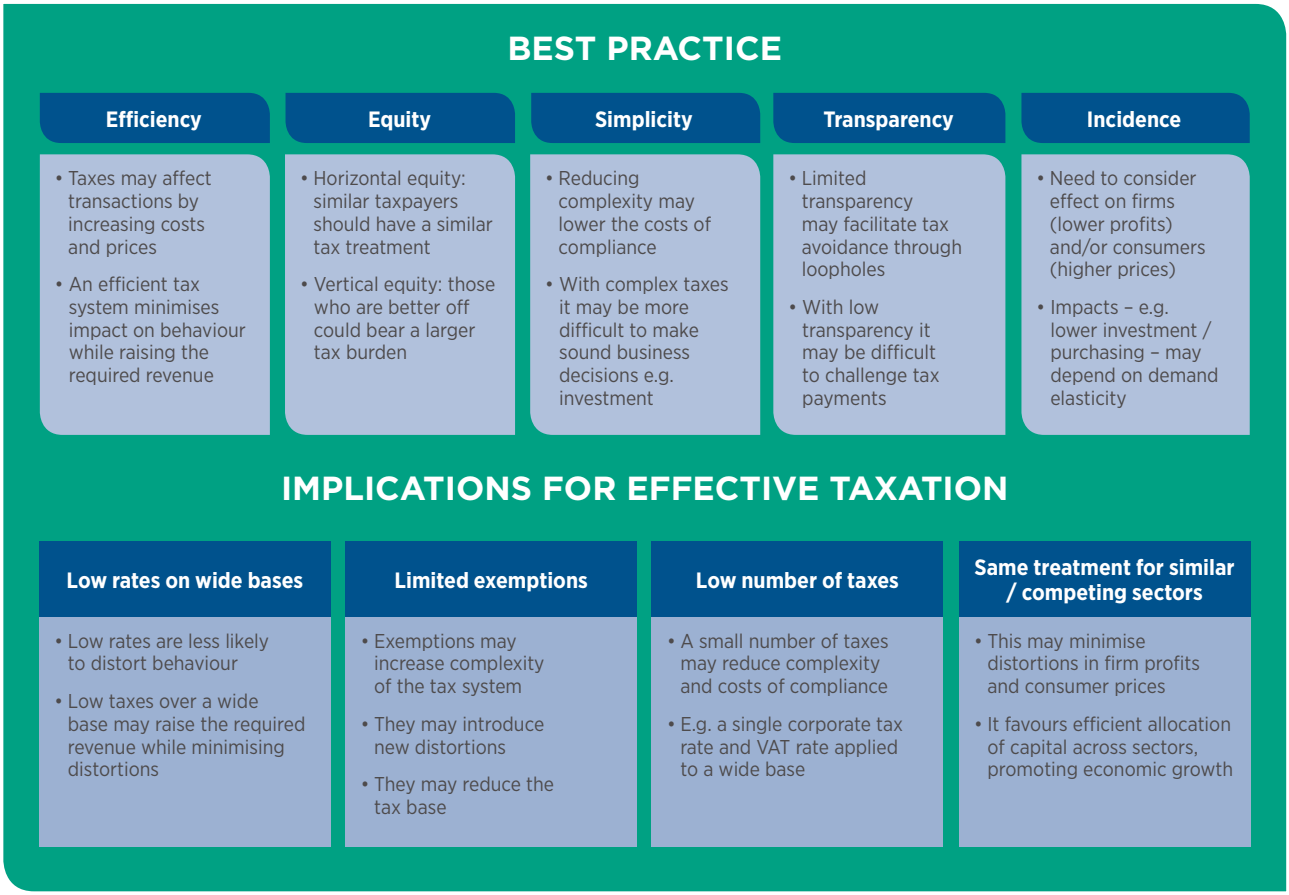
This section outlines the framework of best practice, drawing on five important economic principles — efficiency, equity, simplicity, transparency and incidence — and compares it to mobile sector taxation in El Salvador. The principles support specific steps for implementing effective taxation in practice:[151]

- Setting low tax rates on wide tax bases.
- Minimising use of tax exemptions.
- Using a low number of taxes.
- Applying the same tax treatment to similar or competing sectors.

146. Bird and Zolt (2003): "Introduction to Tax Policy Design and Development".
147. Mooij and Keen (2014): "Taxing Principles".
148. ITU (2013): "Taxing telecommunication/ICT services: an overview".
149. OECD (2014): "Fundamental principles of taxation".
150. For more details, see Deloitte/GSMA (2014): "Mobile Taxes and Fees: A toolkit of principles and evidence".
151. Course on Practical Issues of Tax Policy in Developing Countries, World Bank, April 28-May 1, 2003 and OECD (2014): "Fundamental principles of taxation".

Figure 15

Best practice principles and implications for effective taxation



Source: IMF, World Bank, OECD publications, Deloitte analysis

The establishment of effective taxation policy in El Salvador is subject to practical challenges including the presence of a large informal sector. The share of Salvadoran workers in informal employment in 2013 was estimated to be two thirds, one of the highest internationally.[152] Survey data suggests that 68% of Salvadoran firms compete against unregistered or informal firms, and 40% of firms see the practices of informal competitors as a major constraint.[153]

A large informal economy indicates that tax collection relies on a relatively narrow base, with formal sectors such as the mobile industry making a large contribution relative to their size. Sector specific taxes and regulatory fees on the mobile sector may currently represent an important source of revenue, but they risk causing negative distortionary impacts on the broader economy. Evidence from academic literature suggests that general indirect taxation remains the most viable option to improve tax collection in the short term,[154] even in the presence of an informal sector.[155] Consistent with this, the IMF recently stated that *"facilitating access to social security systems, reducing tax distortions, simplifying tax filing and business licensing procedures are reforms that would help reduce informality"* in the country.[156]

The tax structure applied to the mobile sector could be reformed in line with best practice principles of efficiency, simplicity, transparency and equity.

152. IIMF (2016): "Country Report No. 16/209"; World Bank database.
153. World Bank (2016): "Enterprise Survey – El Salvador".
154. Ehtisham et al (2012): "Tax Reforms in the Presence of Informality in Developing Countries".
155. Kaplow (2004): "On the undesirability of commodity taxation even when income taxation is not optimal".
156. IMF (2016). "Country Report No. 16/209".

Efficiency of taxation

The introduction of sector specific taxation, such as the CESC, alters the price of mobile services relative to other goods and services in the economy, without taking into account the positive effects of the mobile sector on economic and social development (see section 1.2). As a consequence, consumer and business decision-making may be distorted, constraining usage of mobile services and the associated benefits.

Sector specific taxation on the mobile sector may also lead to distorted incentives for investment. On the margin, a network operator may decide to reduce investments in expanding or upgrading its network infrastructure because taxation prevents such investments from being sufficiently profitable. The IMF notes in this regard that *"plans to boost tax collection should be carefully calibrated to avoid dampening the investment climate".*

Mobile operators in El Salvador have noted that the regulatory environment, including the 5% CESC tax, hinder their commercial activity and network rollouts.[157] For one operator, earnings before interest, tax, depreciation and amortisation (EBITDA) have fallen by 11% since the new taxes were introduced and are now lower than in other countries in the region.[158] According to the operator: *"Mobile signals have been blocked around a number of prisons, also affecting the urban areas in which these facilities are located and new taxes have eroded both revenue and margins. Fixed and mobile network build outs have been slowed due to the challenging operational conditions pertaining to the market".*[159]

Given that 4G coverage is yet to become widespread and fixed infrastructure is limited, such potential obstacles to investment may prevent many Salvadorans from reaping the benefits of internet access. A greater reliance on broad-based general taxation could promote a more efficient, less distortionary tax system. To this end, the IMF recommends that *"given the need to increase growth, revenue-raising measures should be accompanied by cuts in distortionary taxation".*[160]

Simplicity and transparency of taxation

Reducing complexity and increasing transparency of a tax system may be important in order to lower the costs of compliance, expand the formal economy and improve the investment climate. The tax system in El Salvador is relatively complex, as reflected in the overall rankings of the "Paying Taxes" index, in which the country ranks 166th out of 189 countries worldwide. [161]

157. Operator data.
158. Millicom (2016): "Q3 2016 Results".
159. Millicom (2016): "Q3 2016 Results".
160. IMF (2016). "El Salvador Selected Issues". Country Report No. 16/209.
161. World Bank Group (doingbusiness.org).

Table 3

Paying Taxes Index ranking for selected LAC countries, 2017

Country	Paying Taxes rank	Number of payments per year	Time comply (hours) per year
Belize	44	29	147
Costa Rica	62	10	151
Guatemala	93	8	256
Mexico	114	6	286
Jamaica	116	11	268
Dom. Republic	129	7	317
Guyana	136	35	256
Ecuador	137	8	664
Colombia	139	12	239
Honduras	152	48	224
Haiti	159	47	184
El Salvador	**166**	**41**	**248**
Panama	170	52	417
Nicaragua	176	42	201
Venezuela	185	70	792

Source: World Bank Group (doingbusiness.org).

The introduction of new taxes—such as the CESC and CEGC—may increase the complexity of tax compliance further and create administrative costs. The introduction of the CESC was accompanied by lack of clarity about its application.[162] Initially, various retailers applied the tax on airtime vouchers, so that for every $ 1 of airtime consumers were charged $ 1.05.[163] The Ministry of Finance clarified that this was illegal and consumers should receive in full the amount of airtime paid for.[164] The CEGC, in addition to increasing complexity of the tax system, requires the Ministerio de Hacienda to keep an updated record of all large taxpayers, potentially creating additional administrative costs.[165]

Mobile sector growth may support the principles of simplicity and transparency in tax collection. For example, the spread of mobile money services offers the opportunity to introduce mobile tax payments for individuals and businesses, which may reduce the costs of tax compliance.[166] Compliance may improve due to the reduced need for interaction with tax officials, which might entail perceived risks of corruption or harassment.[167] Institutions such as the World Bank[168] and the International Growth Centre[169] recognise the potential of digitalisation in this area.

A number of countries already enable citizens to use mobile money to pay their taxes, with evidence suggesting benefits for tax compliance in Mauritius and Tanzania. As the most developed mobile market in LAC,[170] El Salvador could begin to reap similar benefits from these applications of mobile technology.

162. La Prensa Grafica (2015): "Privados Señalan Desorden Por Nuevo Impuesto"; Estrategiaynegocios.com (2015): "El Salvador: Usuarios prepago no deben pagar más por nuevo impuesto".
163. Estrategiaynegocios.com (2015): "El Salvador: Usuarios prepago no deben pagar más por nuevo impuesto".
164. La Prensa Grafica (2015): "Privados Señalan Desorden Por Nuevo Impuesto".
165. Ministerio de Hacienda (2016): "Listado nueva cartera de grandes contribuyentes".
166. World Bank (2015): "Tanzania Economic Update".
167. Joshi et al (2014): "Taxing the Informal Economy,.
168. World Bank (2016): "Digital Dividends".
169. International Growth Centre (2012): "Improving Tax Compliance in Developing Economies".
170. World Bank "Global Findex" database.

Equity

Equity suggests that those who are better off could bear higher taxes than those who are worse off. An equitable tax system is desirable not only in reducing poverty and in improving fairness but also because it may encourage compliance. The IMF states that *"[…] a perception of unequal treatment can jeopardize wider willingness to comply".*[171]

Any taxes on mobile services are likely to be regressive,[172] as mobile ownership and usage costs tend to represent a higher proportion of income for lower-income subscribers. The introduction of sector specific taxes adds to this effect, as acknowledged in the analysis of the CESC by the Asamblea Legislativa.[173] In addition to being regressive, higher taxation on mobile services may also reduce the uptake of mobile financial services and associated gains in terms of promoting a more equitable society. El Salvador is one of the top 15 mobile money markets in the world[174] and the IMF reports that *"financial development and broadening inclusion will likely yield relatively high gains in terms of GDP growth".*[175] Sector specific taxation could constrain growth in mobile penetration and usage, thereby dampening the positive effects of financial and digital inclusion in El Salvador.

Moreover, services that compete with mobile services are not necessarily subject to the same level of taxation. For example, Over-The-Top (OTT) operators compete with mobile operators as they provide similar services, but potentially without establishing the same geographic ties to El Salvador that mobile operators have, facing limited taxation. A greater reliance on broad-based general taxation in place of sector specific taxation and exemptions may improve the overall equity of the tax system.

171. IMF: (2015). "Current challenges in revenue mobilisation: improving tax compliance".
172. A regressive tax takes a larger proportion of income from low-income earners than high-income earners. Any flat-rate tax that remains constant regardless of income levels is regressive.
173. Asamblea Legislativa (2015): "Análisis de la Ley de Contribución Especial Para la Seguridad Ciudadana y Convivencia".
174. GSMA (2015): "Mobile financial services in Latin America & the Caribbean".
175. IMF (2016): "IMF Country Report No. 16/209".

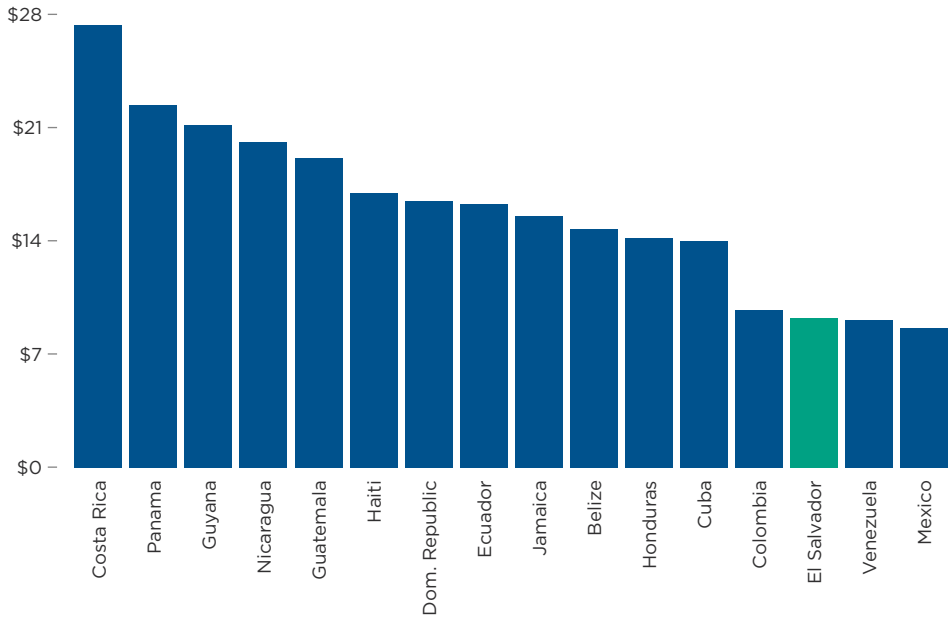
3. Impacts of tax reforms on affordability, investment and economic growth

3.1 Tax reform could improve affordability of mobile services

Salvadorans benefit from relatively low prices for basic mobile services. Average Revenue per User (ARPU) is commonly used as a proxy for prices; this has halved since 2008 and is among the lowest in the region, which may indicate effective competition in the mobile retail market.

Figure 16

ARPU by subscriber in LAC countries for which data is available, 2016



Source: GSMA Intelligence database.

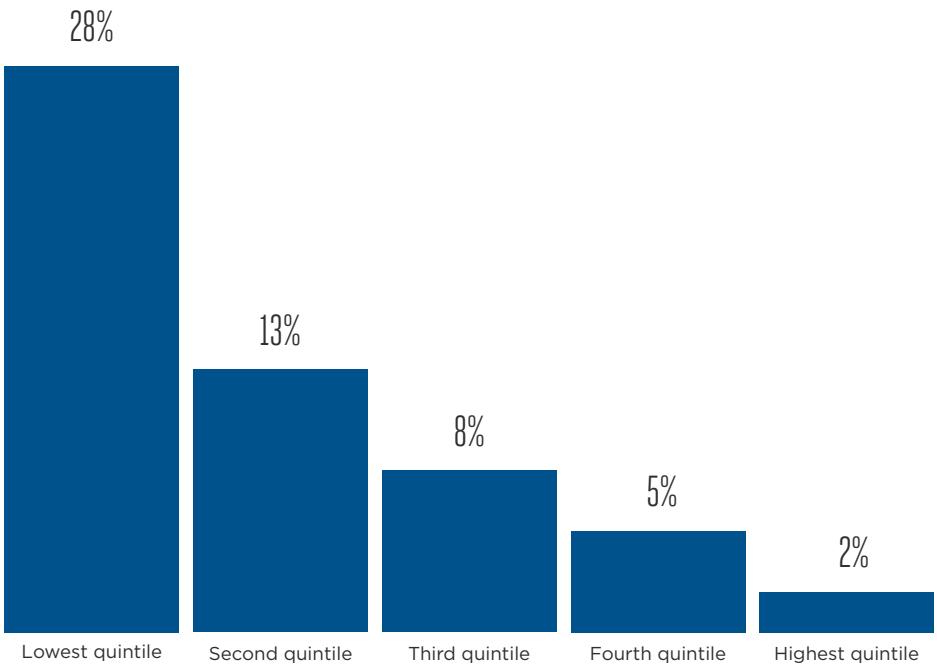
176. GSMA Intelligence database. Based on ARPU by subscriber.

The cost of a representative basket of calls and SMS messages, as measured by the ITU, amounts to around 4% of average monthly income.[177] However, for the poorest 20% of Salvadorans this cost represents 15% of income, which may be a significant barrier to uptake. This may help to explain why unique subscriber penetration remained just below 81% in 2016, despite having already reached 78% by 2011.[178]

Mobile subscribers are increasingly taking up mobile broadband services, but the price of these is likely to be unaffordable for some. When the cost of a representative data bundle, as measured by the ITU, is added to the cost of basic mobile telephony, the total cost rises to over 8% of average income; for the lowest 20% of earners the cost represents 30% of income. Limited affordability may be due to various factors, including sizeable infrastructure costs and taxation.

Figure 17

Combined representative cost of voice, SMS and mobile broadband by quintile, 2015



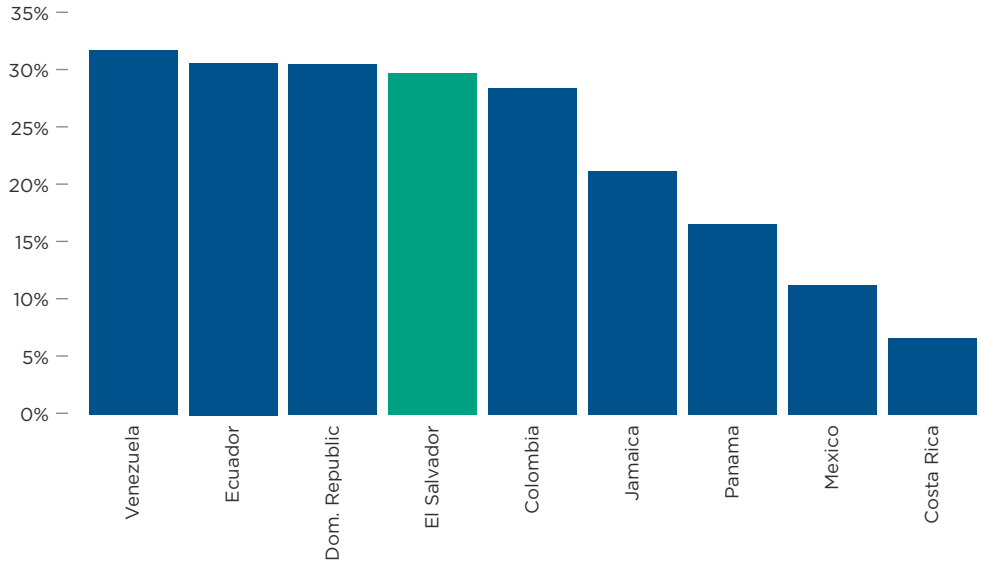
Source: Deloitte analysis on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database

Comparing the representative costs of voice, SMS and mobile broadband usage across countries highlights that, for the poorest consumers, the costs in El Salvador represent a higher share of income than in countries such as Colombia, Panama and Mexico.

177. Deloitte analysis on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database.
178. Deloitte analysis on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database.
179. Deloitte analysis on ITU (2016): "Measuring the Information Society Report 2016" and World Bank database.

Figure 18

Combined representative cost of voice, SMS and mobile broadband as a share of GNI for the lowest 20% of earners in LAC countries for which data is available, 2015



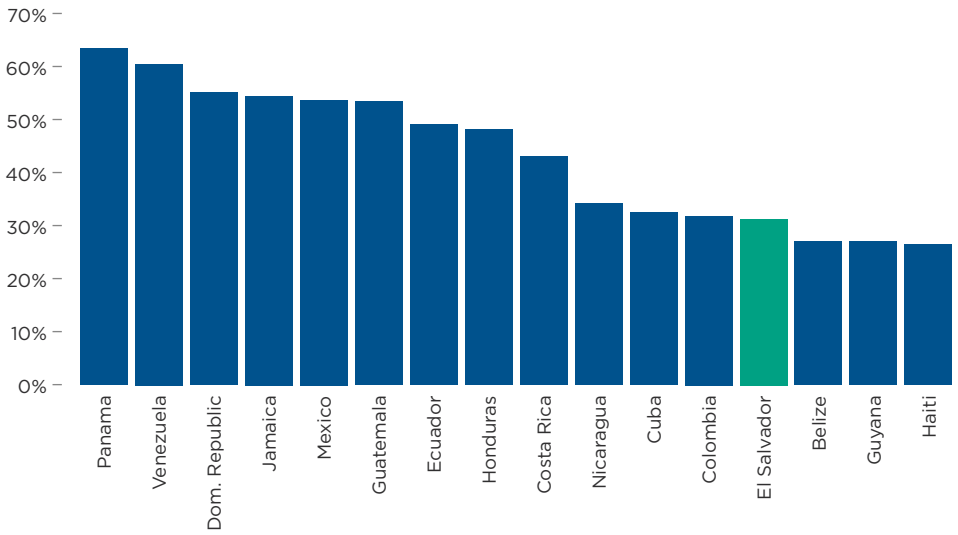
Source: Deloitte analysis on ITU (2016): "Measuring the information society" and World Bank database. Outliers with a value greater than 60% are excluded: Haiti (272%), Honduras (97%), Nicaragua (97%) and Guatemala (61%).

Taking into account that handset purchase costs are not included in the estimates above, it appears likely that unaffordability of mobile services is still preventing further growth in connectivity. The effect is more pronounced for those at the bottom of the pyramid and is particularly likely to constrain growth of mobile broadband usage. For example, a low-end smartphone costing $ 70 represents over 20% of monthly income for the average Salvadoran, and as much as 75% for the lowest 20% of earners.[180] In 2016, El Salvador had the fourth lowest rate of smartphone adoption in LAC, at 31% compared to an average of 43%.[181]

180. $ 70 is an illustrative amount based on desk research of upfront costs of basic smartphones in El Salvador.
181. The average is based on 16 LAC countries. GSMA Intelligence database

Figure 19

Smartphone adoption in LAC countries for which data is available, 2016



Source: GSMA Intelligence database

The introduction of the new CESC tax in November 2015 has had the effect of squeezing mobile network operators' margins.[182] While operators have endeavoured to avoid increasing charges to consumers in response to the tax, the CESC may reduce the scope for further price decreases that may have otherwise been possible. As such, a reduction of the CESC tax would have the potential to reduce prices and make mobile services more affordable for all Salvadorans. This may stimulate greater usage of basic services and wider adoption of mobile broadband services, allowing more Salvadorans to benefit from mobile connectivity.

3.2 Tax reform could stimulate mobile sector investment

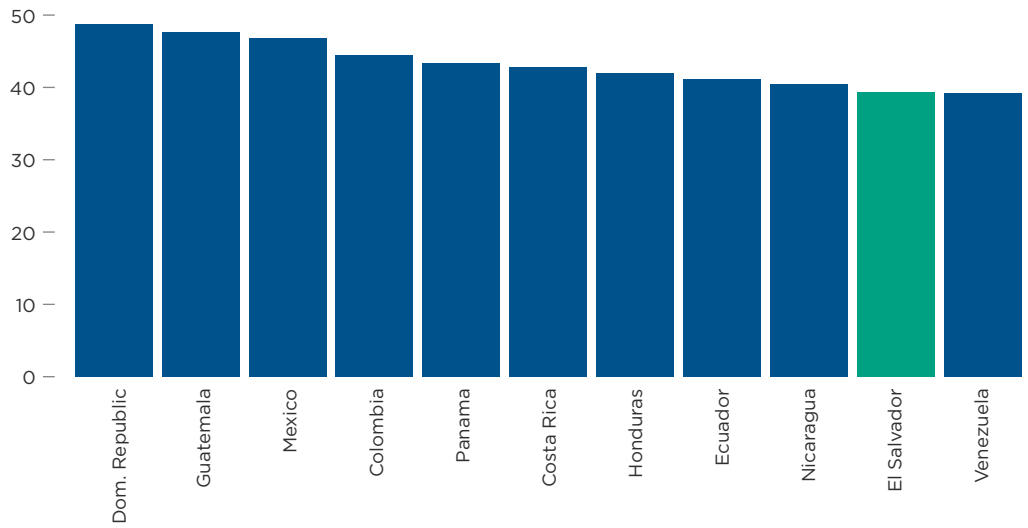
The mobile sector is characterised by the requirement for significant investment in spectrum acquisition, equipment purchase, network rollout and points of sale. Investing in mobile networks in El Salvador is challenging, due to the country's mountainous terrain. A relative lack of available spectrum may add to these difficulties and require operators to make greater investments in physical infrastructure in order to enhance coverage and capacity. A recent report finds that El Salvador has only allocated 208MHz of spectrum to mobile, which is the lowest amount across the 18 Latin American countries in the sample and only constitutes 16% of the ITU's target set for 2015.[183]

Mobile operators in El Salvador have invested in extending and upgrading network infrastructure; according to the World Bank, telecom investment has amounted to over $ 3 billion over the period 2004-2014.[184] Despite this, the country's mobile infrastructure could benefit from further investment, as illustrated by OpenSignal data showing that availability of 3G and 4G in El Salvador is lower than in many other Latin American countries, while data speeds are ranked 78th among a sample of 95 countries.[185] The GSMA's Connectivity Index ranks El Salvador's mobile infrastructure below the majority of other countries in the region, taking into account a range of indicators of network coverage and performance.

182. Operator data.
183. 5G Americas (2016): "Analysis of ITU Spectrum Recommendations in Latin America".
184. World Bank database, Investment in telecoms with private participation.
185. OpenSignal (2016): "Global State of Mobile Networks (August 2016)".

Figure 20

GSMA Connectivity Index infrastructure score for LAC countries for which data is available, 2014



Source: GSMA Connectivity Index

The industry is currently devoting resources to rolling out 4G networks, which were launched in late 2016.[186] Specifically, the introduction of the CESC and CEGC in 2015 has the likely effect of reducing operators' margins, which could limit the incentive and ability to make further investments.

For example, one multinational operator reports revenues for Q3 2016 in El Salvador that are almost 9% lower than Q3 2015, before the new taxes introduced.[187] Over the same period, the company's earnings before interest, tax, depreciation and amortisation (EBITDA) have fallen by 11%. The operator's EBITDA margin, which indicates profitability, was 35.6% in El Salvador, lower than in several other Latin American markets. Tax changes therefore have the potential to improve the relative attractiveness of mobile infrastructure investment in the country, as well as increasing the resources available for investment.

Stimulating telecom investment could also benefit the wider economy. The IMF believes that a *"lack of private participation in infrastructure projects weighs on investment and growth"* in El Salvador.[188] The government recognises the importance of attracting investment; the autonomous agency PROESA was created in 2014 and tasked with promoting investment and exports.[189] In 2016, the communication and information sector accounted for 15% of FDI, which was the third largest behind financial and insurance activities and manufacturing industries.[190] Increasing the taxation of the sector may reduce the scope for investment and therefore appears to run contrary to the objectives of increasing investment in the country.

186. For example, see TeleGeography (2016): "Movistar El Salvador earmarks USD250m for LTE launch" and Millicom (2016): "$1bn investment plan and 4G roll out".
187. Millicom Q3 2016 trading results. Note that other operators report detailed financial data for Central America as a whole and not for El Salvador specifically.
188. IMF (2016): "IMF Executive Board Concludes 2016 Article IV Consultation with El Salvador".
189. PROESA (2014): "Aprobada la Ley de Creación del Organismo Promotor de Exportaciones e Inversiones de El Salvador".
190. Banco Central de Reserva de El Salvador.

3.3 Impacts of specific tax reforms

To estimate the quantitative impacts of specific reforms, an economic model of El Salvador's economy and mobile sector was constructed, using sector specific data from the GSMA and mobile operators in El Salvador, together with macroeconomic data from the IMF and the World Bank. This allows the model to represent both the mobile sector and its gross impacts on the economy as a whole. This approach also enables comparison between a base case that uses current projections for the sector and the reform scenarios.[191]

The modelling involves several steps and assumptions, which are discussed in detail in the methodology Appendix, and summarised here:

1. The model first computes the impact on prices. The level of taxation and regulatory fees applied to the mobile sector are reflected in the retail prices operators charge for using their services. Therefore, a change in taxation or regulatory fees will lead to a change in the retail price of mobile services. A pass-through rate represents the percentage of the tax and regulatory fee payments that is reflected in the retail price of mobile services.

2. The amount by a tax reduction that is not passed through to prices can either be reinvested into the network or retained as profit for the operators. The amount that is reinvested into the network can be used to either build new sites or upgrade sites to mobile broadband. The converse holds for tax increases.

3. The model then computes the impact of the price change on demand. The price of mobile services determines the demand and therefore the aggregate consumption of mobile services. The price elasticity of demand describes the responsiveness of demand to a change in the price; defined as the percentage change in demand resulting from a given percentage change in price.

4. Changes in the level of consumption of mobile services lead to a new level of revenue generated by operators, which changes the level of taxes and regulatory fee payments and labour demand accordingly.

5. These changes to the mobile sector lead to direct impacts on value-added and employment and, through spillover effects, on the wider economy, in particular on real GDP, tax revenue, employment and investment.

6. An elasticity determines the impact of a change in mobile penetration on GDP growth. Multipliers allow changes in mobile sector employment to affect the wider labour force in El Salvador. Productivity is calculated using the Total Factor Productivity impact.

191. Other potential impacts on the sector that may arise from current reform programmes are not explicitly modelled but may have been considered in projections by the GSMA or third party sources and would therefore be taken into account in the base case. The policy reform scenarios were estimated separately and their interactions are not considered.

3.3.1 Reducing the CESC to 2.5%

The CESC tax of 5% on mobile services, handsets and network equipment is sector specific and distortionary.

If passed through to consumers, it may further increase the prices of mobile services already subject to general taxes, such as VAT. According to operators, in some cases the tax was passed through to post-paid consumers, while most pre-pay prices remained unchanged immediately after the tax had been imposed.[192] However, margins for at least one operator have narrowed following the CESC introduction,[193] which could cause prices to increase in future, or narrow the scope for any price reductions. The introduction of this tax may also affect operators' investment decisions, by making upgrades and expansion of their networks more costly and reduce potential returns.

The regressive nature of the CESC, as acknowledged in the analysis by the Legislative Assembly,[194] may particularly discourage the poorest citizens from using mobile phones. Given that these consumers tend to be particularly price sensitive, even small changes in prices may create positive effects on take-up and usage. Reducing the CESC tax could help to minimise distortions on mobile usage and promote a more equitable tax system.

192. Claro.com.sv (2015): "Contribución Especial para la Seguridad y Convivencia (CESC)"; Tigo.com.sv (2015): "Protección al Cliente"; Movistar.com.sv (2015): "Preguntas Frecuentes CESC".
193. Millicom Q3 2016 trading results. Note that other operators report detailed financial data for Central America as a whole and not for El Salvador specifically.
194. Asamblea Legislativa (2015): "Análisis de la Ley de Contribución Especial Para la Seguridad Ciudadana y Convivencia".

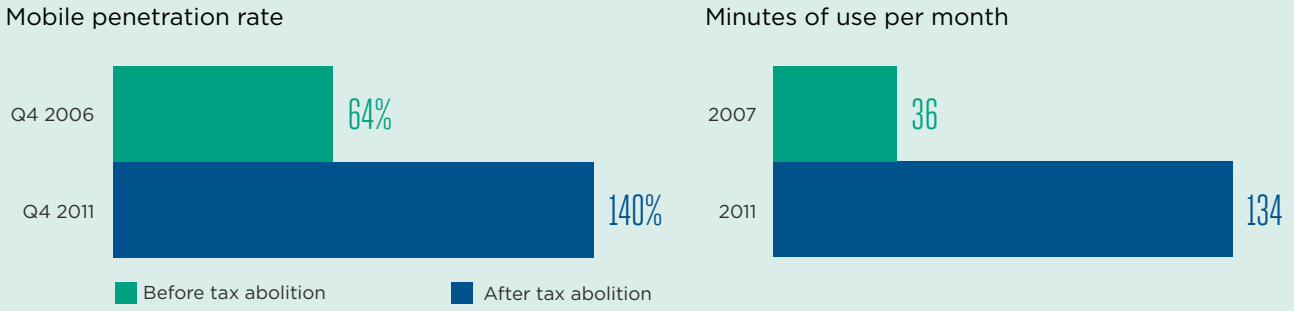
Case study: Impact of mobile tax reform in Uruguay and Ecuador

International experience of tax reforms suggests that eliminating excise duties has the potential to drive higher mobile penetration and usage, for example in Uruguay and Ecuador.

In 2007, Uruguay abolished an excise tax (ITEL) on airtime, which was similar to the CESC. While other developments may have affected the mobile sector, Uruguay saw penetration more than double and average usage more than treble over the following years.

Figure 21

Mobile penetration rate and minutes of use in Uruguay

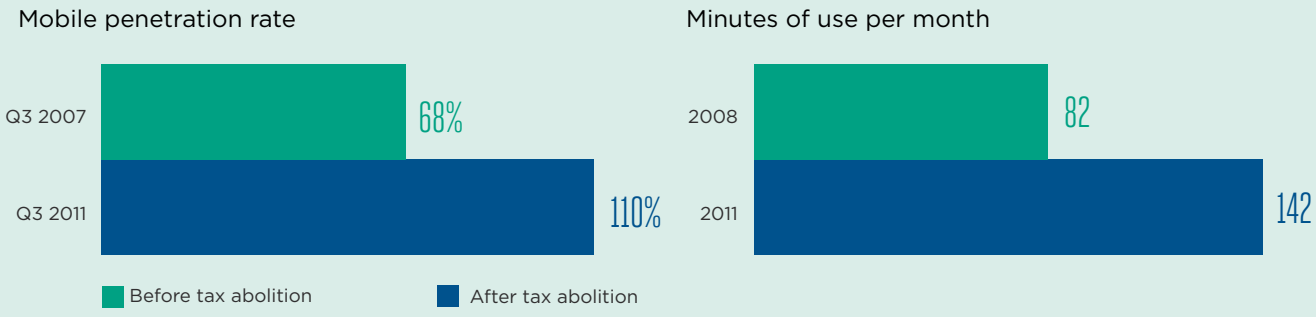


Source: Deloitte/GSMA (2012): "Mobile telephony and taxation impact in Latin America"

In 2008, Ecuador abolished a 15% excise tax on mobile usage, which was similar to the CESC. While other developments may have affected the mobile sector, in the following years, mobile penetration increased from 70% to over 110% and usage per user more than doubled between 2008 and 2011.

Figure 22

Mobile penetration rate and minutes of use in Ecuador



Source: Deloitte/GSMA (2012): "Mobile telephony and taxation impact in Latin America"

The CESC may also dampen the positive effects that mobile can have on the wider society, for example through enabling financial inclusion. The IMF notes that *"The bank transaction tax and telecommunications tax have relatively low yield but significantly hamper financial intermediation and inclusion, and should be reduced or phased out"*.[195]

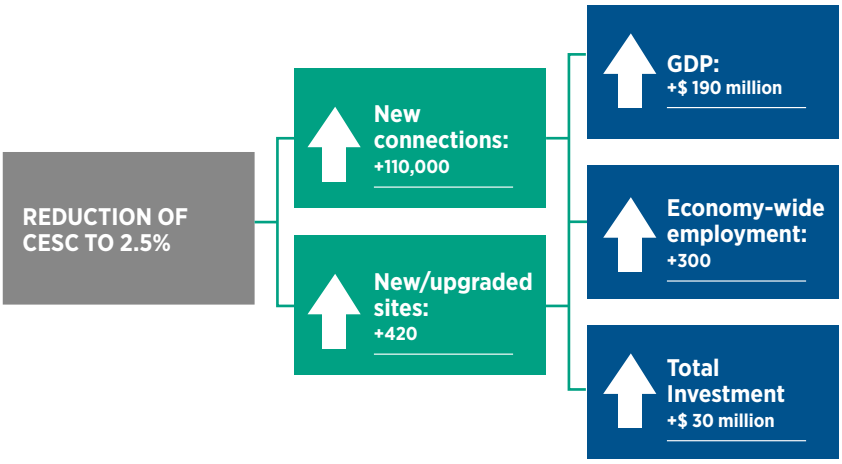
In recognition of the challenging fiscal outlook and the importance of revenues raised to help address the security situation in El Salvador, as an illustrative example, impacts are estimated for a 50% reduction in the CESC rate, rather than a complete removal of the tax. Based on projections for 2016, this change equates to a mobile sector tax payment reduction of around $ 14.1 million,[196] which represents 0.34% of government tax revenues and 7% of the mobile sector's tax and regulatory fee contribution.[197]

Assuming that 50% of the savings are passed through to consumers and 60% of the remaining savings are invested, this reform could have the following impacts:

- **New connections:** Price reductions have the potential to generate an additional 110,000 connections over the four year period to 2021. This amount equates to 1.3% of the total volume of connections in 2015.[198]
- **Increase in economic growth:** The growth in mobile ownership and usage has the potential to increase GDP by a total of $ 470 million over the four years to 2021. A potential $ 190 million of this could be generated in 2021, which is equal to 0.6% of El Salvador's GDP in 2015.[199]
- **Additional investment:** Increased resources for investment has the potential to create an additional 420 new or upgraded base stations by 2021. In the wider economy, total investment could increase by $ 70 million over the four years to 2021. Of this amount, $ 30 million could be generated in 2021.
- **Job generation:** increased investment in the mobile sector has the potential to increase employment in the sector by 100 jobs, and by 200 employees in the wider economy.

Figure 23

Estimated economic impact of reduction of CESC from 5% to 2.5% on mobile usage, 2021



Source: Deloitte analysis based on operator data, and GSMA Intelligence and World Bank databases. Figures are rounded.

195. IMF (2016): "IMF Country Report No. 16/208".
196. Deloitte analysis based on operator data.
197. Deloitte analysis based on operator data and Banco Central de Reserva de El Salvador. These figures relate to CESC payment by the mobile sector. Based on Ministerio de Hacienda data, the total tax revenue from the CESC was $ 49 million in 2016. A 50% cut in the rate would correspond to a total tax revenue reduction of $ 24.5 million in 2016.
198. Based on GSMA Intelligence data.
199. Deloitte analysis based on IMF (2016): "World Economic Outlook October 2016".

3.3.2 Exempting mobile broadband from the CESC

The CESC applies to all mobile services, including mobile broadband. While mobile penetration is high relative to other countries, the majority of connections are still limited to 2G services. Internet usage and smartphone adoption are low relative to similar countries.

Mobile broadband can bring economic benefits over and above basic mobile usage, as reflected in academic research.[200] The extent to which mobile applications in financial services, health, education and agriculture can generate benefits for society is likely to depend on mobile internet coverage and quality.

As an alternative to reducing the CESC rate, mobile broadband services could be exempted from the CESC tax, with the potential to support faster growth in mobile broadband usage and encourage 4G network investment. For example in Mexico, where a similar tax is levied, mobile broadband is excluded from the tax base.

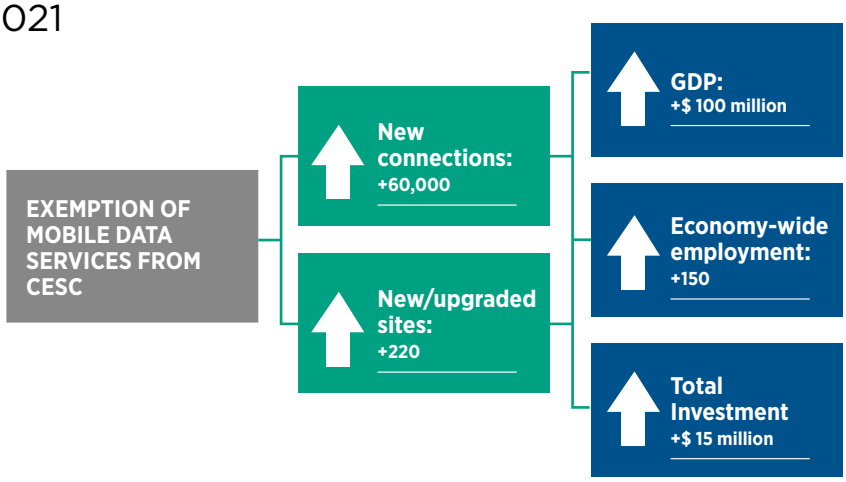
Based on projections for 2016, this change equates to a tax payment reduction of around $ 7.4 million,[201] which represents 0.18% of government tax revenues and 4% of the mobile sector's tax and regulatory fee contribution.[202]

Assuming that 50% of the savings are passed through to consumers and 60% of the remaining savings are invested, this reform could have the following impacts:

- **New connections:** Price reductions have the potential to generate an additional 60,000 connections over the four year period to 2021. Of the new connections, 40,000 could use mobile broadband, which equates to 2% of the total volume of mobile broadband connections in 2015.[203]
- **Increase in economic growth:** The growth in mobile ownership and usage has the potential to increase GDP by a total of $ 250 million over the four years to 2021. A potential $ 100 million could be generated in 2021,which is equal to 0.3% of El Salvador's GDP in 2015.[204]
- **Additional investment:** Increased resources for investment has the potential to create an additional 220 new or upgraded base stations by 2021. In the wider economy, total investment could increase by $ 40 million over the four years to 2021. Of this amount, $ 15 million could be generated in 2021.

Figure 24

Estimated economic impact of exempting mobile broadband from the CESC, 2021



Source: Deloitte analysis based on operator data, and GSMA Intelligence and World Bank databases. Figures are rounded.

200. See for example Qiang, C. Z. W., Rossotto, C.M. (2009): "Economic Impacts of Broadband".
201. Deloitte analysis based on operator data and GSMA Intelligence database.
202. Deloitte analysis based on operator data, GSMA Intelligence database and IMF database.
203. Based on GSMA Intelligence database.
204. Deloitte analysis based on IMF (2016): "World Economic Outlook October 2016".

3.3.3 Potential impacts of a VAT increase from 13% to 16%

The IMF has suggested increasing tax revenues by adjusting the VAT rate upwards, closer to the regional average.[205] A reform of this kind would result in higher taxation on the mobile sector and may result in higher prices of mobile services.

The potential impacts on the mobile sector are estimated for a VAT increase from 13% to 16% and provided for illustrative purposes only. The economic modelling approach taken in this report focusses on the impact of taxation on the mobile sector. The economic impacts of a rise in the VAT rate can therefore be illustrated only by assuming that the other sectors in the economy remain unchanged. However, a reform to a general tax, such as VAT, would affect the overall economic activity in a country, in turn affecting the mobile sector.

Assuming that 50% of the costs are passed through to consumers and investment is reduced by 60% of the remaining amount, this reform could have the following impacts:

- **Connections:** Higher prices may result in 170,000 fewer connections over the four year period to 2021, including 120,000 using mobile broadband.
- **Dampened investment:** Reduced resources and incentives for investment can potentially result in 650 fewer new or upgraded mobile sites by 2021.

The IMF argues that *"given the need to increase growth, revenue-raising measures should be accompanied by cuts in distortionary taxation"*.[206] The increase in VAT would be likely to generate substantial additional tax revenue, exceeding the total amount raised by the CESC. Based on IMF estimates, the increase in VAT could generate in excess of $ 240 million of additional tax revenue, net of social support measures required to offset the regressive effects of this tax change. By comparison, the CESC generated a total of under $ 50 million in 2016.

As an increase in VAT is likely to result in substantially larger tax revenues for the government, the budgetary cost of reducing or removing the distortionary and regressive CESC tax may be relatively small in comparison. This would provide an opportunity to realign sector-specific taxation on mobile with general taxation.

205. IMF (2016): "IMF Country Report No. 16/209".
206. IMF (2016): "IMF Country Report No. 16/209".
207. The IMF estimates that a VAT increase from 13% to 15% could raise additional tax revenue equal to 1.2% of GDP, whereas the social support to offset regressive effects could amount to 0.3% of GDP. Based on the IMF's GDP forecast for 2017, the additional tax revenue would amount to around $ 240m. The tax revenue raised may be larger than this if VAT is increased higher than 15%. Bird and Zolt (2003): "Introduction to Tax Policy Design and Development".

4. Reforming taxation on the mobile sector

While taxation from the mobile sector remains critical to continue financing public expenditure in El Salvador, especially in light of the need to finance security measures, the recent introduction of the CESC tax may be obstructing growth of the mobile sector.

Using mobile phones may still be unaffordable for the poorest Salvadorans, while the country's mobile broadband infrastructure is underdeveloped and internet usage is low relative to other countries. The sector specific CESC – which is applied to calls, SMS, mobile broadband, handsets and network equipment – is likely to compound limited affordability and dampen further investment in infrastructure. The distortions created by this tax may mean that many Salvadorans remain unconnected or unable to benefit from mobile broadband.

Reforming mobile taxation could help meet the recommendations the IMF has provided to the government in relation to taxation. Based on the best practice principles and on evidence from a series of studies that have examined mobile taxation in numerous countries worldwide, alternative options for tax reform could be considered:

- Mobile taxation could be reformed in line with the principle, suggested for example by international organisations such as the World Bank[208], that low rates on wider tax bases are to be preferred to higher taxes on narrow bases. The government could seek to reduce the CESC rate of 5% to 2.5% to align consumer taxes on mobile usage more closely to the taxation of standard goods and services.
- Taxation could be designed to promote mobile broadband connectivity and its wider benefits to those that remain unconnected to the internet. Exempting mobile data services from the CESC tax has the potential to reduce the affordability barrier for consumers and to encourage mobile operators to invest in the necessary infrastructure.

A reduction of the CESC or exemption for mobile data services would offer the government the opportunity to benefit from the economic contribution from mobile whilst controlling the fiscal impact in the short term. Increased mobile usage, and higher internet usage in the longer term, could benefit society as a whole, promoting development across economic sectors as set out in recommendations by the IMF.

Further, should the government consider an increase in VAT across the economy, there is a risk of negative impacts on mobile usage and investment that could add to the potential negative impacts of the CESC. To mitigate this risk in case VAT is raised, the government could consider removing the CESC. An increase in VAT is likely to result in substantially larger tax revenues for the government and the budgetary cost of reducing or removing the distortionary and regressive CESC tax may be relatively minor in comparison.

As the sector develops further, it is also important that the government does not apply sector specific taxation, over and above general taxes, to innovative mobile services that generate economic and social benefits. The government would risk reducing the growth of such services if sector specific taxation were imposed.

208. Bird and Zolt (2003): "Introduction to Tax Policy Design and Development".

5 Appendix: Methodology

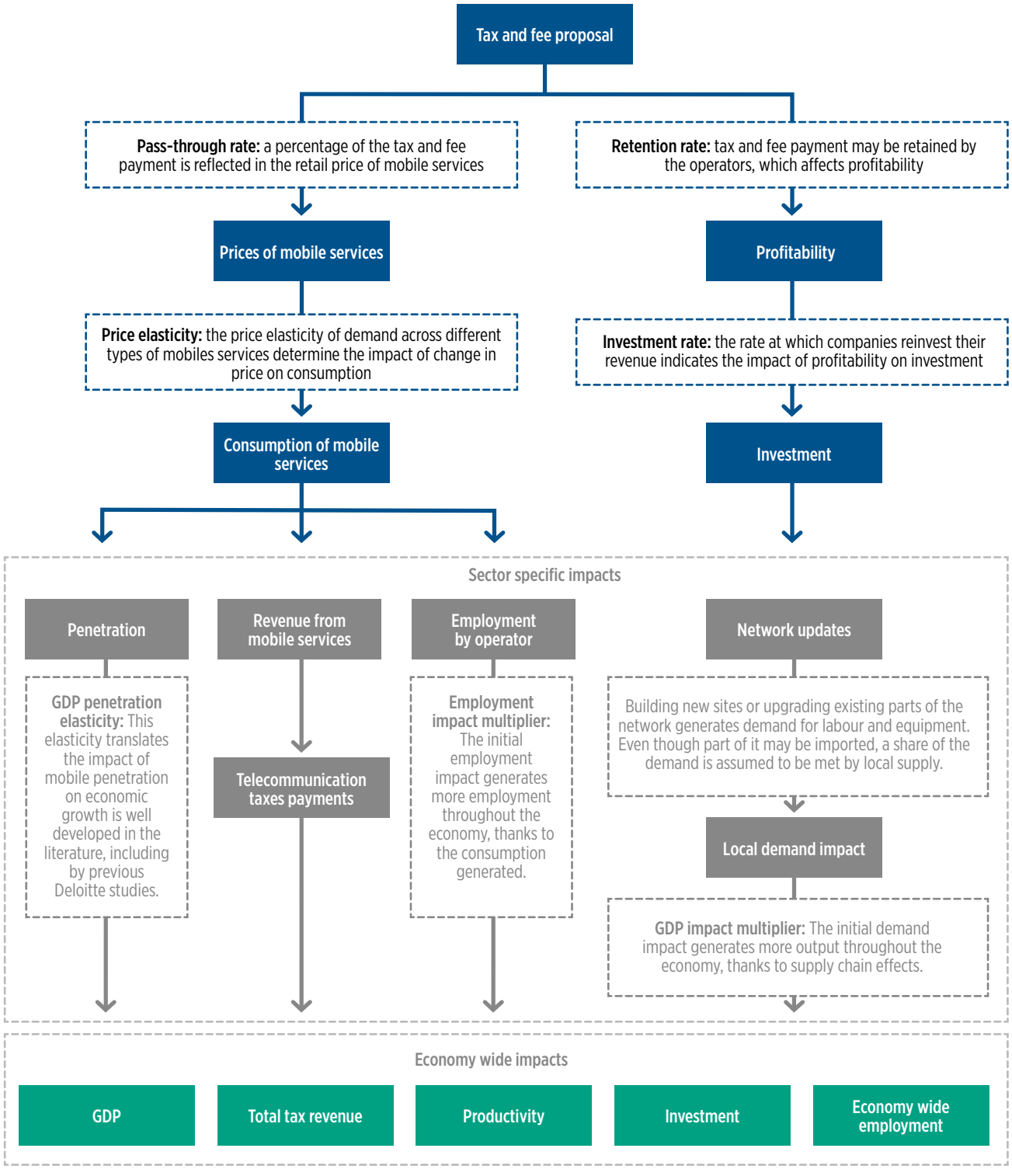
A.1 Estimation of the economic impact of a tax change

An economic model was created to describe the impacts that taxation on the mobile sector has on the sector itself and the macro-economy of El Salvador. This model estimates forecasts for the impacts of more than 25 sector specific and macroeconomic variables up to 2021, which can be driven either by removing or changing current taxes and regulatory fees or by the introduction of a new tax or regulatory fee.

Firstly, a base case scenario is developed for the mobile sector and economy, where taxes and regulatory fees remain at their current rate throughout the period to 2021. Then, a simulation of alternative tax policy scenarios quantifies the economic impact of reformed mobile sector taxation. It is assumed that the tax policy change is implemented as of tax year 2018 and the model estimates the effects up to 2021. The impacts of each policy are estimated independently and their interaction is not considered.

Figure 25

Schematics for modelling the economic impacts of mobile taxation changes



Source: Deloitte analysis.

Modelling the impact of changes to mobile taxation on the telecom market in El Salvador

As illustrated in Figure 24, the model evaluates the demand and supply effect of the change in mobile taxation on the telecom market. On the demand side, a tax or regulatory fee reduction may be partly passed through to consumers as lower prices. Savings can also, on the supply side, be partly reinvested to expand the network or upgrade current sites to newer technologies.

Data collection

The inputs for the model have been provided by operators in El Salvador and the GSMA as well as publicly available statistics from the World Bank and the IMF. These include forecasts for future years. The outputs are derived based on estimates of the elasticity of demand for mobile services from a number of developing markets, while the impacts of mobile and broadband penetration on GDP have been derived from econometric studies of similar developing markets.

Demand side

The tax or regulatory fee change may affect the price of mobile services. This depends on the extent to which the tax reduction is passed on to consumers, modelled by a pass-through rate, which determines the percentage of the tax and regulatory fee payments that is reflected in the retail price of mobile services. All assumptions in the model are described in more detail in the section below.

Changes to the price of mobile services affect their consumption. In order to estimate this, assumptions are made on the price elasticity of demand,[209] which measures how much demand for mobile services will change in response to a price change.

Changes in prices and consumption alter the amount of revenue generated from mobile services. Increased demand generates additional employment opportunities in the sector, and increases mobile technologies' penetration in the country.

These sector impacts lead to economy-wide effects, which are estimated through assumptions that describe the impact of the mobile sector on the wider economy. These effects include the impact on GDP, calculated through a multiplier that links mobile and 3G penetration rates to economic growth, and the effect on employment, calculated through a multiplier, which estimates the number of jobs created across the economy for every job created within the telecommunications sector. The proliferation of mobile services is captured by an increase in productivity, quantified through the change in Total Factor Productivity (TFP).

As a result of additional GDP growth from reformed taxation on mobile, the potential short-term loss of tax revenue from the mobile industry may be offset by tax revenue from more broad-based consumer and operator taxes.

Supply side

The model also considers instances in which some or all of the tax/fee savings are not passed through to consumers but reinvested in extending or upgrading mobile networks in the country. Investment resulting from tax/fee savings is determined using a reinvestment rate assumption. Using data, informed by discussions with mobile operators, on the construction cost of a new site and on costs to upgrade existing sites, the model estimates the number of additional sites and upgrades that the reform may translate into by 2021.

A significant proportion of the cost of network investment relates to the cost of network equipment, much of which is imported into El Salvador. However, some of this additional investment is domestic value added, for example local labour. This additional value added can then have wider economic impacts, which is calculated using a GDP multiplier that captures the knock on economic effects of the incremental economic activity generated as a result of the additional investment. These economic impacts may also translate into job creation. Due to the temporary nature of construction work, the jobs creations in the model are assumed to be non-cumulative.

209. An elasticity describes the quantitative impact of a variable on another variable; the usual notation is that a 1% increase in a variable will lead to an x% change in another variable.

A.2 Key assumptions

The assumptions underlying the model have been developed on the basis of a review of academic literature and previous studies in this area. These are discussed in more detail below.

Pass-through rates

Changes in taxes and regulatory fees paid by mobile operators and consumers may be completely or partly passed-through to the end-consumer prices. The level of pass-through of taxes and regulatory fees to final prices typically depends on numerous market factors: for example, it may depend on the development of the market, the price elasticity of demand, on the scope for price reduction, as well as on operators' commercial strategies. As such, it is expected that each operator will determine how to pass through any tax/fee savings in different ways. Academic literature has found a considerable variability in pass-through rates, which may be negligible, close to 100% or even above 100% in certain instances.[210] Having considered this evidence, as well as a number of market-specific conditions in El Salvador, the illustrative assumption of a price pass-through rate of 50% is adopted.

Price elasticity of demand

A change in the price of mobile services may lead to a change in the consumption of these services, both in terms of ownership and usage. Consumption changes depend on the price elasticity of demand, that is, the responsiveness of consumers to price changes. The assumptions regarding elasticity of demand are based on a review of studies conducted in a number of developing markets on the elasticity rates observed. Based on evidence from the empirical literature,[211] the elasticity of demand for mobile usage is assumed to be -1.14. The elasticity of demand for mobile ownership is assumed to be -0.99. The finding that demand is more elastic for those that already own mobile devices is supported by a number of studies within the field.[212]

Reinvestment rate[213]

The literature highlights that a company's cash flow is a strong predictor of its investment; the strength of this response is stronger in economies in which firms have less access to financial markets.[214] To illustrate the potential for new investment through the tax reduction, the reinvestment rate is assumed to be 60% of the value not passed through to consumers. This illustrative assumption was based on a review of market characteristics in El Salvador and on a review of academic papers discussing pass through rates from tax changes.[215]

Part of the investment effort is spent on network coverage expansion, and the rest is spent on network upgrade; the shares reflect the fact that El Salvador's mobile market is currently still dominated by basic 2G services.

Based on a review of cost benchmarks in the literature and operator data on the cost of installing sites, the cost of a new site is assumed to be $ 150,000 and the cost of network upgrades for mobile broadband is $ 30,000.[216] This takes into account differences in the cost of rural sites and other non-site costs that are necessary for each site.

Employment and GDP multiplier

The employment multiplier is used to estimate the effect of a change in employment in the sector on total employment in the economy. The magnitude depends on the economic characteristics of the sector, such as the degree of interconnection across the supply chain and the openness of the economy. Based on the characteristics of El Salvador's mobile sector and the general economy the employment multiplier is assumed to be 2.47.[217] Based on the characteristic of this multiplier, for every additional job created within the mobile sector, an additional 2.47 jobs are generated in El Salvador's wider economy.

210. IMF (2015): "Estimating VAT Pass Through".
211. An estimate of price elasticity of demand for El Salvador was not available. The assumed value is based on a recent studies of Latin American countries (Agustin J. Ros, Douglas Umaña, (2013); C. M. Baigorri, W. F. L. Maldonado (2014)).
212. See, for example: Gruber and Koutroupis (2010): "Mobile telecommunications and the impact on economic development"; Wheatley, J. J. (1998): "Price elasticities for telecommunication services with reference to developing countries"; GSMA (2005): "Tax and the digital divide: How new approaches to mobile taxation can connect the unconnected. London".
213. The definition of reinvestment rate used in this context differs from that used in the finance context, where it designates the interest payments which can be earned when money is reinvestment out of a fixed income investment to another. In this report reinvestment rate is the proportion of the tax change that is invested.
214. Gilchrist and Himmelberg (1995): "Evidence on the role of cash flow for investment".
215. For example, an empirical study of investment by the telecom sector in the United States found that the reinvestment rate from a reduction in tax may be as high as 100% and may even exceed 100% if a company operating across states redirects investment funds towards those states with lower taxes. A similar incentive effect may exist when mobile operators operate across several countries. See Katz (2012): "Assessment of the economic impact of taxation on communications investment in the United States".
216. Deloitte analysis on operator data, APC (2015): "Unlocking broadband for all", Ericson (2012): "Preventing a Growing Mobile Network from Becoming a CAPEX/OPEX Drain" and FCC (2010): "A broadband network cost model", Pereira and Ferreira (2012): "Infrastructure sharing as an opportunity to promote competition in local access networks", Analysis Mason (2011): "The momentum behind LTE worldwide".
217. This estimate is based on GSMA (2016): "The Mobile Economy (Latin America)".

The GDP multiplier is used to estimate the wider economic impacts of the additional network investment. Based on the structure of El Salvador's economy and how telecommunications services are used, this is estimated to be 1.50.[218] This means that for every additional $ 1 of expenditure in the telecommunications sector, GDP increases by $ 1.50.

Market penetration Impact

There is substantial evidence in the literature on the impact of mobile penetration on GDP growth. Analysis conducted by the GSMA on the impact of mobile and 3G penetration on GDP growth estimated that a 1% increase in market penetration leads to an increase in GDP growth of 0.28 percentage points.[219] In terms of the impact of internet penetration, it is assumed that a 1% increase in Internet penetration increases the GDP growth rate by 0.077 percentage points.[220] This model does not consider switching between 2G and 3G services and so these impacts are treated separately.[221]

Total Factor Productivity Impact

The impact on TFP is calculated based on the change in GDP, employment and investment. TFP is a measure of economic productivity that accounts for changes in output over and above those expected as a result of increased employment and investment. It is defined as follows:

$$TFP = \frac{GDP}{Capital^{\alpha} Labour^{\beta}}$$

where it will is assumed that α = 0.3 and β=0.7.[222]

A.3 Scenario estimations

The tables below report the estimated cumulative impacts of the tax changes simulated in this report on a number of macroeconomic and industry variables, compared against the base case scenario in the specified year, where there is no change in policy; and on the assumption that the change in policy is implemented in tax year 2018.

218. Few estimates are available for developing countries. The value of 1.50 is based on an estimate for Colombia, the most comparable country among the countries for which estimates are available.
219. This is based on a study of 40 economies over the period 1996-2011; for full details of the methodology, see Deloitte/GSMA/Cisco (2012): "What is the impact of mobile telephony on economic growth?".
220. Qiang, C. Z. W., Rossotto, C.M. (2009): "Economic Impacts of Broadband".
221. That is, given that it is not known whether a new 3G subscriber may previously have been a mobile user, this is treated as an increase in internet penetration only, not as an increase in mobile and internet penetration.
222. Bassanini A and Scarpetta S, 2001, "The Driving Forces of Economic Growth: Panel Data Evidence for the OECD countries"

Table 4

Annual impacts of reducing the CESC from 5% to 2.5% on selected macroeconomic and industry variables

Criterion	2018	2019	2020	2021
Macroeconomic impacts				
Incremental GDP	$ 30 million	$ 92 million	$ 155 million	$ 191 million
Additional employment	300	300	300	300
Labour productivity,% increment	0.07%	0.22%	0.37%	0.44%
Investment	$ 5 million	$ 14 million	$ 24 million	$ 29 million
Sector specific impacts				
Incremental connections: total (broadband)	50,000 (30,000)	100 000 (60 000)	110 000 (70 000)	110 000 (80 000)
Incremental unique subscribers: total (broadband)	30,000 (15,000)	50,000 (30,000)	50,000 (35,000)	50,000 (40,000)
Increase in mobile penetration total, by connections	0.5%	1.0%	1.0%	1.0%
Cumulative number of new sites (sites upgrades)	8 (99)	17 (197)	25 (294)	33 (389)

Source: Deloitte analysis of GSMA Intelligence and World Bank databases, and operator data. Figures are rounded.

Table 5

Annual impacts of exempting mobile broadband from CESC on selected macroeconomic and industry variables

Criterion	2018	2019	2020	2021
Macroeconomic impacts				
Incremental GDP	$ 16 million	$ 48 million	$ 81 million	$ 100 million
Additional employment	150	150	150	150
Labour productivity,% increment	0.04%	0.11%	0.19%	0.23%
Investment	$ 2 million	$ 7 million	$ 12 million	$ 15 million
Sector specific impacts				
Incremental connections: total (broadband)	30,000 (10,000)	50,000 (30,000)	60,000 (30,000)	60,000 (40,000)
Incremental unique subscribers: total (broadband)	10,000 (10,000)	30,000 (15,000)	30,000 (20,000)	30,000 (20,000)
Increase in mobile penetration total, by connections	0.3%	0.5%	0.5%	0.5%
Cumulative number of new sites (sites upgrades)	4 (52)	9 (103)	13 (154)	17 (204)

Source: Deloitte analysis of GSMA Intelligence and World Bank databases, and operator data. Figures are rounded.

Table 6

Annual impacts increasing the VAT rate from 13% to 16% on selected macroeconomic and industry variables

Criterion	2018	2019	2020	2021
Macroeconomic impacts				
Incremental GDP	$ -47 million	$ -142 million	$ -240 million	$ -295 million
Additional employment	-500	-500	-500	-500
Labour productivity,% increment	-0.11%	-0.34%	-0.57%	-0.69%
Investment	$ -7 million	$ -22 million	$ -36 million	$ -45 million
Sector specific impacts				
Incremental connections: total (broadband)	-80,000 (-40,000)	-160,000 (-90,000)	-170,000 (-100,000)	-170,000 (-120,000)
Incremental unique subscribers: total (broadband)	-40,000 (-25,000)	-80,000 (-50,000)	-80,000 (-55,000)	-80,000 (-60,000)
Increase in mobile penetration total, by connections	-0.8%	-1.6%	-1.6%	-1.6%
Cumulative number of new sites (sites upgrades)	4 (52)	9 (103)	13 (154)	17 (204)

Source: Deloitte analysis of GSMA Intelligence and World Bank databases, and operator data. Figures are rounded.

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