



Digital inclusion and mobile sector taxation 2016

The impacts of sector-specific taxes and fees on the affordability of mobile services



About the GSMA

The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with almost 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai and the Mobile 360 Series conferences.

For more information, please visit the GSMA corporate website at www.gsma.com

Follow the GSMA on Twitter: [@GSMA](https://twitter.com/GSMA)



This report has been prepared on the basis of the limitations set out in the engagement letter and the matters noted in the Important Notice From Deloitte on page 2.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited (“DTTL”), a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see www.deloitte.co.uk/about for a detailed description of the legal structure of DTTL and its member firms. Deloitte LLP is a limited liability partnership registered in England and Wales with registered number OC303675 and its registered office at 2 New Street Square, London, EC4A 3BZ, United Kingdom. Deloitte LLP is the United Kingdom member firm of DTTL.

Davide Strusani
TMT Economic Consulting, London
dstrusani@deloitte.co.uk
www.deloitte.co.uk

Contents

Executive summary	3
1 Scope of the report	6
2 The importance of connectivity	8
3 Connectivity, affordability and taxation.....	12
4 Sector-specific taxation on the mobile industry globally	20
5 Reforming taxation to enable connectivity and deliver growth	32
Appendix A	40

Important Notice from Deloitte

This final report (the “Final Report”) has been prepared by Deloitte LLP (“Deloitte”) for the GSMA on the basis of the scope and limitations set out below.

The Final Report has been prepared solely for the purposes of providing a review of mobile sector taxation in selected countries. It should not be used for any other purpose or in any other context, and Deloitte accepts no responsibility for its use in either regard.

No party other than the GSMA is entitled to rely on the Final Report for any purpose whatsoever and Deloitte accepts no responsibility or liability or duty of care to any party other than the GSMA in respect of the Final Report or any of its contents.

The scope of our work has been limited by the time, information and explanations made available to us. The information contained in the Final Report has been obtained from the GSMA and third party sources that are clearly referenced in the appropriate sections of the Final Report. Any results from the analysis contained in the Final Report are reliant on the information available at the time of writing the Final Report and should not be relied upon in subsequent periods.

Accordingly, no representation or warranty, express or implied, is given and no responsibility or liability is or will be accepted by or on behalf of Deloitte or by any of its partners, employees or agents or any other person as to the accuracy, completeness or correctness of the information contained in this document or any oral information made available and any such liability is expressly disclaimed.

All copyright and other proprietary rights in the Report are the property of GSMA.

This Report and its contents do not constitute financial or other professional advice, and specific advice should be sought about your specific circumstances. In particular, the Report does not constitute a recommendation or endorsement by Deloitte to invest or participate in, exit, or otherwise use any of the markets or companies referred to in it. To the fullest extent possible, both Deloitte and the GSMA disclaim any liability arising out of the use (or non-use) of the Report and its contents, including any action or decision taken as a result of such use (or non-use).

Executive Summary

This study, commissioned by the GSMA, analyses mobile taxes and fees and their relationship with affordability and adoption of mobile services to assess the extent to which they represent a barrier to connectivity around the world. Thirty developing world countries were selected by the GSMA for analysis: twelve in the Middle East and Africa, ten in Latin America and eight in Asia, with a further five developed world economies also considered for comparison.

DELIVERING GLOBAL CONNECTIVITY IS A KEY ELEMENT OF THE DEVELOPMENT AGENDA

Digital connectivity is a critical enabler of economic and social development as recognised in the recent United Nations (UN) Sustainable Development Goals. According to UN’s Secretary-General Ban Ki-moon, “Broadband connectivity is a transformative tool to achieve the three pillars of sustainable development – economic growth, social inclusion and environmental balance. It is a key element for the post-2015 development agenda.”

Yet, despite rapid growth in mobile connections, over 2.9 billion people globally remain unconnected, with the vast majority of them living in developing world markets. Mobile services play a crucial role as, for most, mobile is the only source of digital connectivity. Affordability of mobile services, along with network coverage, digital literacy skills and locally relevant content, remains a key barrier to connectivity in many countries.

AFFORDABILITY OF MOBILE SERVICES CREATES BARRIERS FOR THE UNCONNECTED, ESPECIALLY FOR THOSE AT THE “BOTTOM OF THE PYRAMID”

Data from the International Telecommunication Union (ITU) and the GSMA suggests that a set of countries with the highest mobile prices as a share of GNI per capita is associated with relatively low penetration rates. For example, the Democratic Republic of the Congo and Niger have some of the highest voice and SMS prices as a share of GNI per capita in Africa with mobile penetration standing at 25% and 21% respectively, some of the lowest worldwide.

The UN Broadband Commission has suggested an affordability threshold of 5% of income for the cost of a 500 MB per month mobile broadband package. In contrast, in eight countries out of the 25 developing world markets in the sample for which cost and income distribution data are available the average cost is higher than the affordability threshold. Across the 25 countries, the average cost stands at 11.4% of average GNI per capita (8.1% excluding Niger, which is an outlier), more than double the threshold.

High prices affect those on lower incomes the most as the cost of a standardised consumption bundle of mobile broadband constitutes a higher proportion of their consumption basket. Mobile broadband costs represent over a third (37%) of the average annual income of the poorest 20% of the population, with 17 out of 25 countries above the 5% threshold. In both Chad and Niger, mobile broadband represents circa 200% of the annual income of the bottom 20% of the population.

The cost of mobile usage combines with the costs of mobile devices, such as smartphones, which also represent a significant share of the income of the poorest populations. A smartphone with basic internet features accounts for approximately 11% of average annual income of the poorest 20% of the population in India and 9% in South Africa, with the cost of a premium smartphone with more enhanced internet access amounting to over one quarter of income.

TAXATION HAS AN IMPORTANT IMPACT ON THE AFFORDABILITY OF MOBILE SERVICES

Whilst the price of mobile services is influenced by many variables, taxation is important. Many governments recognise the role of mobile in supporting digital connectivity and the related benefit for social development and economic growth, however the tax treatment of the sector is not always fully aligned to the objective of advancing connectivity, for example in cases where governments tax mobile operators and consumers more than other standard goods and services.

The poorest consumers, for whom digital access could deliver the greatest benefits, are often the most negatively affected by higher taxation. As the international development community issues a call to action to expand connectivity, governments may need to reconsider the adverse impacts of taxation on the consumption of mobile services and on connectivity, particularly in cases where it may have distortionary impacts.

Under specific assumptions on pass-through of tax to prices,¹ taxation could represent up to 30% of the cost of mobile broadband, with over 10% of the cost due to sector-specific taxes. Overall the cost of taxation would represent 3.1% of average GNI per capita and 9.9% for the bottom quintile.

SECTOR-SPECIFIC TAXES AND FEES ON OPERATORS AND CONSUMERS ARE NOT ALWAYS ALIGNED WITH BEST PRACTICE TAXATION PRINCIPLES

Sector-specific taxation may be seen as discriminatory and may have a distortive impact on the use of mobile services and thereby on economic and social development. Previous studies and new evidence from 30 developing world countries show that sector-specific taxation often does not follow the principles that institutions such as the International Monetary Fund (IMF) have identified to support an efficient and equitable tax structure:

- 1. Sector-specific taxes and fees on the mobile industry are not broad-based and may be seen as discriminating against this sector.** For the 30 developing countries considered in this study, tax and fee payments amounted to an estimated US\$ 52 billion in 2014, representing on average 29% of market revenues. About one third of these taxes and fee payments are sector-specific and not resulting from broad-based taxation: this amounts to an estimated US\$ 18 billion in sector-specific tax and fee payments.
- 2. Sector-specific taxes and fees are not equitable as the burden from this taxation tends to fall disproportionately on those with lower incomes.** Taxes and fees can be regressive, that is, have disproportionately greater impact on the poorest households where it raises the price of mobile services across the population without regard for capacity to pay. Certain sector-specific taxes and fees, such as activation and connection fees, are often imposed as a flat fee. These can be a barrier to mobile ownership and have a particularly regressive impact on the poorest households.

3. Sector-specific taxes and fees do not always explicitly account for the positive social and economic impacts of the mobile sector.

The positive externalities of mobile are well documented; for example, the World Bank has noted that “mobile applications not only empower individuals but have important cascade effects stimulating growth, entrepreneurship, and productivity throughout the economy as a whole”. Yet, mobile is often subject to additional consumer taxation, e.g. excise duties, akin to goods that create negative impacts on society. As a result of sector-specific taxes and fees, for most developing world economies in the survey sample where data is available, mobile tax and fee payments contribute more to government revenues than the industry’s share of the economy, on average nearly 1.8 times the industry’s share of Gross Domestic Product (GDP).

REDUCING SECTOR-SPECIFIC TAXES AND FEES HAS THE POTENTIAL TO INCREASE THE ADOPTION OF MOBILE SERVICES, SPUR INCLUSIVE GROWTH AND REDUCE POVERTY

Mobile services have the potential to support citizens to generate wealth, increase economic growth and make growth more inclusive and accessible to everyone. By reforming sector-specific taxes and fees, governments can play a key role in supporting the adoption of mobile services and related social and economic benefits. Further, by expanding the user base and usage of services, reductions in taxes and fees could be achieved while maintaining tax neutrality. This means the initial downward pressure on tax revenues, resulting from a reduction in sector-specific taxes and fees, could be offset by the increase in connections and usage along with increased economic growth in the medium-term.

A 50% reduction in sector-specific taxes and fees, amounting to approximately US\$ 9 billion in total payments from US\$ 52 billion to US\$ 43 billion, could potentially add around 140 million new connections over 5 years, an increase in market penetration of 5% with associated economic and social benefits.

¹ The results are an upper bound as they assume that all mobile tax and regulatory fee payments are passed through to consumer prices, and that the proportion of tax payments over total market revenues across all mobile services represents the proportion of taxes in prices across all mobile services, including mobile broadband.

01

SCOPE OF THE REPORT

The GSMA and Deloitte have partnered over a number of years to examine taxes and fees applying to mobile services.² This report focuses on the impact of taxes and fees on the affordability of mobile services and the barriers this creates to wider adoption, especially amongst so called “bottom of the pyramid” consumers, i.e. the poorest households within a country.

Affordability of mobile services is driven by the total costs of mobile ownership, which includes both the price of usage (cost of calls, SMS and data) as well as the price of digital devices. Prices are affected by a number of factors, such as the market dynamics within a country, level of competition, service costs, as well as taxes and fees levied on both consumers and operators. Sector-specific taxes and fees in particular have significant impacts on the consumption of services and on the incentives for investment for mobile operators.

Many of the taxes and fees on the mobile sector are sector-specific and mean that in numerous developing world economies, the mobile sector is taxed disproportionately compared to other goods and services, and also relative to the sector’s contribution to the economy. This is despite the positive economic and social value of bringing mobile and internet connectivity to the unconnected and facilitating access to information and knowledge.

This report reviews taxes and fees applied to mobile services in 30 countries across the world for which mobile operators have provided detailed data on recurring tax and regulatory fee payments (such as licence and spectrum usage fees), including identifying whether payments result from general taxation or from sector-specific taxation.³ One-off payments for spectrum, such as auction payments, have not been considered in this report.

The 30 countries included in the analysis are: Argentina, Bangladesh, Brazil, Chad, Colombia, Democratic Republic of the Congo (DRC), Dominican Republic, Ecuador, Egypt, Guatemala, India, Indonesia, Jamaica, Jordan, Madagascar, Malaysia, Mexico, Morocco, Niger, Nigeria, Nepal, Pakistan, Peru, Rwanda, South Africa, Tanzania, Thailand, Tunisia, Turkey, and Uruguay.

These countries have been selected by the GSMA to be representative of the range of consumer and mobile operator taxes and fees across different regions of the world. The focus is on developing world economies, where the majority of the unconnected population is located. Consumer taxes, such as excise taxes, are considered together with mobile operator taxes and regulatory fees, as they all affect prices charged to consumers and ultimately affordability. For comparative purposes, the report also reviews five developed economies. These are Greece, Hungary, Italy, Spain, and the United Kingdom.

Direct consumer taxes and fees were reviewed for a broader sample of 77 additional countries selected in line with Deloitte’s previous studies, e.g. Deloitte/GSMA (2015): “Digital Inclusion and mobile sector taxation”. Forty-five out of the 112 countries included in this wider survey sample impose sector-specific taxes and fees on consumers. These countries are listed in Table 3 in Appendix A.

² See e.g. Deloitte/GSMA (February 2014): “Mobile taxes and fees, A toolkit of principles and evidence” and Deloitte (October 2015): “Digital inclusion and mobile sector taxation in the Democratic Republic of the Congo”. For a complete list of studies see footnote 56.

³ See Appendix A for more details on the methodology adopted.

02

THE IMPORTANCE
OF CONNECTIVITY

Digital connectivity is a critical enabler of economic and social development as has been recognised in the recent United Nations (UN) Global Goals. According to UN's Secretary-General Ban Ki-moon:

“Broadband connectivity is a transformative tool to achieve the three pillars of sustainable development – economic growth, social inclusion and environmental balance. It is a key element for the post-2015 development agenda.”⁴

Jan Eliasson, Deputy Secretary-General of the United Nations, recently added that:

“Information and Communication Technologies (ICT) are essential features of progress in modern life: ICTs play a key role in delivering everything from clean water and power supplies, to education and healthcare. ICTs are essential in providing good governance and public services. ICTs are essential in reducing poverty and inequality, and ensuring the inclusion of marginalised groups. ICTs are essential in preserving our environment and our cultural diversity. And ICTs are essential in driving entrepreneurship, innovation and economic growth.”⁵

For the vast majority of the unconnected population, mobile is the only source of digital connectivity. Affordability of mobile services, along with network coverage, digital literacy skills and locally relevant content, remains a key barrier to the adoption of mobile services. The cost of both mobile ownership and usage is influenced by many variables, including sector-specific taxes and fees applied on consumers and mobile operators. While over the last fifteen years there has been significant increase in mobile access and use worldwide, there are still hundreds of millions of people who remain unconnected and cannot access the benefits of digital inclusion.

Earlier studies have discussed in detail the economic and social benefits of mobile and digital inclusion:

- Mobile services provide the most cost-effective way of achieving digital inclusion and, by facilitating the exchange of ideas and information, can support a move towards a knowledge-based economy.⁶
- By enabling businesses and governments to deliver their services faster, and at a lower cost, mobile services increase productivity in the public and private sector. The reduction in transaction costs makes it easier for mobile subscribers to conduct everyday business operations, supporting the expansion of businesses and enterprises.⁷
- Through wider effects on the economy, this helps to increase living standards and improve international competitiveness.⁸

4. <http://www.itu.int/en/wtisd/2014/Pages/ki-moon.aspx>.

5. <http://www.un.org/sg/dsg/statements/index.asp?nid=551>.

6. World Bank (2009), The four pillars of a knowledge-based economy.

7. Goyal, A. (2010); “Information, Direct Access to Farmers, and Rural Market Performance in Central India.” in American Economic Journal: Applied Economics, Vol. 2, pp22-45 or Jensen, R. (2007): “The Digital Divide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector,” in The Quarterly Journal of Economics, Vol. 122, pp879-924.

8. World Bank (2012): “Maximise Mobile”, ITU (2012): “Why Mobile Phones Drive Economic Growth in the Developing World” available at <http://www.itu.int/ITU-D/ict/newslog/Why+Mobile+Phones+Drive+Economic+Growth+in+The+Developing+World.aspx>, Aker, J.C. and Mbiti, M. (2010): “Mobile Phones and Economic Development in Africa”, Journal of Economic Perspectives, Vol. 24, pp207-232.

Mobile can also enable more effective delivery of public services and support social development. There exists a wealth of mobile applications, such as m-Education, m-Agriculture and m-Health, which have the potential to bring significant socio-economic benefits to remote and under-served areas, through m-Government initiatives and by delivering access to knowledge and skills in a variety of sectors⁹:

- In Bangladesh, for example, a large-scale mobile-based English teaching tool, BBC Janana, has effectively transformed mobile phones into a low-cost educational tool. Users can dial a short code and access bi-lingual audio-lessons and also test their English language skills through their mobile phones.¹⁰
- Nano Ganesh in India¹¹ allows farmers to use mobile phones to remotely operate irrigation pumps while mobile health monitoring services. In Mexico, Mi bebe¹² allows health practitioners to remotely monitor women with high-risk pregnancies, provide warnings of abnormalities and direct women to specialised clinics when needed.

Various studies have found a positive impact of increased mobile penetration on economic outcomes, such as the growth of Gross Domestic Product (GDP):

- A study by the World Bank found that in developing economies every 10% increase in broadband subscriber penetration accelerates economic growth by 1.38%.¹³
- Increased broadband penetration has been found to have positive impacts on productivity. A study on developed countries found that for every 1% increase in broadband penetration, productivity grows by 0.13%.¹⁴
- Broadband may also have a positive effect on employment. An ITU study found that a 1% increase in internet broadband penetration increases the employment rate by 0.028%.¹⁵
- Positive impacts on health and reduced mortality rates may also result from increase mobile penetration. A study in India found that child mortality rates decreased faster in villages that had access to internet kiosks than in villages that lacked such access. Internet access allowed women to receive specific health information during and after pregnancy.¹⁶

2.1 Barriers to connectivity

While significant progress has been made to extend connectivity worldwide, out of 3.2 billion people in the sample of 30 developing countries there were still 1.6 billion people who lacked access to basic mobile telephony services in 2014.¹⁷ The mobile internet gap was even larger: 2.3 billion people in the sample did not have access to mobile internet in 2014. Mobile penetration rates¹⁸ vary considerably between countries and regions. While basic mobile telephony penetration is above 50% in most countries outside Sub-Saharan Africa and South Asia, mobile internet penetration was above 50% for only four countries in the sample, suggesting that only a minority of people can access mobile internet services.

9. E.g. GSMA/Deloitte (2015): "Digital Inclusion and Mobile Sector Taxation in Bangladesh" or Deloitte/GSMA (2015): "Digital inclusion and mobile sector taxation in Tunisia". For a complete list of studies see footnote 56.

10. <http://www.bbcjanana.com/>.

11. <http://www.nano-ganesh.com/>.

12. <http://www.mibebeoyo.com/>.

13. Qiang, C.Z.W., Rossotto, C.M. (2009): Economic Impacts of Broadband, in Information and Communications for Development 2009: Extending Reach and Increasing Impact, World Bank, Washington D.C., pp35-50.

14. Waverman, L. (2009): "Economic Impact of Broadband: An Empirical Study".

15. ITU (2012): "Impact of Broadband on the Economy".

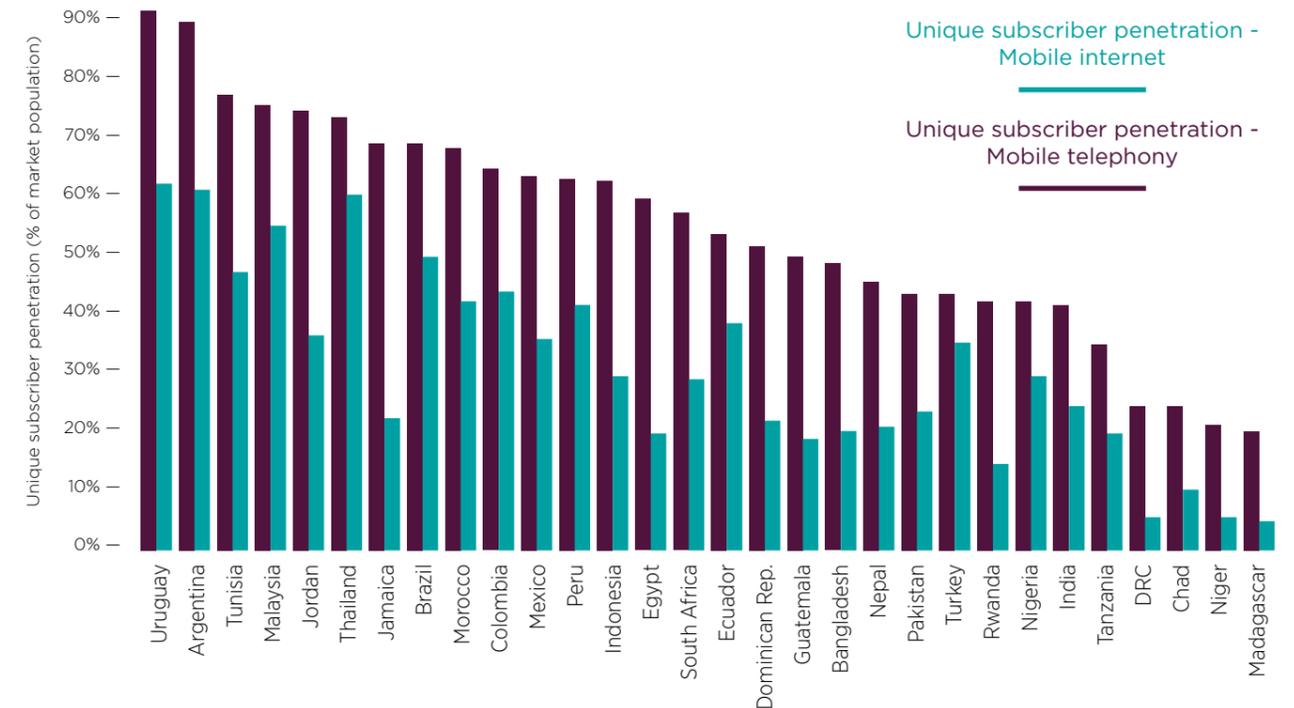
16. Venkatesh, V. and McGowan, M. (2011): "Internet kiosks help reduce infant mortality rates".

17. Table 5 in Appendix A lists the number of unconnected per country, for basic mobile telephony and mobile internet.

18. Defined as unique subscribers as a proportion of the market population (those aged 15-64 years).

Figure 1

Unique subscriber penetration of mobile services in selected developing world countries, 2014



Source: Deloitte analysis using GSMA Intelligence data.

There are a number of barriers to extending connectivity in developing countries:

- **Lack of network infrastructure.** The presence of a mobile network is essential to expanding digital inclusion. Whilst, globally, 90% of people live within the range of a 2G network, only 73% are within range of a 3G network.¹⁹ According to figures from the ITU, 3G network coverage for rural populations is only 29%.²⁰
- **Low affordability.** The cost of mobile ownership is determined by the cost of service usage (i.e. cost of calls, SMS and data) and by the cost of service access (i.e. the price of handsets and other digital devices). These costs represent a barrier to the uptake of mobile services.
- **Low levels of literacy and digital skills.** A lack of basic and digital literacy skills can make it challenging for consumers to be able to use mobile devices and services and can also negatively impact their awareness of online services and their potential benefits.
- **Lack of local content.** Content that is relevant to the local population is crucial in stimulating mobile internet adoption.

This report focuses on the affordability of mobile connectivity and the role played by taxation.

19. GSMA (June 2015): "Closing the coverage gap - a view from Asia".

20. ITU (2015): Measuring the Information Society 2015.

03

CONNECTIVITY, AFFORDABILITY AND TAXATION

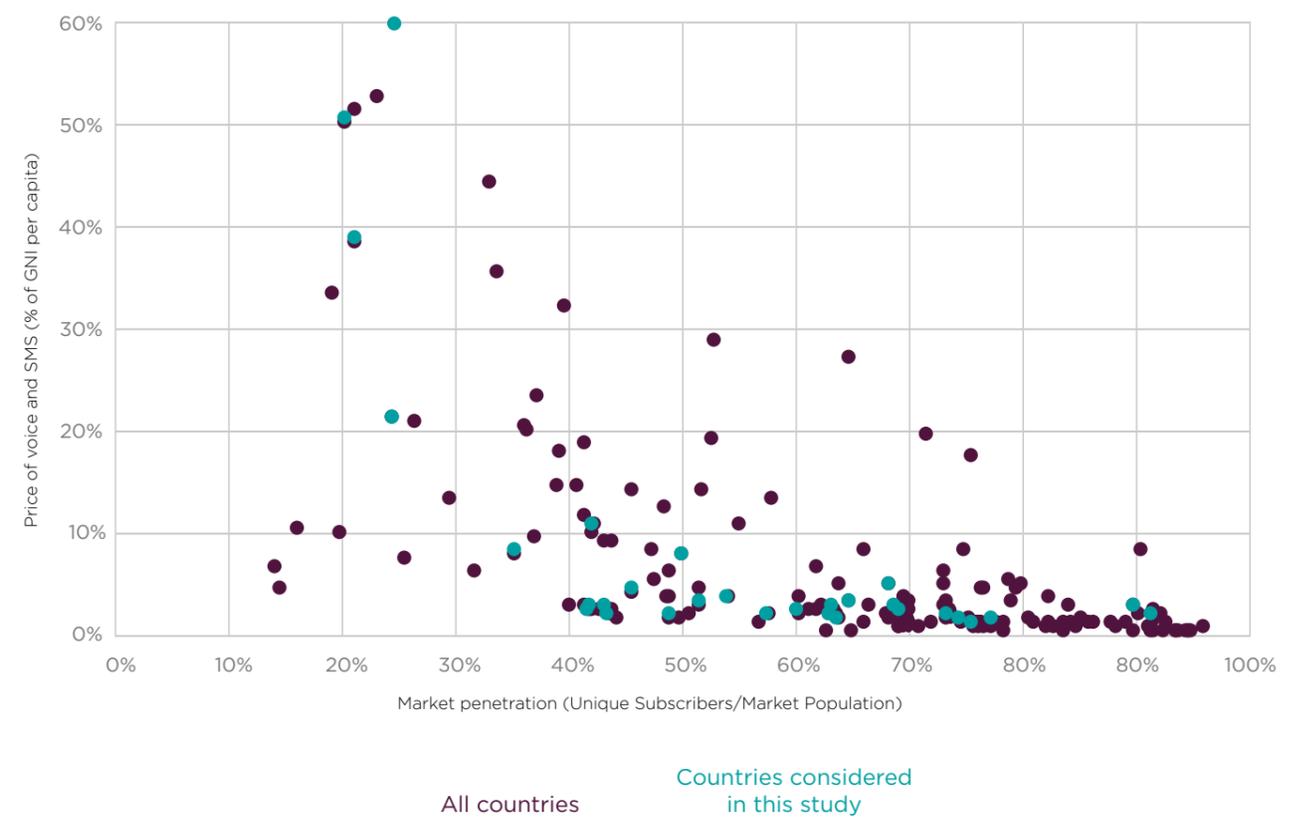
3.1 Affordability and mobile penetration

The focus of this study lies with affordability, one of the key barriers to greater digital inclusion. The price of mobile services as a share of Gross National Income (GNI) per capita is used as a measure of mobile affordability in a country. Looking across countries with available data, a set of countries with the highest mobile prices as a share of GNI per capita is associated with relatively low penetration rates.²¹ This applies at global level as well as within the sample of 30 countries studied.

For example, in the Democratic Republic of the Congo and Madagascar, countries with the highest price of mobile voice and SMS as a share of GNI per capita at 60% and 50% respectively, total unique subscribers penetration stands at 25% and 20%. These countries are also the poorest countries in the study sample.

Figure 2

Affordability of mobile voice and SMS and unique subscriber penetration, 2014

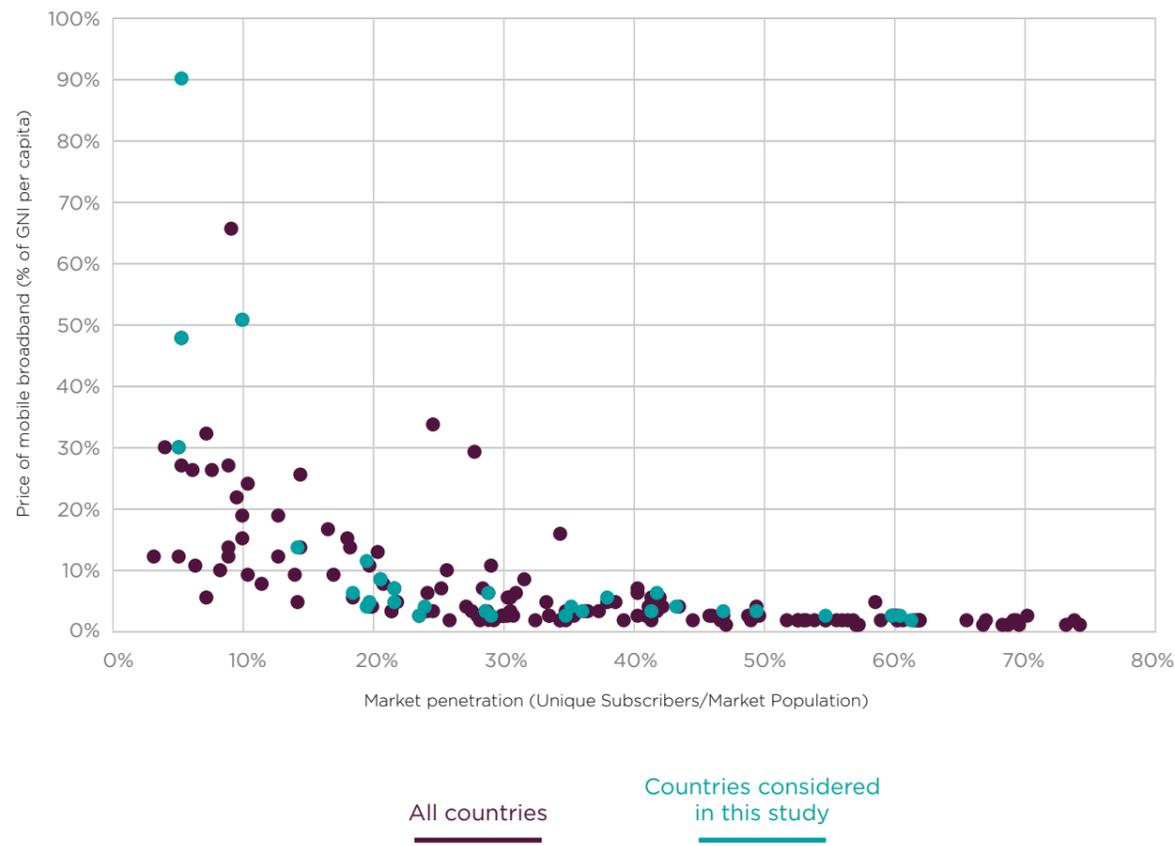


Source: Deloitte analysis based on ITU, World Bank and GSMA Intelligence data. The price measure developed by the ITU is a standard basket of mobile usage and includes calls and SMS messages. See footnote 66 in Appendix A for a detailed description. The sample includes 166 countries for which data was available. Turquoise marks indicate the 30 developing countries considered in this study.

21. Penetration rates are measured for total connections, unique subscribers and mobile internet subscribers as the total number of connections, unique subscribers and mobile internet subscribers respectively as a proportion of the market population, defined as those aged 15-64 years. Unique subscribers refer to unique users who have subscribed to mobile services, while connections refer to unique SIM cards / phone numbers that have been registered on the mobile network. Subscribers differ from connections such that a unique user can have multiple connections.

As illustrated in Figure 3, Niger and Chad have the highest price of mobile broadband as a share of GNI per capita at 89% and 50% respectively, while total subscriber penetration stands at 5.5% and 10.1%.²²

Figure 3
Affordability of mobile broadband and broadband unique subscriber penetration, 2014²³



Source: Deloitte analysis based on ITU and GSMA Intelligence data. The price of mobile broadband refers to the weighted average price of pre-paid and post-paid services for 500 MB. See the Appendix for more details. The sample includes 157 countries for which data was available. Turquoise marks indicate the 30 developing countries considered in this study.

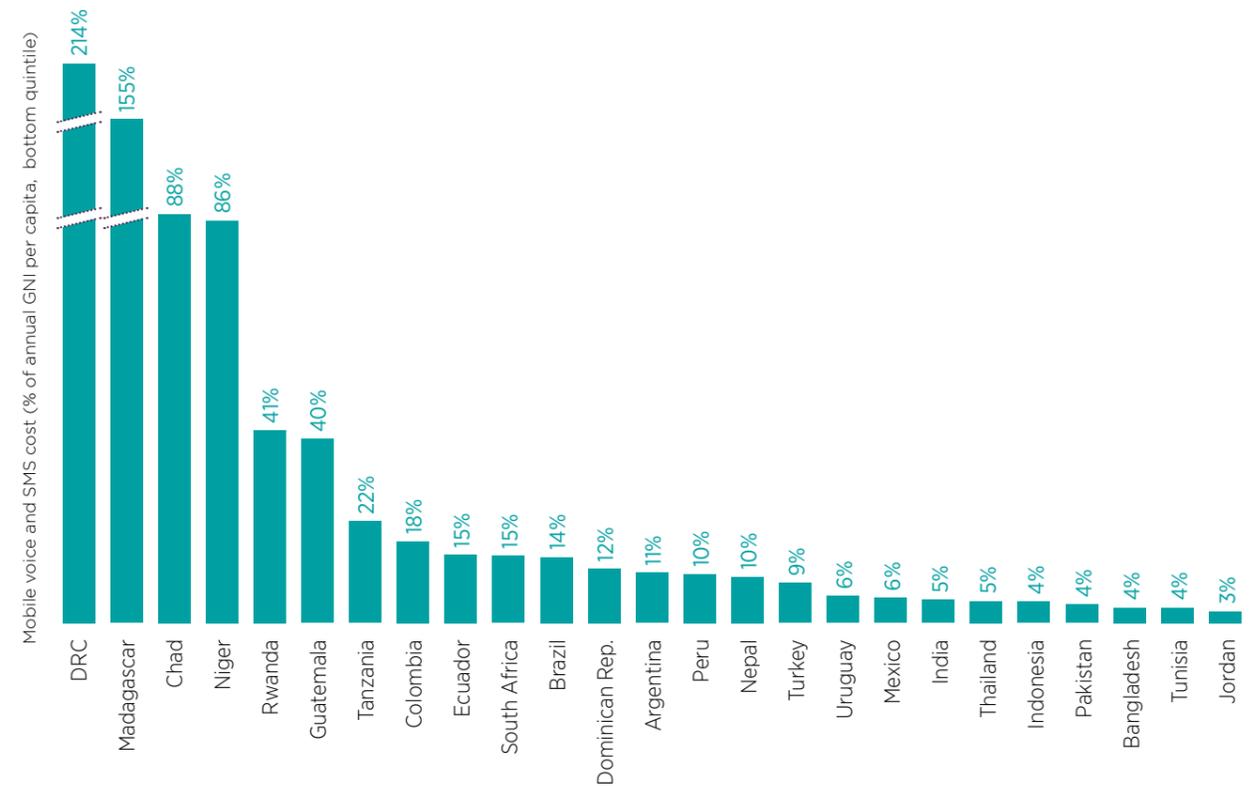
²² Price data for 2014 come from the ITU (2015) Measuring the Information Society 2015, penetration data for the same period come from GSMA Intelligence.
²³ This penetration rate considers subscribers to mobile internet, which includes subscribers to 2G services.

3.2 Affordability creates barriers for the unconnected, especially for those at the “bottom of the pyramid”

Affordability of both mobile devices and usage can be a significant obstacle particularly for the “bottom of the pyramid”. High prices affect those on lower incomes the most as mobile services constitute a higher proportion of their consumption basket. Therefore addressing affordability issues is key to achieving greater penetration and extending mobile services to the unconnected in developing countries.

The price of voice and SMS services is 9.4% of the average GNI across the sample of 25 developing countries for which data is available (5.4% excluding the DRC and Madagascar). However, for the bottom quintile, this is equivalent to 32% (19% excluding the DRC and Madagascar), ranging from 3% in Jordan to 214% and 155% in the DRC and Madagascar respectively.

Figure 4
Affordability of mobile voice and SMS services for the bottom income quintile in selected developing countries



Source: Deloitte analysis based on data from ITU and the World Bank. The graph includes 25 developing countries where 2014 data was available.



The Broadband Commission for Sustainable Development, an organisation created by the International Telecommunication Union (ITU) and the UN to boost the importance of broadband on the international policy agenda,²⁴ argues that “entry-level broadband services should be made affordable in developing countries”, defining affordability as costs for 500 MB being less than 5% of average monthly income.²⁵

Based on data from the ITU on mobile broadband costs across the 25 developing world economies in the survey sample for which data is available,²⁶ in eight countries the cost is above the Broadband Commission’s affordability threshold. Across the 25 countries, the price of mobile broadband represents on average 11.4% of the average annual income for the population, more than double the 5% threshold.

The cost of mobile broadband, however, represents a larger share of the annual income of the poorest households for a given consumption basket.²⁷ The price of mobile broadband constitutes on average 37% of the annual income for the poorest 20% of the population, much higher than the Broadband Commission’s 5% threshold. In Chad and Niger, for example, the cost amounts to circa 200% of average annual income.²⁸ In total, the cost of mobile broadband is above the 5% threshold for the bottom quintile of the population in 17 out of the 25 countries in the survey sample as shown in Figure 6 in Box 1 below, for which cost and income distribution data was available.

24. <http://www.un.org/apps/news/story.asp?NewsID=44220#VpYebfmLTIU>

25. The Broadband Commission set a target for affordability of entry-level broadband services amounting to less than 5% of average monthly income. The Broadband Commission (2011): “Broadband Targets for 2015”, http://www.broadbandcommission.org/Documents/Broadband_Targets.pdf.

26. Of the original 35 countries in the sample, data for both mobile prices and income distributions was available for 29 countries, of which 25 are developing countries.

27. The cost of mobile services and mobile broadband as a share of annual average income for the bottom quintile was calculated by i) compiling 2014 price data from the ITU (2015) Measuring the Information Society 2015 report, ii) compiling data on Gross National Income (GNI) for 2014 and national income shares per quintile from the World Bank and calculating the GNI per capita in the bottom quintile. World Bank data on income shares is not available on a year-on-year basis, hence the latest year with data available was used in the analysis. All prices refer to 2014. See the Appendix A for further details.

28. The result is driven by the level of mobile prices compared to incomes in Chad, Niger and the DRC. Although the results stand out in the sample of 25 developing countries, other countries, such as Malawi or Mozambique that are not in the sample, also have similarly higher prices. See, for example, <http://www.bbc.co.uk/news/world-africa-31533397>.

Box 1: An illustrative example of the impact of taxes and fees on prices

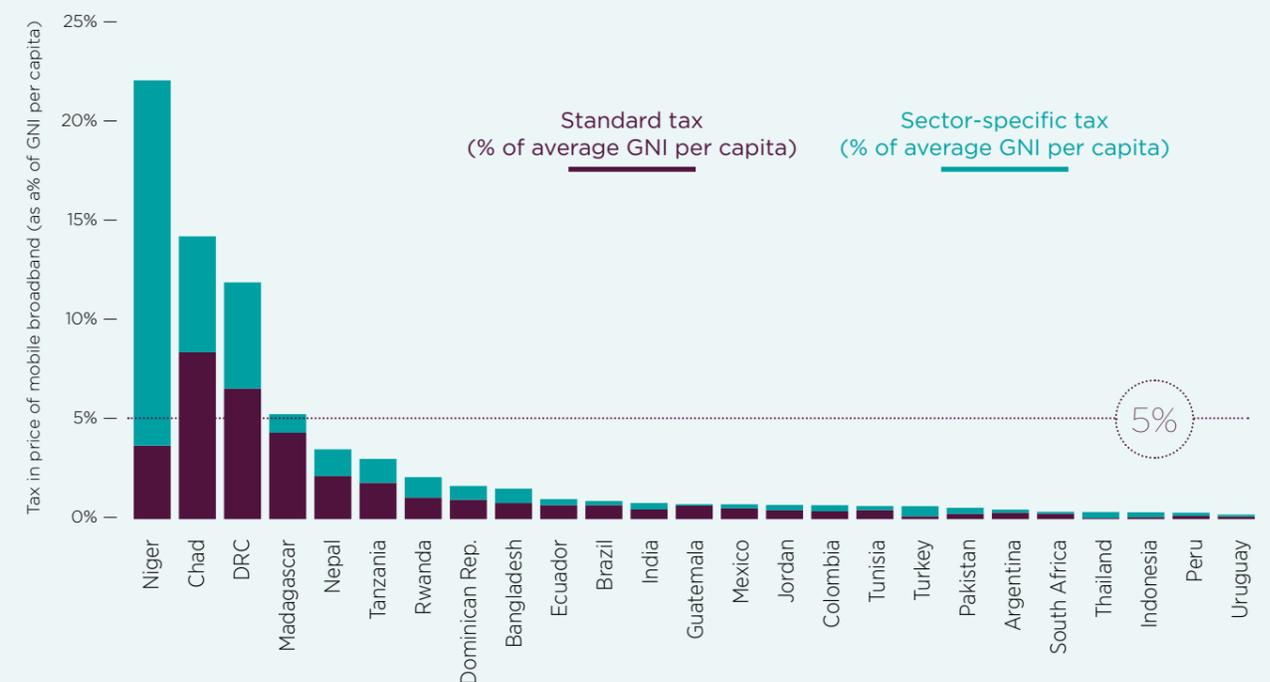
Mobile taxation potentially contributes to the cost and the affordability barrier to mobile services. Based on tax payments data provided by mobile operators for a sample of 30 developing world countries, which is presented later in this report, impacts of the reduction in sector-specific taxes and fees are modelled. As an illustration, assuming that all mobile tax and regulatory fee payments are passed through to consumer prices, and that the proportion of tax payments over total market revenues across all services represents the proportion of taxes in prices across all mobile services, including mobile broadband, Figure 5 illustrates the potential tax component of the cost of mobile broadband.

Under these stringent assumptions, which may not hold for any given country, tax would represent 30% of the cost of mobile broadband, while 10% of the cost would be due to sector-specific taxes. The cost of taxation on mobile broadband could amount to 3.1% of GNI per capita for the average income, ranging from 23% in Niger and 3.6% in Nepal to 0.1% in Uruguay.

This is an illustrative example only, as in reality, tax and regulatory fee payments will be passed through to consumers at varying levels across countries and across products depending on market conditions. Mobile taxation and sector-specific taxation is discussed in more detail in the following sections.

Figure 5

Illustrative share of tax in the price of mobile broadband as a proportion of average income in selected developing countries, 2014

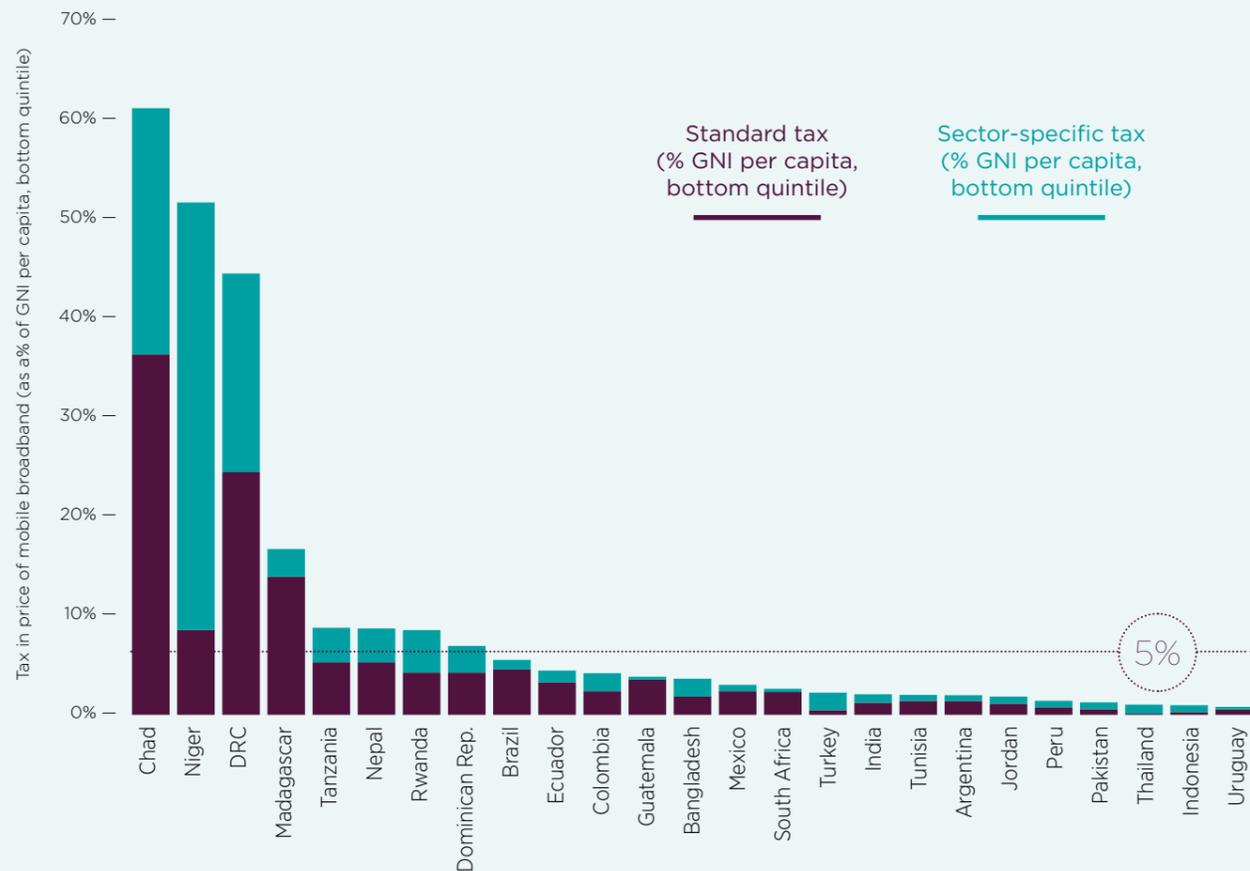


Source: Deloitte analysis based on data from ITU (Measuring the Information Society 2015) and the World Bank. The graph includes 25 developing countries where 2014 data was available.

Box 1: An illustrative example of the impact of taxes and fees on prices

Under the same set of assumptions considering all taxes and fees would represent 9.9% of GNI per capita for the bottom income quintile, as illustrated in Figure 6. Of this, approximately a third is due to sector-specific taxes. The figure reaches over 61% in Chad, around 9% in Tanzania and Nepal and approximately 4% in Ecuador and Colombia.

Figure 6
Illustrative share of tax in the price of mobile broadband as a proportion of income for the bottom quintile in selected developing countries, 2014

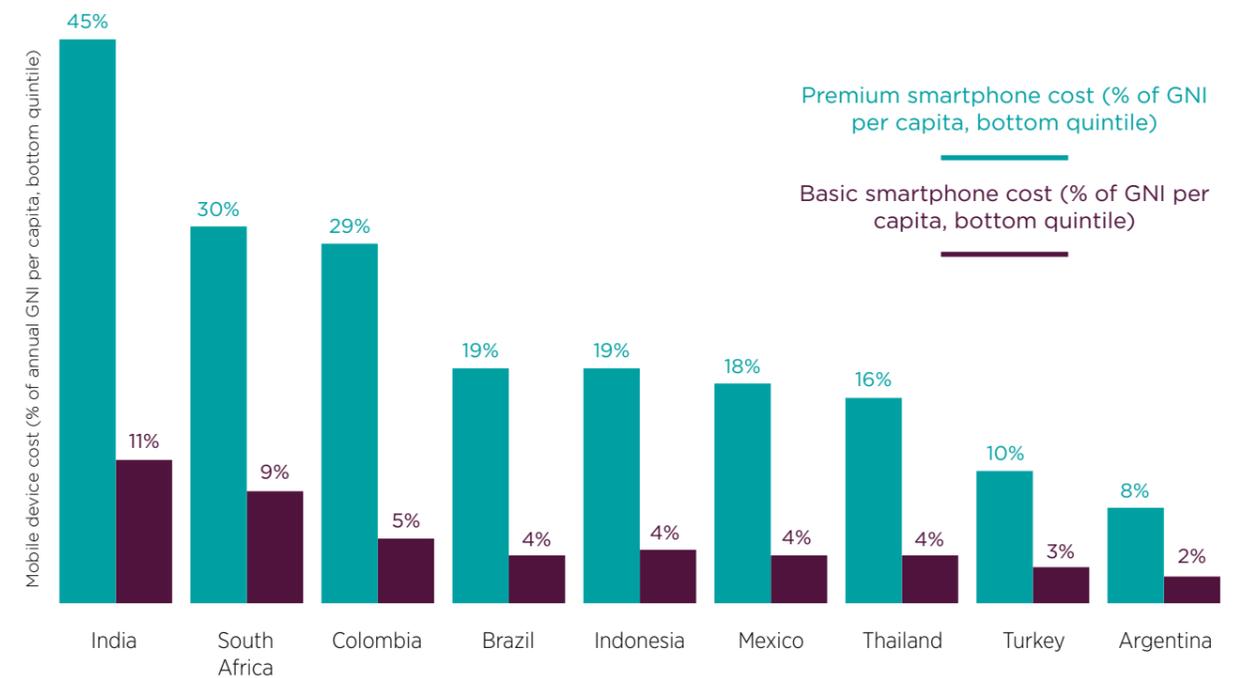


Source: Deloitte analysis based on data from ITU (Measuring the Information Society 2015) and the World Bank. The graph includes 25 developing countries where 2014 data was available.

3.3 The cost of handsets and other digital devices is also a key barrier to connectivity

Accessing mobile telephony and mobile broadband requires owning a mobile device. Often, this cost needs to be paid upfront and can represent a significant barrier for those on low incomes. The cost of purchasing a basic smartphone device is as high as 5% of average annual income for the poorest 20% of the population in nine developing countries in the sample for which data is available.²⁹ The cost of purchasing a premium smartphone device³⁰ accounts on average for 21% of annual income for the poorest 20% in these countries. In India and South Africa, for example, the cost of a basic smartphone accounts for about 11% and 9% of average annual income of the poorest 20% of the population respectively, while a premium smartphone accounts for 45% and 30% average annual income respectively.

Figure 7
Affordability of handsets for the bottom income quintile, 2014



Source: Deloitte analysis based on data from desktop research and the World Bank. The graph includes nine developing countries where 2014 data was available.

In addition to the affordability challenges of mobile voice, SMS and broadband, this further limits access to internet connectivity and digital inclusion.

²⁹ A basic smartphone device is defined as a voice-centric device, having support for data services, such as basic Internet capabilities, although it does not provide a fully integrated experience across the device. It is likely to have basic cellular connections and not have a lot of support for content creation (ITU, 2014: Measuring the Information Society 2014).
³⁰ A premium device is defined as a device going beyond traditional services such as voice and messaging by integrating data services across the device. It supports rich features to provide high-quality internet access away from the home or office. Wide content creation is not supported; however, consumption will be better than with other phone devices, though still limited. (ITU, 2014: Measuring the Information Society 2014).

04

SECTOR-SPECIFIC TAXATION ON THE MOBILE INDUSTRY GLOBALLY

4.1 The impact of consumer and operator sector-specific taxes and fees on affordability

Taxes and fees on mobile services affect the affordability of access and usage. The prices of most goods and services are affected by taxation directly through general sales taxes such as Value Added Tax (VAT), or indirectly through taxes and fees applying to the providers of goods and services, by increasing the cost of purchasing a service. Deloitte and the GSMA have described in a number of reports³¹ how taxes and fees, especially in developing markets, are often imposed on mobile services in a way that seems disproportionate compared to other services through sector-specific tax and fees. Examples of these taxes and fees are summarised below and in Table 6 in the Appendix.

Figure 8

Mobile consumer and operator taxes and fees

TAXES ON CONSUMERS			OPERATOR TAXES AND FEES		
TAX BASE		TAX TYPE	TAX BASE		TAX TYPE
Handsets and other devices		Sales tax	General taxes	Profits	Corporation tax
		★ Luxury contribution / special taxes		Revenues	Turnover tax
		Customs duty		Other revenue taxes	
			Network equipment	Customs duty	
Services	Activation	Sales tax	Regulatory fees and other payments	Fixed amounts	★ One-off license fee
		★ Luxury contribution / special taxes			★ One-off spectrum fee
	Usage	Sales tax	Revenues	★ Universal Service Obligation	
		★ Luxury contribution		★ Variable license fee	
			★ Variable spectrum fee		

★ Mobile-specific

Source: Deloitte analysis based on operator data.

31. E.g. Deloitte/GSMA (February 2014): "Mobile taxes and fees, A toolkit of principles and evidence" or Deloitte (February, 2015): "Digital Inclusion and Mobile Sector Taxation in Bangladesh". For a complete list of studies see footnote 56.

A key difference between the tax treatment of mobile services and other standard goods and services is the application of sector-specific taxes and fees levied on consumers and mobile operators, which either apply exclusively to mobile or at higher rates than other sectors. Historically, in some developing world markets, mobile services and mobile devices have been treated as luxury goods, and have attracted a higher rate of tax than other standard goods. Additionally, as a result of the visibility of mobile transactions through transparent billing systems, in countries with large informal economies mobile operators have been easier to target for tax and fee collection purposes.

The industry also makes payments to secure access to radio spectrum, a vital element in the provision of mobile services. While spectrum fees, often paid upfront by mobile operators as part of spectrum award processes, are meant to reflect the value that mobile operators generate from using a scarce resource, sector-specific taxes and fees are often set over and above these payments.

Taxes and fees on both consumers and mobile operators may reduce affordability and the incentives for investment, and they affect consumers directly or indirectly. Some taxes and fees may be absorbed by mobile operators in the form of lower profits, which in turn can reduce investment incentives for mobile operators, whilst others may be passed through in terms of higher prices for consumers, or a combination of the two.

4.2 Sector-specific taxes and fees on operators and consumers are not always fully aligned with the best practice taxation principles

Taxation best practice rests on a number of principles minimising the potential inefficiencies associated with taxation and the distortive impacts that taxes and fees may have on the wider economy. These principles include a broad-based application, equity, transparency and simplicity, and are supported by international organisations such as the International Monetary Fund (IMF).³²

The nature of sector-specific taxes and fees and their application diverges from best practice taxation principles. As a result, this leads to the sector contributing over and above its size and it also generates a number of potential distortions to the economy and may adversely impact economic and social growth.

Table 1

Established principles of taxation

PRINCIPLE	DESCRIPTION
Taxation should be broad-based	Taxation alters incentives for production and consumption, and so economic distortions will generally be minimised where taxation is spread evenly across the economy. In practice, this equates to adopting broadly defined bases for taxation, rate variations that are limited and effective enforcement of tax compliance.
Taxes should account for sector and product externalities	The case for taxation to address negative externalities such as those arising from tobacco consumption is well recognised. However, the same logic also applies in the case of sectors and products with positive externalities. Taxation policy should encourage sectors, such as mobile, that create positive externalities in the wider economy.
The tax and regulatory system should be simple, easily understandable and enforceable	A lack of transparency over taxation systems and liabilities may deter investors and is also likely to increase enforcement costs for government.
Different taxes have different economic properties	There is a general consensus that, for most products, a broad-based consumption tax will be less distorting than taxation on income or profits.

Source: Deloitte/GSMA (2014): "Mobile taxes and fees, A toolkit of principles and evidence".

A review of taxation applying to consumers and mobile operators in the 30 countries analysed in this study suggests that sector-specific taxes and fees do not always align to all of these principles.

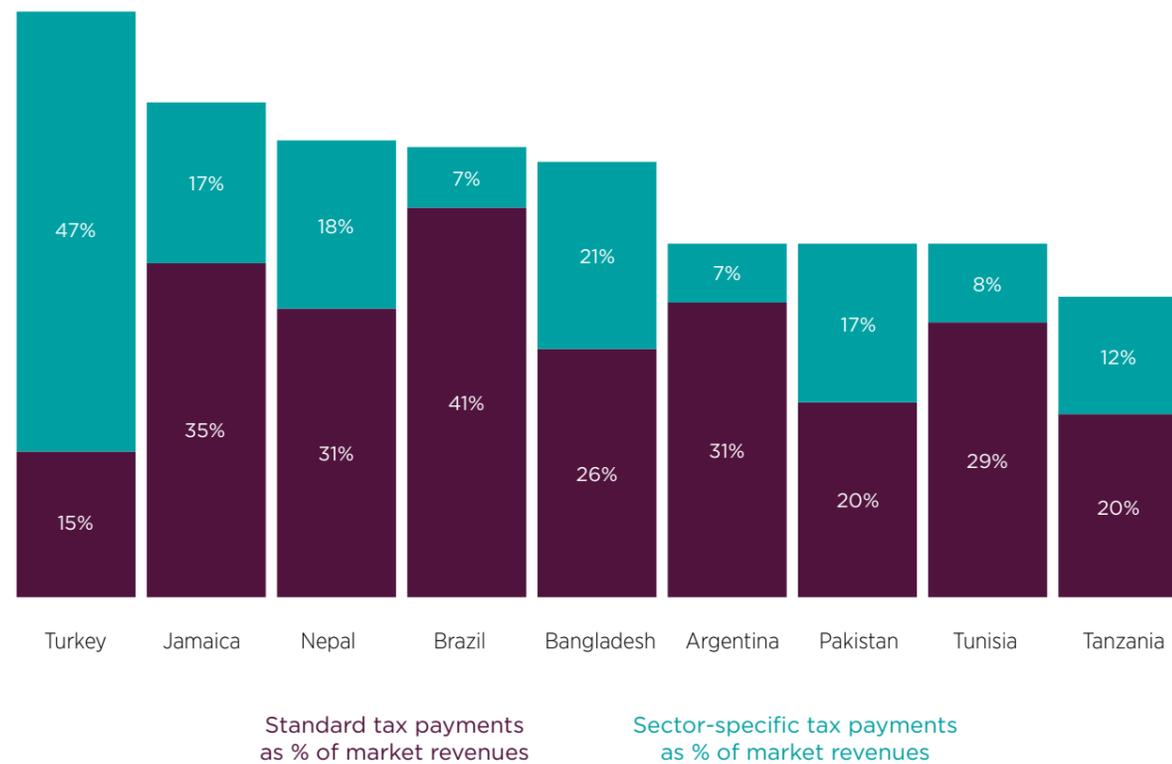
32. IMF, Tax policy for developing countries, 2001.

SECTOR-SPECIFIC TAXES AND FEES ON THE MOBILE INDUSTRY ARE NOT BROAD-BASED AND DISCRIMINATE AGAINST THE SECTOR

In 2014, mobile operators in the 30 developing world countries paid an estimated US\$ 52 billion in taxes and fees to governments, representing on average 29% of market revenues.³³ Of these, an estimated 35% of tax and fee payments by the mobile sector are sector-specific and not resulting from broad-based taxation: this amounts to US\$ 18 billion in sector-specific tax and fee payments.

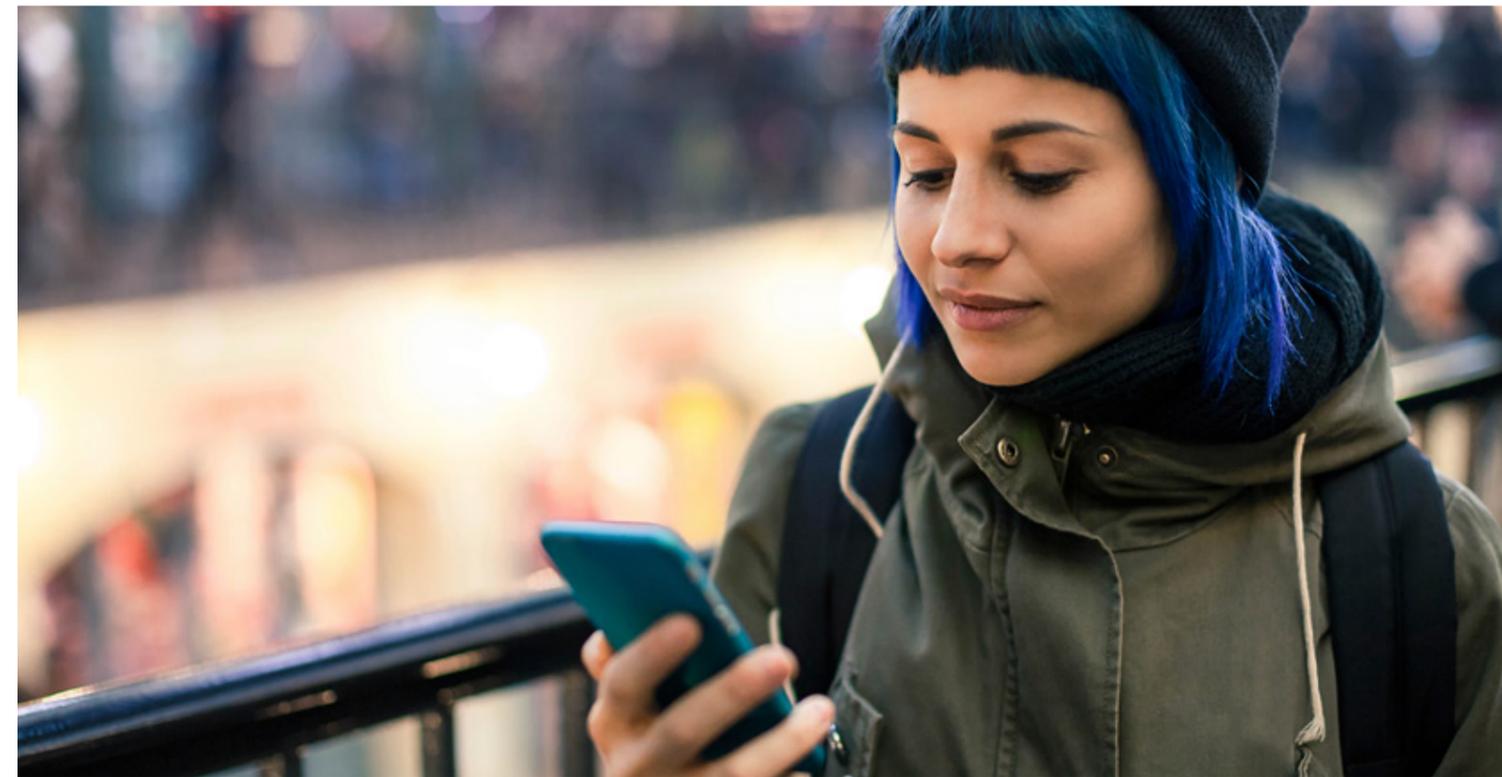
Figure 9

Estimated tax and fee payments as a proportion of market revenues across selected countries, 2014



Source: Deloitte analysis based on mobile operator and GSMA Intelligence data for 2014.

³³ Calculations are dependent on data supplied by mobile operators and reflect only information made available to Deloitte in preparing this study. The estimate of 29% represents a simple average of 30 countries reviewed.



Specifically, across some of these countries:

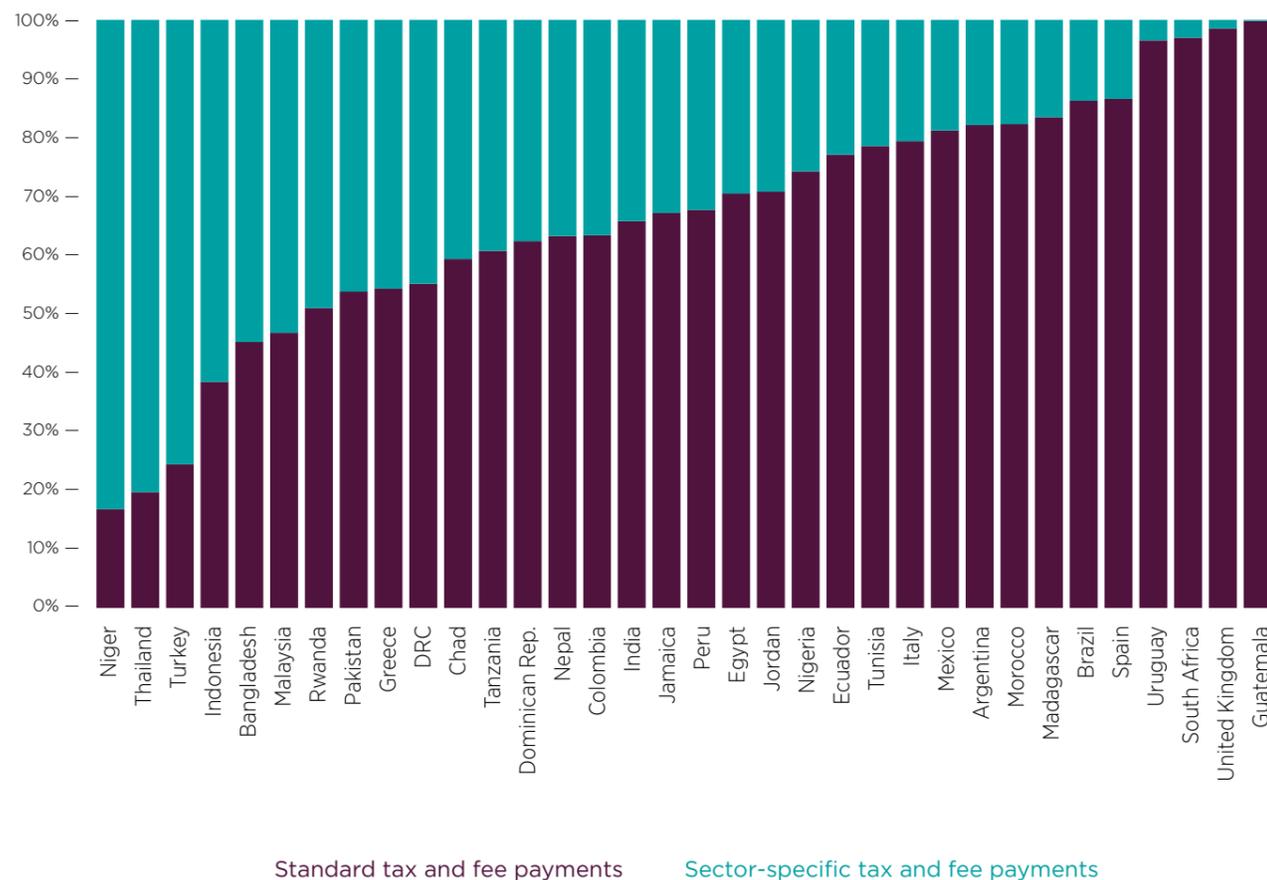
- In Turkey mobile tax and fee payments represent 62% of sector revenues, with the majority in relation to sector-specific taxation. Mobile operators in Turkey pay a 15% tax on revenues, divided into a 13.5% revenue share tax and 1.5% Universal Service Contribution. A special telecommunication tax of 25% is levied on calls, SMS, and mobile devices while a lower rate of 5% applies to data usage. In addition, consumers pay an initial subscription charge of TRY 40 (US\$ 18.3) and a wireless licence fee activation charge of TRY 16.3 (US\$ 7.5) upon purchase of a connection, and an annual wireless usage fee of TRY 16.3 (US\$ 7.5). The rates are adjusted every year according to inflation.
- In Nepal mobile operators pay a Telecom Service Charge on revenues from calls and SMS, of which the rate was increased to 11% from 10% in 2015, a Rural Telecom Development Fund of 2% of revenues, and an Ownership tax of 2% on SIM cards and recharge cards.
- Several sector-specific fees are levied on mobile operators in Brazil. An inspection fee, FISTEL, is levied on the inspection of mobile phones and network equipment, and mobile operators pay fees for two telecommunication funds, FUNTTEL and FUST, at 0.5% and 1% of revenues respectively.
- Mobile operators in Bangladesh pay a higher sector-specific corporate tax of 40%, compared to the standard of 27.5%. In 2014, mobile operators paid a SIM tax of BDT 300 (US\$ 3.9) on new SIMs and BDT 100 (US\$ 1.3) on replacement SIMs. While the rate was made symmetrical for new and replacement SIMs at BDT 100 (US\$ 1.3) per SIM card in 2015, the budget of 2015-2016 established a new excise duty on mobile services of 3% of revenues.
- Jamaican mobile operators pay a 20% import duty on network equipment, a special telephone call tax of JMD 0.4 (US\$ 0.004) per minute of call as well as a Universal Service Contribution.

Figure 10 outlines composition of taxes and fees in selected markets, differentiating between standard taxation and taxes and fees that fall specifically on the mobile market.

- Sector-specific taxes and fees account for over half of total tax and fee payments in 6 countries across the sample.
- In Niger sector-specific taxes and fees comprise 83% of total taxation, followed by Thailand at 80% and Turkey at 76%.
- In European markets this share is typically lower, on average 20%,³⁴ the exception being Greece where sector-specific taxes and fees account for 46% of total taxation. Excluding Greece the average is 12%.

Figure 10

Standard vs sector-specific taxes and fees, 2014



Source: Deloitte analysis based on mobile operator data for 2014.

34. The simple average is calculated for Greece, Italy, Spain and the United Kingdom.

As a result of sector-specific taxation, the relative contribution of the sector in terms of tax and fee payments as a share of total government tax revenues is in many cases higher than the sector's share of GDP. Within the sample of countries for which data is available, the contribution to government tax revenue was estimated to be nearly 1.8 times the industry's share of GDP on average.

The mobile sector's contribution to tax revenues is greater than the GDP share in 20 out of the 23 developing countries. In nine countries, taxes and fees on the mobile sector are nearly twice or more than the sector's share of GDP.

Different countries have different approaches to the type of taxation applied:

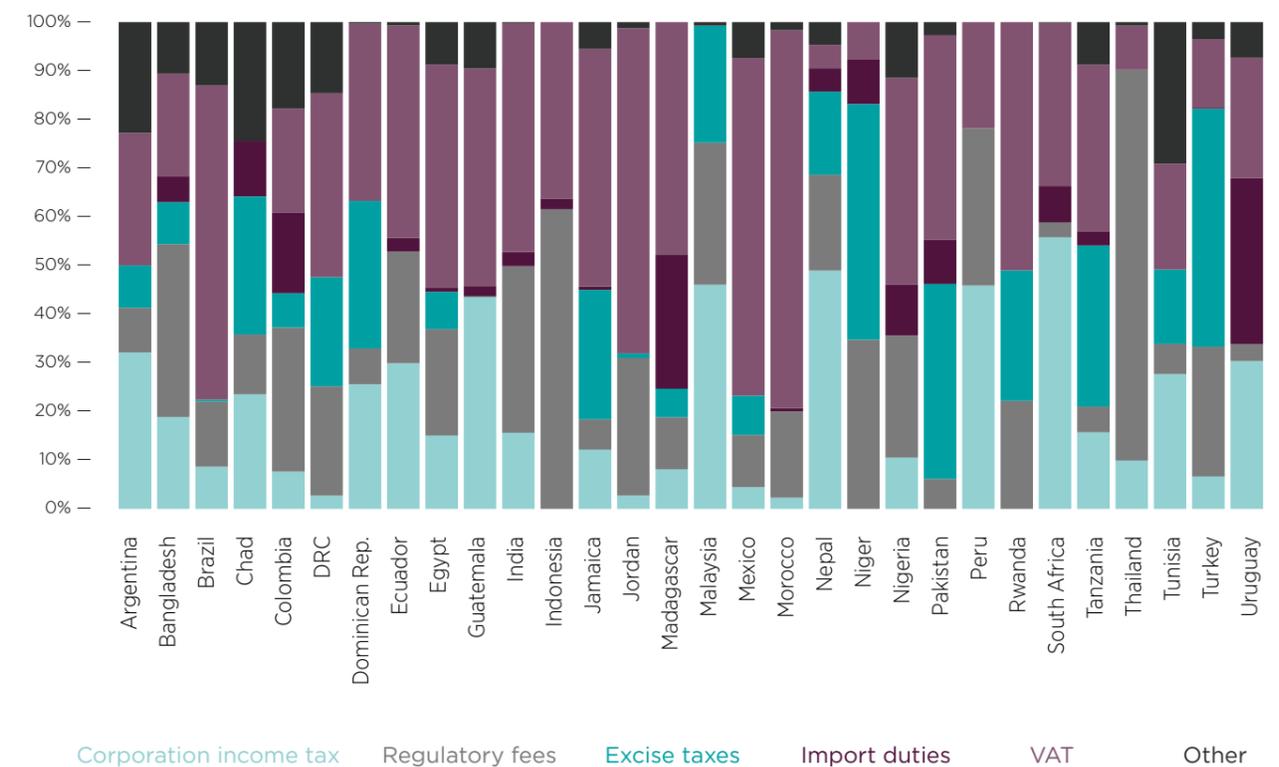
- Thailand has the largest share of recurring

regulatory taxes and fees as a proportion of total tax payments, at 80% of total tax and fee payments, followed by Indonesia at 62%.

- Turkey, Niger and Pakistan have the highest shares of excise taxes as a proportion of their total tax and fee payments.
- For developing countries, VAT typically constitutes a much lower proportion of tax and fee payments made. The average for the sample of 30 developing markets is 35%, while in developed economies the share is 71% on average.
- The share of corporation income tax of total tax and fee payments is the highest in South Africa and Nepal, at 56% and 49% respectively, followed by Malaysia and Peru at 46%.

Figure 11

Composition of tax and fee payments for the mobile sector by country, 2014



Source: Deloitte analysis based on operator data, 2014 data.

SECTOR-SPECIFIC TAXES AND FEES CAN ACT AS A CONSTRAINT ON THE POSITIVE SOCIAL AND ECONOMIC IMPACTS OF THE MOBILE SECTOR

The role of positive spill-over effects of mobile and digital inclusion has been the subject of extensive research.³⁵ For example, the World Bank recently indicated that “mobile applications not only empower individuals but have important cascade effects stimulating growth, entrepreneurship, and productivity throughout the economy as a whole.”³⁶

It may therefore be in the interest of governments to encourage sectors, such as mobile, that create the positive effects. On the contrary, in cases where taxation is applied in discriminatory manner, it may have a distortionary impact on the use of such services. There are a number of different taxes payable by consumers at the point of purchase and use of mobile services that could inefficiently lower consumption and prevent the realisation of the full volume of positive spill-overs from the sector.

Looking at a larger group of 112 countries worldwide for which the GSMA and Deloitte have collected information, sector-specific taxes and fees are applied especially in developing world markets:³⁷

- 45 countries impose sector-specific taxation, of these 18 are African, seven are in Latin America, seven in Asia Pacific, five in Middle East and North Africa (MENA), four in the European Union (EU) and four in Eastern Europe and Central Asia.
- 35 countries impose excise taxes on mobile usage. Of these, 16 are African countries, six are in Latin America, six in Asia Pacific, three in the EU and two in MENA and Eastern Europe and Central Asia, respectively. For example, excise duties comprise 84% and 68% of sector-specific taxes in Tanzania and the Democratic Republic of the Congo, respectively. In countries such as the Dominican Republic, consumption of mobile services is taxed at 10% and the same rate applies to alcoholic beverages. In Mexico an excise duty on mobile is also levied on sales of alcoholic beverages, tobacco and gambling and betting and fuels.

- 19 countries impose luxury taxes on handsets, seven in Africa, three in Latin America and Asia Pacific each and two in MENA, EU, and Eastern Europe and Central Asia respectively.
- 17 countries impose excise taxes on connections or activations.

A number of countries have introduced further sector-specific taxation in recent years:³⁸

- In Bangladesh, the budget of 2015-2016 introduced a new excise duty on mobile calls and data usage, at 3% of revenues. The budget also, however, made a SIM tax symmetrical between new and replacement SIM cards, by lowering the rate on new SIM cards to BDT 100 (US\$ 1.3).³⁹
- In Nepal, the Telecom Service Charge (TSC) increased to 11% from 10% in 2015.⁴⁰
- The consumption tax on telecommunication services in Rwanda increased from 8% to 10% of service revenues.⁴¹
- The customs duty on imported handsets in Pakistan doubled in 2015 from PKR 150 – PKR 500 (US\$ 1.5 - US\$ 4.9) to PKR 300 - PKR 1000 (US\$ 3.0 - US\$ 9.9).⁴²

SECTOR-SPECIFIC TAXES AND FEES ARE NOT EQUITABLE AS THE IMPACT FALLS DISPROPORTIONATELY ON THOSE WITH LOWER INCOMES

Sector-specific taxes and fees can be regressive, that is, they may have a disproportionately greater impact on the poorest households where it raises the price of mobile services across the population without regard for capacity to pay. Mobile taxes and fees alone comprise 6% of the average annual income for the poorest 20% of the population across the sample of 25 developing countries for which tax and income distribution data is available, while sector-specific taxes and fees comprise 2.3% of income.⁴³

Certain sector-specific taxes and fees, such as activation and connection fees, are often imposed as a flat fee. These can be a barrier at the outset to mobile ownership and has a particularly regressive impact on the poorest households. Although all flat taxes and fees⁴⁴ are regressive by nature, these charges have a much larger impact to the extent these are passed through. For example, Pakistan has an activation charge of US\$ 2.5 (PKR 250).

SECTOR-SPECIFIC TAXES AND FEES ADD TO THE COMPLEXITY AND COMPLIANCE REQUIREMENTS FOR MOBILE OPERATORS

The mobile sector appears subject to more tax and fee payments than a ‘representative’ firm in the economy. This adds to the complexity and cost of compliance of general taxation, considering the number of taxes that mobile operators have indicated they have to pay and comparing those with average tax payments by firms reported in the World Bank Paying Taxes 2015 study.⁴⁵ For example:

- In Ecuador, operators have reported 16 different tax and fee payments. A representative firm makes 8 payments.
- Similarly, in Turkey, mobile operators have reported 19 different tax and fee payments, while a representative firm makes 11 payments.

TAXES AND FEES ARE BEING LEVIED ON EMERGING MOBILE SERVICES, SUCH AS M-MONEY

The mobile sector is playing an important role in increasing financial inclusion in some countries through the use of m-money services. However, these services are also taxed to varying degrees in different countries. Box 2 explores the different way taxes apply to m-money services.

35. 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.” In American Economic Journal: Applied Economics, Vol. 2, pp22-45; Aker, J.C. and Mbiti, M. (2010): “Mobile Phones and Economic Development in Africa”, Journal of Economic Perspectives, Vol. 24, pp207-232; Qiang, C.Z.W, Rosotto, C.M. (2009): Economic Impacts of Broadband, in Information and Communications for Development 2009: Extending Reach and Increasing Impact. World Bank, Washington D.C., pp35-50; Jensen, R. (2007): “The Digital Divide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector,” in The Quarterly Journal of Economics, Vol. 122, pp879-924.

36. World Bank (2012): “Maximising Mobile”.

37. The sample of 112 countries builds up on previous Deloitte studies, e.g. Deloitte/GSMA (February 2015): “Digital Inclusion and mobile sector taxation”.

38. Tax policy changes occurred since the publication of Deloitte/GSMA (February 2015): “Digital Inclusion and mobile sector taxation”.

39. Mobile operator data.

40. The rate was increased after the Nepal earthquake.

41. Mobile operator data.

42. Mobile operator data.

43. These figures are calculated by computing total tax paid per unique subscriber in 2014 and comparing this to average annual GNI per capita for the bottom quintile.

44. A flat tax refers to taxes that apply a constant marginal rate, regardless of income.

45. World Bank Group (2015), “Paying Taxes 2015”, <http://documents.worldbank.org/curated/en/2015/01/24192621/paying-taxes-2015-global-picture-changing-face-tax-compliance-189-economies-worldwide>.

Box 2: M-money and m-money taxes: an overview

M-money (mobile-money) is a service or set of services that in its most basic form allows users to transfer money via text message. It has been available since at least 2005 in the Philippines,^I and the most widely known service is Safaricom's M-Pesa, which was first launched in Kenya in 2007. Kenya has since been dubbed the world leader in m-money.

M-money has expanded to cover three broad types of services: mobile money transfer services; mobile current/ savings accounts; advanced mobile banking services such as loans or insurance mobile banking. While m-money transfers account for the vast majority of transactions, service offerings are evolving rapidly: for example, providing access to savings accounts and sophisticated tracking for m-money accounts, as well as services tailored for cooperatives looking to invest community savings, e.g. in East Africa.

The expansion in m-money over recent years means that m-money accounts outnumber traditional bank accounts in at least 19 countries in Sub-Saharan Africa. Registered m-money accounts grew 31% in 2015 to reach a total of 411 million in December 2015, and 271 m-money services are now available to consumers in 91 countries, up from 255 services in 89 countries in 2014.^{II} The spread of these services is encouraging greater financial inclusion in many developing countries, as they allow those without access to traditional banking and financial services to pay, transfer and even save money through their mobile phones.

M-money services are currently taxed in a number of different ways: typically, fees and operator revenues are subject to general taxation (e.g. in Mexico or Bangladesh), however specific taxes have been applied to these services: some of these apply to mobile operators and any other institutions who provide similar banking services (e.g. in Kenya), while in other cases they apply to mobile operators only (for example in Bangladesh and Tunisia).

Taxes on m-money transaction have been growing rapidly in Sub Saharan Africa, for example:

- In Kenya, a 10% tax applies on fees for m-money transfers and other financial transactions.^{III}
- In Tanzania, an excise tax of 10% is levied on m-money transaction fees.^{IV}
- In Zimbabwe, there is a US\$ 0.05 tax on each m-money transaction.^V
- In Uganda, a 10% tax is levied on fees for all money transfers,^{VI} in addition to a tax of 14% levied on revenues from all mobile services including m-money.^{VII}

Further, the DRC is planning to introduce a tax on financial transactions, which would also apply to m-money services.

Taxes on these services have the potential to increase the cost of m-money transfers, if operators pass them through to consumers: this could create concerns for transactions of small denominations, which are typically generated by the poorest sectors of the population. Alternatively, if these taxes are absorbed by mobile operators, they create implications for profitability and investment. Further, flat taxes levied per transaction, such as in Zimbabwe, are regressive and discriminate against the poorest consumers, who may actually benefit most from m-money services in place of more traditional banking services.

Box 2: M-money and m-money taxes: an overview

When transaction taxes are passed through to consumers, this could create negative impacts on financial inclusion. In emerging markets, the majority of the population remains unbanked, and m-money services often provide access to financial services for the first time to the vast majority of consumers and to small rural businesses. They also contribute to increase urban-rural transactions, with positive impacts on this divide. Further, m-money customers tend to be more price sensitive than wealthier individuals and businesses that use bank accounts: this creates risks that passing on the cost of this taxation to consumers could lead to excluding some of them from accessing the services, returning to cash transactions.

Incentivising m-money services could generate positive impacts for governments as these services are also increasingly being used for tax payments and government transfers, which have the potential to deliver substantial gains through expansions in the tax base and efficiency savings, as recognised by the World Bank:^{VIII}

- In Tanzania, within a year after enabling property and income taxes to be paid via mobile 15% of the tax base was using mobile to make payments.^{IX}
- In 2014, after income tax was made payable through mobile, the Mauritius Revenue Authority reported an increase of 12% in returns filed electronically compared to 2013.^X
- The Uganda Revenue Authority has recently allowed tax payments using m-money services, enabling 8.7 million m-money subscribers to pay their tax in this way.^{XI}
- In Pakistan, the Benazir Income Support Programme disburses funds to some of the poorest women in the country via EasyPaisa, a m-money service.^{XII}
- In Nigeria, it is estimated by the Gates Foundation that digitising government payments, in part through use of m-money infrastructure, could increase government tax revenues by US\$ 600-800 million.^{XIII}

I. <http://www.theguardian.com/money/2007/mar/20/kenya.mobilephones>
 II. GSMA (2015), "State of the Industry Report – M-money; GSMA (2014), "State of the Industry – Mobile Financial Services for the Unbanked".
 III. <http://www.businessdailyafrica.com/Mobile-money-transfers-shoot-up-despite-tax-/-/539552/2043490/-/e8k3siz/-/index.html>
 IV. <http://www.tra.go.tz/index.php/excise-duty/94-excise-duty/229-introduction-of-the-excise-duty-on-money-transfer>
 V. <http://www.itwebafrica.com/mobile/323-zimbabwe/232178-zimbabwe-imposes-mobile-money-tax>
 VI. <http://www.bbc.co.uk/news/world-africa-22904176>
 VII. <http://www.economist.com/news/finance-and-economics/21579870-east-african-governments-are-targeting-telecoms-firms-charging-mobile>
 VIII. World Bank (2015), "The Global Findex Database 2014", Policy Research Working Paper 7255.
 IX. GSMA (2014), "State of the Industry – Mobile Financial Services for the Unbanked".
 X. Ibid.
 XI. <http://www.monitor.co.ug/Business/URA-opens-up-to-mobile-money-for-tax-payments-/-/688322/2970142/-/wxtrsg/-/index.html>
 XII. <https://www.telenor.com/media/articles/2014/bringing-financial-services-to-pakistani-women/>
 XIII. Bill & Melinda Gates Foundation (2014), "Digitizing Government Payments in Nigeria", available at: <https://docs.gatesfoundation.org/Documents/Digitizing%20Government%20Payments%20in%20Nigeria.pdf>

05

REFORMING TAXATION TO ENABLE CONNECTIVITY AND DELIVER GROWTH

5.1 There are significant economic benefits from reducing sector-specific taxation and fees

Many governments around the world have been including the development of ICT technologies and widespread access to mobile broadband in their objectives. The UN has recently released a set of Sustainable Development Goals (SDGs), with the objective to end poverty and hunger, ensure inclusive and equitable economic growth, quality education, achieve economic and gender equality, and improve well-being of people of all ages. Promoting increased connectivity and associated access to health, education, financial and many other services supports many of the UN SDGs.

While sector-specific tax and fees may deliver short-term benefits to governments, in the long run they may slow down the rate of socio-economic development and growth and these payments may not always align with the wider social and economic development goals. Reducing sector-specific tax and fees to align them with those that apply to other standard goods and services has the potential to stimulate investment in extending connectivity, increase mobile service adoption, deliver economic growth and deliver higher tax revenues for the government.

Over the last 10 years, countries that have supported the connectivity agenda through reductions in sector-specific taxes and fees have seen positive developments on mobile penetration and usage. The benefits appear higher for countries where the sector was not yet fully developed, indicating the importance of taxation and affordability in driving connectivity for those that remain excluded from mobile access:

- The Kenyan government exempted mobile handsets from VAT in 2009. In the three following years, the VAT reduction was followed by an increase in handset sales of 200% and penetration increased from 50% to 70% between 2009 and 2011, above the 63% average across Africa.⁴⁶
- In 2007, the Uruguayan government abolished an excise tax on airtime. This fixed tax accounted for 30%-50% of the cost of calls. In the years following the tax abolition, call prices fell by two thirds, and usage increased by more than three times. Mobile penetration also more than doubled.⁴⁷
- In 2008, Ecuador abolished a tax on mobile usage. In the years following the tax abolition, penetration increased from 70% to over 110% and usage per user more than doubled between 2008 and 2011.⁴⁸
- Conversely in Croatia, after a 6% tax on mobile operators' gross revenue from mobile usage was introduced in 2009, volumes of mobile calls and SMS decreased by 4% and 14% respectively in 2010.⁴⁹

46. GSMA/Deloitte (2011): "Mobile telephony and taxation in Kenya".

47. GSMA/Deloitte (2012): "Mobile telephony and taxation in Latin America".

48. GSMA/Deloitte (2012): "Mobile telephony and taxation in Latin America".

49. Deloitte/GSMA (2014): "Mobile Taxes and Fees: A toolkit of principles and evidence".

50. GSMA/Deloitte (2014): Taxation on IoT services.

Other countries such as Turkey, Brazil, Malaysia and Sri Lanka have also reduced or abolished one or more sector-specific consumer taxes, moving towards a more balanced and equitable taxation structure.

In July 2012, in Turkey M2M SIM cards were exempted from a TRY 37 connections tax that applies to standard SIM cards. The number of cellular M2M connections in Turkey increased from 1.3 million in March 2012 before the tax exemption to 1.8 million connections in the first quarter of 2013, representing an overall increase of 38%.⁵⁰ As at the end of 2015, there were 3.1 million M2M SIM cards.⁵¹

In Brazil, reductions to taxation on M2M SIM cards took place in April 2014. Between the second quarters of 2014 and 2015, the number of M2M SIM cards grew by 1.9 million connections, an increase of 21%.⁵²

Mobile internet provides a fast, accessible and cost-effective way of increasing connectivity and digitalisation. For governments that wish to encourage and speed-up the transition to the connected society, providing incentives to mobile broadband uptake may be an important element. This has been recognised by a number of countries:

- Angola, China, Lesotho, and Vietnam apply relatively lower VAT rates on mobile data and/or mobile services, compared to other standard goods and services, to stimulate uptake.
- Turkey and Sri Lanka levy excise taxes on mobile services but the rate is lower for data usage.
- Uganda is the only country in the sample that levies excise duties on mobile services but also with a higher rate on data usage.

Table 2

Differential treatment of mobile internet, 2015

Country	VAT		Excise	
	Standard VAT	Sector-specific VAT on Calls/SMS	Excise on calls/SMS	Excise on data
Angola	10%	5%		
China	17%	11%		
Lesotho	14%	5%		
Sri Lanka	11%		25%	10%
Turkey	18%		25%	5%
Uganda	18%		10%	20%
Vietnam ⁵³	10%	0%		

Source: Deloitte analysis based on mobile operator data, Deloitte, PricewaterhouseCoopers (PwC) and other public sources for 2015.⁵⁴

51. GSMA/Deloitte (2014): Taxation on IoT services.

52. GSMA/Deloitte (2014): Taxation on IoT services.

53. The exemption applies to public postal and telecommunications services and internet services globalized pursuant to the government programme.

54. Public sources include the Central Bank of Lesotho, http://www.centralbank.org.ls/publications/OtherPublications/Value_Added_Tax.pdf, the Ministry of Finance of Turkey, http://www.gep.gov.tr/tmp/_Gepl.pdf, and KPMG.

5.2 Removing sector-specific taxes and fees could support increased connectivity

In support of the goal of extending connectivity worldwide, reducing sector-specific tax and fee payments could have material impacts on connections. In competitive markets, a proportion of the tax and fee savings may be passed through to consumers through lower prices. Improving affordability may contribute to extending both the number of connections and the volume of mobile usage.

In addition, extending connectivity to empower those on lower incomes and reduce poverty has become an increasingly important global goal for the international community. Reducing the number of the unconnected may also have additional impacts across the economy in terms of social and economic development. Examples of the economic

impacts enabled directly and across the economy by the industry have been discussed in Section 2 and in numerous other studies.⁵⁵

An estimation of the impacts of reducing sector-specific tax and fees has been undertaken for the 30 countries in this study. Considering a framework whereby a proportion of the tax and fee savings are passed through to consumers in the form of lower prices, the number of additional connections resulting from sector-specific tax and fee reductions is estimated. The estimation further allows for different price impacts and demand responses across the countries based on their specific market, penetration, income and competition characteristics.⁵⁶ The approach is set out in Box 3.

Box 3: Modelling the impacts of sector-specific tax and fee reductions

The quantitative impacts of a tax reform have been estimated using sector-specific data from the GSMA and local mobile operators. The modelling undertaken as part of this report involved the following steps:

1. The level of tax and fees applied to the mobile sector is reflected in the retail prices operators charge for using their services. Therefore, a change in taxation or fees will lead to a change in the retail price of mobile services. A pass-through rate represents the percentage of the tax and fee payments which is reflected in the retail price of mobile services.
2. The price of mobile services is an important factor affecting the demand for mobile connections. The price elasticity of demand describes the responsiveness of demand to a change in the price, and is defined as the percentage change in demand resulting from a given percentage change in price.
3. New connections are estimated by considering the change in price and the elasticity of demand to connections.

4. The new price, resulting from the implementation of the tax reform, is obtained by applying the percentage change in the retail price to the price base obtained from the ITU.

Using macroeconomic data from the IMF and World Bank, the GSMA and Deloitte country studies extend the modelling to estimate the impact of a tax reform to the mobile sector and to the economy as a whole, for specific countries (the estimated impacts for selected countries are provided in Figure 12):

5. 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 fee payments and labour demand accordingly.
6. There are direct impacts on the wider economy, in particular on real GDP, tax revenues, employment and investment. Multipliers are assumed which are used to estimate how changes in the mobile sector affect the wider national economy.

55. See, for example: Deloitte/GSMA/Cisco (2012): "What is the impact of mobile telephony on economic growth?"

56. The estimation follows the economic analysis framework employed by Deloitte and GSMA in a series of country reports: e.g. GSMA/Deloitte (2015): "The economic impacts of mobile sector taxation in Ghana"; GSMA/Deloitte (2015): "Digital inclusion and mobile sector taxation in the Democratic Republic of the Congo"; GSMA/Deloitte (2015): "Digital inclusion and mobile sector taxation in Tunisia"; GSMA/Deloitte (2015): "Digital inclusion and mobile sector taxation in Mexico"; GSMA/Deloitte (2015): "Digital inclusion and mobile sector taxation in Jordan"; GSMA/Deloitte (2015): "Digital inclusion and mobile sector taxation in Bangladesh"; GSMA/Deloitte (2015): "Digital inclusion and mobile sector taxation in Pakistan"; GSMA/Deloitte (2014): "The economic impacts of mobile sector taxation in Tanzania" available at <http://www.gsma.com/>.

A 50% reduction in sector-specific taxes and fees, amounting to about US\$ 9 billion in total payments, from US\$ 52 billion to US\$ 43 billion, representing a 17% reduction in the total tax and fee payments, could potentially add around 140 million new connections over five years, an increase in market penetration of 5%.

The sector-specific tax and fee payments refer to all mobile services. For a mobile broadband bundle,⁵⁷ if it is assumed, for illustration purposes, that 75% of the tax reductions are passed through to prices, and that there is an equivalent percentage change in the prices of mobile services and broadband, the cost of mobile broadband for the bottom quintile could decrease by 4.3% across the sample of 25 developing countries, falling from an average of 37% to 35% of their annual income.

Furthermore, extending connectivity has the potential to deliver economic and fiscal benefits. Deloitte and the GSMA have studied the effects on increased economic activity of reforms to sector-specific tax and fees in a number of countries by building macro-economic models that capture and measure these effects, and estimate the impact of government revenue of reducing sector-specific taxation.⁵⁸

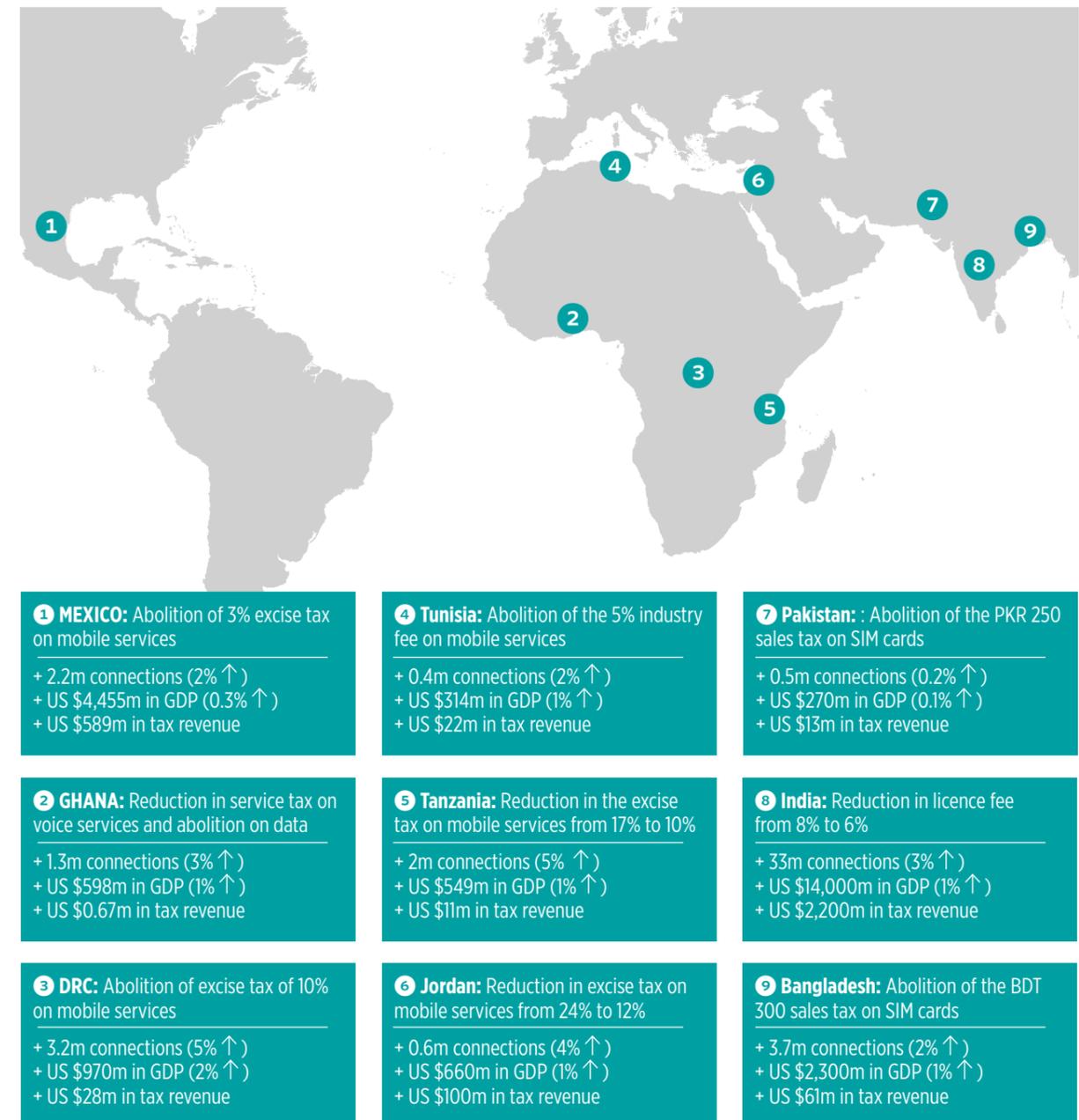
These studies suggested that by expanding the user base and usage of services, tax and fee reductions could be achieved while maintaining tax neutrality in the medium-term. By reducing sector-specific taxes and fees on the mobile sector, governments can not only increase digital inclusion and economic growth, but also recover higher tax and fee revenues through more efficient and broad-based taxation in the long run.

This research suggests, for example, that an abolition of the excise tax on mobile services in the Democratic Republic of the Congo, one of the poorest countries in the world with a low mobile penetration, could potentially increase market penetration of mobile services in the country by an extra 5% in 2020 relative to a scenario with no tax reform. Furthermore, additional connections could potentially create a further 3,200 jobs and the tax reduction could potentially yield almost US\$ 970 million or nearly 2% of GDP over the same time horizon. The government would be revenue positive within four years. Moreover, as the excise duty only applies to the telecommunication industry, reaching the positive effects only requires the taxation of the sector to be aligned with other sectors in the economy – no preferential treatment of the industry is necessary.

Similar impacts have been identified for other countries, as summarised in Figure 12.

Figure 12

Estimated impact of mobile tax reforms across selected countries



Source: GSMA/Deloitte country studies. Impacts are estimated as a difference between the modelled scenario and a base case scenario with no tax reduction in 2020. See footnote 56 for further details.

⁵⁷ For a 500 MB bundle of pre-paid and post-paid broadband services, with price data from the ITU (Measuring the Information Society 2014).
⁵⁸ See footnote 56.



5.3 Areas for potential tax reform to boost connectivity

Increased connectivity has the potential to accelerate economic and social growth. Through these positive impacts, the mobile industry can support the government in meeting national and international development objectives. By supporting citizens to generate wealth, increasing economic growth and making that growth more inclusive and accessible to everyone, mobile can be a key tool to meeting these development objectives and bringing many citizens out of poverty. By reforming sector-specific taxes and fees, governments can play a key role in supporting connectivity and its associated benefits.

Based on the best practice principles set out, among others, by the IMF, and evidence from a series of studies, as well as on consultation with GSMA and mobile operators, a number of areas for tax reform have been identified which could support the connectivity agenda of governments and international organisations:

- REDUCE SECTOR-SPECIFIC TAXES AND FEES.** Those taxes and fees that are charged exclusively to the sector over and above general taxation may create economic distortions, potentially affecting service prices and investment levels. Reducing these sector-specific taxes has the potential to lead to increases in penetration and usage. By extending the user and tax base, reductions in taxation could have a neutral or positive impact on government revenues in the medium to long term. Phased reductions of sector-specific taxes and fees can represent an effective way for governments to signal their support to the connectivity agenda, to benefit from economic growth resulting from the reductions, and to limit short-term fiscal costs.
- REDUCE TAXATION ON ACCESS TO MOBILE SERVICES.** Luxury taxes on handsets and on SIM cards create a direct barrier for consumers to connect and access mobile broadband, especially in developing markets and for the poorest sectors of the population as SIM and device costs add to the affordability barrier to mobile services. To enable more users to gain access to the mobile market, governments may choose to address the affordability barrier represented by taxes on devices and connections. Removing these taxes has the potential to increase the taxable base for the government.

- IMPLEMENT SUPPORTIVE TAXATION FOR SERVICES SUCH AS BROADBAND SERVICES AND MACHINE TO MACHINE (M2M) SERVICES.**

The growth of mobile data, of M2M and of Internet of Things (IoT) applications has the potential to deliver new services and products in a more efficient and sustainable way. This can help accelerate the increase in economic impacts. Growth within the mobile ecosystem could then further support sectors such as health care services, education and finance. Supportive taxation, in particular by exempting SIM cards for these applications from taxation, could play a key role in the development of these services.

- REDUCE COMPLEXITY AND UNCERTAINTY OF TAXES AND FEES ON THE MOBILE SECTOR.**

Uncertainty over future taxation reduces investment as the risk of future tax rises is priced into investment decisions and can therefore reduce investment in the medium-term. In addition, numerous sector-specific fees, often levied on different tax bases, raise compliance costs for mobile operators. Governments could seek to limit unpredictable tax and fee changes and to streamline how tax and fees are calculated.

A

APPENDIX A

This appendix describes the methodology used in the report to estimate the total tax and fee payments for mobile consumers and mobile operators. It also discusses the main assumptions made and presents the data sources used in the analysis.

A.1 COUNTRIES INCLUDED IN THIS REVIEW

Detailed data on tax and fee payments was provided by operators in 35 countries. The main body of analysis applies to 30 developing economies of the sample: Argentina, Bangladesh, Brazil, Chad, Colombia, Democratic Republic of the Congo (DRC), Dominican Republic, Ecuador, Egypt, Guatemala, India, Indonesia, Jamaica, Jordan, Madagascar, Malaysia, Mexico, Morocco, Niger, Nigeria, Nepal, Pakistan, Peru, Rwanda, South Africa, Tanzania, Thailand, Tunisia, Turkey, and Uruguay.

For comparative purposes, the following five developed economies were also reviewed: Greece, Hungary, Italy, Spain and United Kingdom.

Table 3 lists an additional 77 countries for which direct consumer taxation and fees of section 4.2 were reviewed. The broader sample was selected in line with Deloitte's previous studies, e.g. Deloitte/GSMA (2015): "Digital Inclusion and mobile sector taxation".

Table 3

Countries included and regional classification

Asia Pacific	Australia, Bhutan, Cambodia, China, Laos, Myanmar, New Zealand, Philippines, Sri Lanka, Vietnam
Eastern and Southern Europe and Central Asia	Albania, Azerbaijan, Kazakhstan, Montenegro, Russia, Serbia, Ukraine, Uzbekistan
EU 28 (+2)	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, Switzerland, The Netherlands
Latin America	Bolivia, Chile, El Salvador, Honduras, Nicaragua, Panama, Paraguay, Trinidad and Tobago, Venezuela
MENA	Algeria, Iran, Mauritania, Yemen
Sub-Saharan Africa	Angola, Botswana, Burkina Faso, Cameroon, Congo, Cote d'Ivoire, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Malawi, Mozambique, Senegal, Sierra Leone, Swaziland, Uganda, Zambia, Zimbabwe

Source: Deloitte analysis.

A.2 ESTIMATION OF TOTAL MOBILE TAX AND FEE PAYMENTS

Tax and fee payments were provided by mobile operators for 35 selected countries. In line with previous studies undertaken by Deloitte and the GSMA, total tax and fee payments applicable to the mobile sector were defined as total recurring tax and regulatory fee payments made by mobile operators. The tax and fee payments are expressed as a proportion of mobile market revenues. One-off spectrum fees are not included in the analysis.

As discussed in the report, the analysis considers taxes and fees on both mobile operators and consumers:

- The analysis of mobile operator taxes and fees focuses on corporate taxes, revenue-based taxes, regulatory taxes and fees, including infrastructure related fees and Universal Service Fund (USF) contributions, import duties on network equipment, and taxes related to property holdings and royalties.
- The analysis of consumer taxes and fees focuses on sales taxes, such as VAT and GST, excise duties on usage, luxury taxes on handsets, connection and activation fees and import duties on handsets.

Total tax and fee payments are then divided between standard taxation and sector-specific taxes and fees on the basis of information provided by mobile operators. In those countries where the mobile sector is subject to special corporate tax or VAT rates, the differential between standard rates and sector-specific rates has not been classified as sector-specific due to data limitations.

A.2.1 DATA SOURCES

Total revenues in each market were sourced from the GSMA Intelligence database.

Tax and fee payments were sourced directly from mobile operators in the selected 35 countries. A market uplift was applied when data for some mobile operators was unavailable. The uplift was calculated using mobile operators' market share sourced from the GSMA. Local currency units were

converted into US\$ using average exchange rates for 2014 by Oanda. The exchange rate data was downloaded on 9 November 2015.

The estimates are dependent on the data supplied by mobile operators at the time of the study, and reflect all tax and fee payments provided by mobile operators.

A.3 MOBILE CONSUMER TAX

Tax and fee rates were sourced from a variety of databases:

- VAT rates were obtained from Deloitte tax database 2015,⁵⁹ Deloitte Global indirect tax rates website⁶⁰ and PwC.⁶¹
- Sector-specific consumer taxes and fees were sourced from previous studies produced by Deloitte for the GSMA between 2014 and 2015,⁶² and in some cases from discussions with mobile operators and desktop research.
- Customs duties on handsets were collected from the World Trade Organisation (WTO) website.⁶³ These refer to Harmonised System (HS) code 851712: 'Telephones for cellular networks mobile telephones or for other wireless networks'.⁶⁴ 2014 data was used when available. When 2014 data was unavailable, 2013 data was used. When 2013 was unavailable, data was sourced from each government custom website for the same HS code or through desktop based research.

A.4 AFFORDABILITY ANALYSIS

The analysis on affordability of mobile services was performed by reviewing the cost of standard baskets of mobile usage and mobile devices as a proportion of annual average income and for the poorest 20% of the population in the countries with data available. The following data was considered:

- Price data on mobile services was sourced from the ITU (2015) Measuring the Information Society 2015 report. Price data were available for two categories of mobile usage; a standard basket of mobile usage⁶⁵ and a standard basket of mobile broadband usage for 500 MB of pre-paid and

post-paid services.⁶⁶ For the analysis a weighted average price is estimated using pre-paid and post-paid connections.

- Price data on mobile devices (basic and premium devices⁶⁷) was sourced from desktop research.
- Gross National Income (GNI), income shares held by each quintile⁶⁸ and population size was sourced from the World Bank World Development Indicators database.⁶⁹

Using the data from the World Bank, GNI per capita in the bottom quintile, i.e. the poorest 20% of the population, was calculated. The affordability of

mobile goods and services is expressed as the cost of a bundle of mobile usage or mobile device cost as a proportion of average annual income for this population segment. All numbers refer to year 2014 and are expressed as 2014 US\$ when monetary.

A.5 ESTIMATION OF ADDITIONAL CONNECTIONS RESULTING FROM TAX DECREASES

Table 4 provides an overview of the variables and their respective sources used in the estimation of the impact of a 50% reduction in sector-specific taxes and fees.

Table 4

Model Data

Variable	Source	Description
Total revenue	GSMA Intelligence	Total revenue generated in the period.
Revenue (recurring)	GSMA Intelligence	Recurring (service) revenue generated in the period, including revenue generated from the use of the network (voice, messaging, data, VAS).
Revenue (non-recurring)	GSMA Intelligence	Non-recurring revenue generated in the period, including revenue generated from handset or equipment sales and activation fees.
Connections	GSMA Intelligence	Total unique SIM cards (or phone numbers, where SIM cards are not used), including cellular M2M, that have been registered on the mobile network at the end of the period.
Minutes of use	GSMA Intelligence	Total minutes, including incoming, outgoing and roaming calls, transferred over the mobile network in the period.
Tax payments	Mobile operators	Total tax payments paid by mobile operators.
Sector-specific tax payments	Mobile operators	Tax payments of sector-specific taxes paid by mobile operators.
Population	GSMA Intelligence	Total population in the market at the end of the period, which is typically a de facto estimate of all residents regardless of legal status or citizenship. Forecasts use a medium fertility rate assumption.
Pass-through rate	Assumption	Proportion of the change in tax payments passed down to consumers. This is assumed to be 75% across all countries and taxes.
Price elasticity of demand	Literature review	Percentage change in demand corresponding to a 1% increase in price.

Source: Deloitte analysis.

59. Deloitte Tax database: <https://dits.deloitte.com/#DomesticRatesSubMenu>.

60. Deloitte, Global indirect tax rates: <http://www2.deloitte.com/global/en/pages/tax/solutions/global-indirect-tax-rates.html>.

61. PwC (2015), Worldwide Tax Summaries: Corporate Taxes 2014/2015.

62. Deloitte/GSMA (2014), "Mobile taxes and fees, A toolkit of principles and evidence" and country studies in footnote 57.

63. World Trade Organization Statistics dataset: http://www.wto.org/english/res_e/statistics_e/data_pub_e.htm.

64. The Harmonized Commodity Description and Coding System of tariff nomenclature is an internationally standardized system of names and numbers to classify traded products.

65. The standard basket (called "Mobile-cellular sub-basket" by ITU) is defined on a monthly basis and includes 30 outgoing calls per month (on-net, off-net to a fixed line and for peak and off-peak times) in predetermined ratios, and 100 SMS messages. The measure is presented as a proportion of GNI per capita, in US\$ and PPP\$. This report uses the US\$ numbers on an annual basis in the affordability analysis.

66. The standard basket of mobile broadband (called "Mobile-broadband prices, post-paid handset based 500 MB" and "Mobile-broadband prices, pre-paid handset based 500 MB" by the ITU) includes the usage of 500 MB of data on a monthly basis. Depending on the available data plans in each country, customers may face additional charges for additional data or time (such that the basket corresponds to 500 MB on a monthly basis). The plans selected by the ITU represent the least expensive offers for the minimum amount of data available at the time of the report.

67. See footnotes 26 and 30.

68. Data on income shares held by each quintile is not available on a year-to-year basis. The latest available data from 2014 to 2010 was used for each country; if the data was older than 2014 it was assumed that the income share did not change up until 2014.

69. Available at <http://data.worldbank.org/data-catalog/world-development-indicators>.

The sources for the price elasticity of demand estimates are: UK Competition Commission (2003), Baigorri and Maldonado (2010): "Optimal mobile termination rate: The Brazilian mobile market case", Chabossou et al (2009): "Mobile Telephony Access and Usage in Africa", Haucap and Karacuka (2010): "Competition in the Turkish mobile telecommunications market: Price elasticities and network substitution", Ramachander (2007): "The Price Sensitivity of Mobile Use among Low Income Households in Six Countries of Asia". The assumptions regarding the price elasticity of demand across the sample of countries are based on these studies taking into account a macroeconomic (GDP per capita) and sector-specific (penetration of unique subscribers, level of competition, and minutes of use) variables in the sample.

A.6 TABLE OF NUMBER OF UNCONNECTED IN SAMPLE

Table 5 lists the estimated number of unconnected, i.e. the people without access to mobile services, in the sample of 30 developing countries. The numbers for both basic telephony and mobile internet are listed. This was estimated as the total population less the number of unique subscribers.

Table 5

Number of millions unconnected in 30 developing countries, total population, 2014

Country	Basic telephony	Mobile internet	Country	Basic telephony	Mobile internet
Argentina	4.4	16.8	Malaysia	7.3	13.4
Bangladesh	81.2	127.4	Mexico	45.5	80.9
Brazil	64.3	103.5	Morocco	10.8	19.6
Chad	10.3	12.3	Nepal	15.3	22.4
Colombia	16.9	27.0	Niger	15.1	18.2
DRC	56.5	71.1	Nigeria	103.1	126.2
Dominican Republic	5.0	8.1	Pakistan	104.7	141.5
Ecuador	7.3	9.8	Peru	11.4	18.1
Egypt	35.7	72.0	Rwanda	6.6	9.7
Guatemala	8.0	13.1	South Africa	22.9	38.4
India	754.6	981.3	Tanzania	33.7	41.7
Indonesia	94.2	179.9	Thailand	18.0	26.8
Jamaica	0.9	2.2	Tunisia	2.5	5.9
Jordan	1.9	4.7	Turkey	44.1	50.4
Madagascar	18.8	22.4	Uruguay	0.3	1.3

Source: GSMA Intelligence.

A.7 TABLE OF TAXES AND FEES ON MOBILE SECTOR

Table 6 lists the type of taxes that falls on operators and consumers in the mobile sector and highlights examples from selected countries.

Table 6

Taxes and fees on mobile operators and consumers: selected examples

Type	Description	Examples
Corporate tax	<ul style="list-style-type: none"> Corporate taxes are typically levied on companies' profits In certain countries mobile operators are subject to higher than standard rates 	<ul style="list-style-type: none"> Bangladesh: 45% for operators (27.5% is standard) Cameroon: 39% (25% is standard) Tunisia: 35% (25% is standard) Yemen: 50% (20% is standard)
Sector-specific operator tax	<ul style="list-style-type: none"> In some countries mobile operators are subject to special revenue taxes 	<ul style="list-style-type: none"> In Bangladesh operators pay a 5.5% revenue share tax In Thailand operators pay a 30% revenue share tax
Regulatory fees	<ul style="list-style-type: none"> Operators typically pay one-off licence and spectrum fees Operators typically pay annual licence and spectrum fees 	<ul style="list-style-type: none"> Uruguay: operators pay 3% of revenues as licence fee Brazil: operators pay 2% of their net revenues from the previous year as a spectrum fee
Universal Service	<ul style="list-style-type: none"> In several countries operators pay a portion of revenues to a universal service fund, intended to fund the development of mobile networks in rural areas 	<ul style="list-style-type: none"> Colombia: operators pay 2.2% of revenues to a universal service fund Turkey: operators pay 1.5% of revenues to a universal service fund
Other operator taxes	<ul style="list-style-type: none"> In many countries operators are subject to various non-standard taxes 	<ul style="list-style-type: none"> Nigeria: Operators pay a range of local taxes, such as environmental taxes Uruguay: operators pay a wealth tax of 1.5% of assets
Customs duty	<ul style="list-style-type: none"> Operators typically pay custom duties on imported network equipment Consumers typically pay customs duties for handsets 	<ul style="list-style-type: none"> Pakistan: the customs duty on imported network equipment was increased in 2014 from 5% to 10-25% Nigeria: there is a 12% customs duty in imported handsets
VAT/GST	<ul style="list-style-type: none"> Typically incurred directly on consumers when purchasing goods and services In certain countries, VAT/GST rates are higher on mobile goods and services 	<ul style="list-style-type: none"> Argentina: VAT on telecoms is 27% (21% is standard) Egypt: VAT on mobile services is 15% (standard is 10%) Yemen: VAT on telecoms is 10% (standard is 5%)
Sector-specific consumer tax	<ul style="list-style-type: none"> Many countries apply excise taxes on mobile usage, in addition to VAT Certain countries apply excise taxes on mobile handsets, which are considered luxury items Certain countries apply excise taxes on mobile connections or activation of connections 	<ul style="list-style-type: none"> Turkey: A 25% excise tax is applied on calls, SMS and mobile handsets (5% on data usage) as well as a US\$ 7.46 annual charge on connections and US\$ 25.75 in activation charges Jordan: A 24% excise tax is applied on mobile usage Gabon: A flat tax of US\$5 is applied on the sale of handsets

Source: Deloitte analysis based on operator data and desktop research.

GSMA HEAD OFFICE

Floor 2
The Walbrook Building
25 Walbrook
London EC4N 8AF
United Kingdom
Tel: +44 (0)207 356 0600
Fax: +44 (0)20 7356 0601

